

Transitions to Capitalism in Early Modern Europe

Economies in the Era of
Early Globalization, c. 1450 – c. 1820

ROBERT S. DUPLESSIS



SECOND EDITION

New Approaches to European History

Transitions to Capitalism in Early Modern Europe

Between the end of the Middle Ages and the early nineteenth century, the long-established structures and practices of European trade, agriculture, and industry were disparately but profoundly transformed. Revised, updated, and expanded, this second edition of *Transitions to Capitalism in Early Modern Europe* narrates and analyzes the diverse trends that greatly enlarged European commerce, permanently modified rural and urban production, gave birth to new social classes, remade consumer habits, and altered global economic geographies, culminating in capitalist industrial revolution. Broad in chronological and geographical scope and explicitly comparative, Robert DuPlessis' book introduces readers to a wealth of information drawn from throughout eastern, western, and Mediterranean Europe, as well as to classic interpretations, current debates, new scholarship, and suggestions for further reading.

Robert S. DuPlessis, Professor Emeritus of History at Swarthmore College, has published widely on the history of textile industries, material culture, and consumption. His most recent works include *The Material Atlantic: Clothing, Commerce, and Colonialism in the Atlantic World* (Cambridge University Press, 2015), for which he was awarded the Jerry J. Bentley Prize by the World History Association in 2016. He has received fellowships from The John Simon Guggenheim Memorial Foundation, The Camargo Foundation, The National Endowment for the Humanities, the Fulbright Foundation, and the Surdna Foundation.

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c. 1450–c. 1820*

Second Edition

Robert S. DuPlessis

Swarthmore College, Pennsylvania



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Contents

<i>List of Figures, Maps, Tables, and Graphs</i>	<i>page</i> vii
<i>Preface</i>	xi
Part I	1
1. Issues and Interpretations	3
2. European Economies on the Eve of Globalization	13
Part II Introduction: The Long Sixteenth Century	51
3. Goods and People on the Move	53
4. The Limits of Agricultural Growth	91
5. Industrial Tradition and Innovation	133
Part III Introduction: From Seventeenth-century Crisis to Long Eighteenth Century	179
6. Commerce, Capital, Consumption	185
7. Agriculture: Divergence, Development, Disappointment	232
8. Proto-industry to Early Industrial Revolution	275
9. Transitions	345
<i>Appendices</i>	349
<i>A Population</i>	349

<i>B Urbanization</i>	350
<i>C.1 Slave Shipments by Date</i>	351
<i>C.2 Slave Shipments by Nation</i>	352
<i>C.3 Slave Disembarkations by Region</i>	353
<i>Index</i>	354

Figures, Maps, Tables, and Graph

Figures

2.1 Miniature from an MS of “Sir John Mandeville’s Travels.” Probably Bohemian, c. 1410–1420. © The British Library Board, MSS. Add. 24189, f. 16	page 27
3.1 Anon., “View of Nagasaki Bay,” mid-nineteenth century. © The Trustees of the British Museum, 1951,0714,0.28	60
3.2 Potosí silver mine, Peru, from <i>Ontdekking van West-Indien, vlijtig ondersoekt, en naauw-keurig aangeteekend, door Joseph d’Acosta ...</i> (Leiden, 1706). Courtesy of the John Carter Brown Library	67
3.3 Claes Jansz. Visscher, “Byrsa Amsterodamensis” (Amsterdam Stock Exchange), from Lodovico Guicciardini, <i>Beschryvinghe van alle de Neder-landen, anderssins ghenoemt Neder-Duytslandt ...</i> (Leiden, 1612). Rijksmuseum, Amsterdam	75
4.1 Karel van Mallery, after Jan van der Straet (Stradanus), “Vermis Sericus” (The Introduction of the Silkworm), c. 1595. The Metropolitan Museum of Art, New York, The Elisha Whittelsey Collection, The Elisha Whittelsey Fund, 1950	99
4.2 “Gezicht op de polder het Grootslag, omstreeks 1600.” Courtesy City of Enkhuizen	122
5.1 Jan Collaert I, after Jan van der Straet (Stradanus), “The Invention of Book Printing,” from “Nova Reperta” (New Inventions of Modern Times), c. 1600. The Metropolitan Museum of Art, New York, Harris Brisbane Dick Fund, 1934	137
5.2 Wenceslas Hollar, “New Dutch Merchant Ships known as Flutes,” 1647. Thomas Fisher Rare Book Library, University of Toronto	162
6.1 Wenceslas Hollar, “New Dutch Merchant Ships for the East Indies,” 1647. Thomas Fisher Rare Book Library, University of Toronto	191

6.2 "Prospect of the European factorys at Xavier or Sabee, from Marchais," in <i>A New General Collection of Voyages and Travels</i> , ed. Thomas Astley (London, 1745–1747), vol. 3, plate 9, facing p. 64. The New York Public Library, Rare Books Division	205
6.3 Anon., "Intérieur d'une boutique contenant des étoffes et des vêtements pour hommes" (Interior of a shop with fabrics and men's garments), 1678. © Bibliothèque nationale de France	221
7.1 "Labourage" (Plowing), from <i>Encyclopédie, ou dictionnaire raisonné des sciences, des arts et des métiers</i> , ..., eds. Denis Diderot and Jean le Rond d'Alembert, vol. 18 (Paris, 1762). Library of Congress, Rare Book and Special Collections Division, Washington, DC	257
8.1 "Orthographische Delineation des Stadtls und Tüch Fabric Ober Leidensdorff," from <i>Designati Iconographica Oberlautensdorfenses Pamaria Officinas</i> (1728). Image courtesy of <i>The Waldstein Woolen Mill; Noble Entrepreneurship in Eighteenth-century Bohemia</i> . Kress Library Publication; No. 18, 1963. Baker Library, Harvard Business School	295
8.2 William Hincks, "Winding, Warping with a New Improved Warping Mill, and Weaving," 1791. Library of Congress, Prints and Photographs Division, Washington, DC	333
8.3 "Sucrerie" (sugar works), from Jean Baptiste Du Tertre, <i>Histoire Générale des Antilles Habitées par les Francois</i> (Paris, 1667). Courtesy of the John Carter Brown Library	340

Maps

1 European Regions	xvi
2 European Towns and Cities	xviii
3 Europe's Overseas Atlantic Commerce	xx
4 Europe's Asian Commerce	xxii
5 Europe's Long-distance Commerce at the End of the Middle Ages	40

Tables

3.1 Average Annual Sugar Exports from Iberian Colonies, 1455–1620	65
6.1 Main VOC Imports from Asia	192
6.2 Main EIC Imports into Europe	196

List of Figures, Maps, Tables, and Graph	ix
6.3 Estimated Americas Sugar Production	203
6.4 English and British Atlantic Trade Volumes, 1700–1701 to 1797–1798	209
8.1 British and French Textile Exports, 1787–1789 to 1816– 1820	327
8.2 British Manufacturing Exports and the Rise of Cottons, 1772–1774 to 1814–1816	337

Graph

7.1 Output per Worker in Mediterranean and Northwestern European Agriculture, 1300–1800	238
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Preface

This book recounts Europe’s economic history and the emergence of a radically new socioeconomic system across three and a half tumultuous centuries marked by bitterly contested religious reform, far-reaching cultural innovation and scientific revolution, and contentious state formation within Europe, together with expanding overseas trade, colonial settlement, and empire-building. Organized chronologically as well as by sector, *Transitions* seeks to elucidate the complexity of early modern economic history: broad general trends and structural changes that affected Europe as a whole; important national and regional differences; the diverse impacts of social, political, and cultural influences on economic life; constant interplay between European and global developments. It draws on the extensive scholarship written on the subjects it discusses, particularly recent work that has introduced fresh topics while also redefining long-held interpretations. To assist students who wish to learn about topics in greater depth, suggested readings have been provided at the end of each chapter.

Economic history can be a difficult, even a frustrating subject. Though not lacking dramatic events and famous individuals, it is more often characterized by processes that take place over extended periods of time, begin and end at dates that are almost impossible to pinpoint, occur unevenly and discontinuously over time and space, and involve the efforts of people who mostly remain anonymous. Yet the study of past economies can also be exciting, for it reveals the manifold ways that human beings have acted within the constraints and opportunities offered them by geography, resource endowment, demography, institutions, values, and beliefs to produce the goods and services that they need and want. Examining the formations that preceded the currently hegemonic capitalist order also underlines the historically contingent nature of all economic systems: rather than inevitable results of intrinsic laws or proclivities, they are historically specific structures that humans have produced and can alter.

Like every significant discipline, economic history is replete with controversies generated by efforts to extend empirical knowledge and advance new explanations. Some debates arise from diverse theoretical commitments. Others concern methods of and results yielded by techniques employed to construct and interpret data regarding an age notoriously lacking in many types of basic economic information. This book draws eclectically but critically on a variety of approaches and findings to try to understand – both across Europe and within specific states and regions – the functioning and transformation of early modern economic structures and practices.

Familiarity with economics is not required for understanding *Transitions*, but frequently used terms and concepts deserve definition. *Production* denotes the process of creating goods and services by an individual, household, enterprise, economic sector, or entire society; *productivity* the ratio of output (the volume of goods and services turned out) to the volume of inputs, the resources required by the production process, as measured by criteria such as hours of labor, quantities of raw materials, extent of acreage plowed. Three inputs or *factors of production* are usually distinguished: land, labor, and capital. Land refers to property used for cultivation, pasturage, woodland, and so forth, but can also include other natural resources, like ores. Labor is physical or mental work directed toward or expended in production. Capital encompasses both circulating or working capital – the funds or claims on funds (credit) needed for wages, raw materials, and other operating expenses; goods in process and finished but not yet sold; and amounts owed for goods sold but not yet paid – and fixed capital, the physical assets (land, buildings, and equipment) used to produce goods and services. Though often transferred in non-market transactions, land, labor, and capital were increasingly exchanged in *factor markets*. *Commodity markets* for raw (primary) materials and *product markets* for finished goods date back to antiquity, but they too took on increased importance in the early modern era. No more than in other periods, however, were markets “free,” as they were regulated both by formal institutions (such as city and state governments, guilds and other corporate institutions, and religious authorities) and by informal norms, conventions, and practices.

Growth signifies an increase in output, conventionally measured in per capita terms to distinguish between *extensive* growth (expansion of the total output of an economy’s goods and services due to and only matching increased inputs of factors of production) and *intensive* growth (sometimes called *development*), in which improved skills, technological innovation, and/or more efficient use of land, labor, and capital result in productivity gains that outstrip demographic increase, enabling

improvement in living standards.¹ *Industry* is often taken to mean only mechanized production; in this book it refers to any processing of raw materials to make goods for exchange and therefore may be used synonymously with *craft*, *trade*, and *manufacturing*. Both *workers* and *artisans* perform manual labor; here, artisan connotes a skilled worker laboring at home or in a small shop. *Peasants* and *farmers* may also be used interchangeably to designate those who work the land. At times, the terms suggest different social relations: a peasant owes a landlord both a land rent and tribute (whether paid in cash, in kind, or by service), whereas a farmer is a property owner or a tenant owing only land rent. Peasant often carries overtones of subsistence agriculture; here it includes those who produce for the market.

Transitions considers *capitalism* an historically specific system of organizing the production of material wealth that entails distinctive asymmetrical relations between the classes engaged in economic activities. In a capitalist economy, individuals and groups who possess both circulating and fixed capital directly organize production by hiring laborers to turn out agricultural and/or industrial goods using the capitalists' land, labor, raw materials, plant, and equipment. Capitalists' profits consist of the difference between the costs of their capital inputs and the price their output receives in competitive markets. To gain or preserve advantage in those markets, capitalists are under continuous pressure to innovate to cut production costs. Capitalism grew up within and shared components with the multiple non-hegemonic economic formations specific to early modern Europe. To some degree, demesne lordship, peasant proprietorship, petty artisanal production, and proto-industry all featured market exchange, private property, and wage labor, and all could – and often did – experience growth. As we shall see, however, the key relations and dynamics of each differed fundamentally, if diversely, from those that defined the capitalist order that supplanted them.

Finally, the terminological conventions used in *Transitions* need mention. Non-English terms are italicized only on first usage. Names of settlements, political units, and geographical features are given in the form currently common in anglophone economic historiography. From

¹ Scholars have constructed historical estimates of per capita Gross Domestic Product (GDP, the market value of total output of a given economy in a specific period, corrected for inflation and expressed in terms of a standard currency in order to indicate purchasing power parity across economies). For pre-industrial economies, such calculations unavoidably rely on sparse data; lack information about income distribution and sustainability issues; and omit household production, payments in kind, barter, and other non-market activities that loomed large in early modern times. This book cites such estimates as rough approximations of trends in economic performance, not as evidence about individuals' welfare.

the later sixteenth century, the erstwhile Low Countries are therefore referred to as Belgium (the southern provinces ruled at various times by Spain, Austria, and/or the Bishop of Liège), and the Dutch Republic or United Provinces (the independent northern provinces). Before the mid-nineteenth century, Germany and Italy were geographical expressions, not political entities; in this book, the many states that each encompassed are sometimes analyzed together, sometimes by region. The various kingdoms of Spain were dynastically united, but economically diverse; here, Catalonia, the most dynamic, is often examined separately. The catchall term northwest or northwestern Europe designates the northern and southern Low Countries, England and Wales (after the 1707 union with Scotland, Britain), northwestern Germany, and northern France; Mediterranean Europe includes today's Italy, Spain, and Portugal; east Elbia includes today's east central and eastern Europe. While mentioned at times, the Balkans, then under Ottoman rule, and European Russia are not extensively examined. For the sake of brevity, the modern terms Indonesia and India are primarily used, though individual Indonesian islands and separate states on the subcontinent are named when relevant. Despite the many differences within states, only state-level data are usually available and presented in *Transitions*.

All scholarship is to some extent a collective endeavor; a synthesis like this one is unusually dependent on the contributions of other scholars. Many works that I have found especially useful are cited in the notes and suggested readings, though the latter includes few of the numerous books and articles in languages other than English upon which I have repeatedly drawn. Such works are essential reading for anyone wishing to explore in greater depth many topics discussed in this book for which the English-language literature is unsatisfactory or nonexistent. This revision has also benefited from the works of and discussions with Pierre Gervais, John Styles, and Giorgio Riello; comments and suggestions made by my students over the years, by colleagues in various venues, and by several anonymous readers; and the support of my editors at Cambridge University Press.





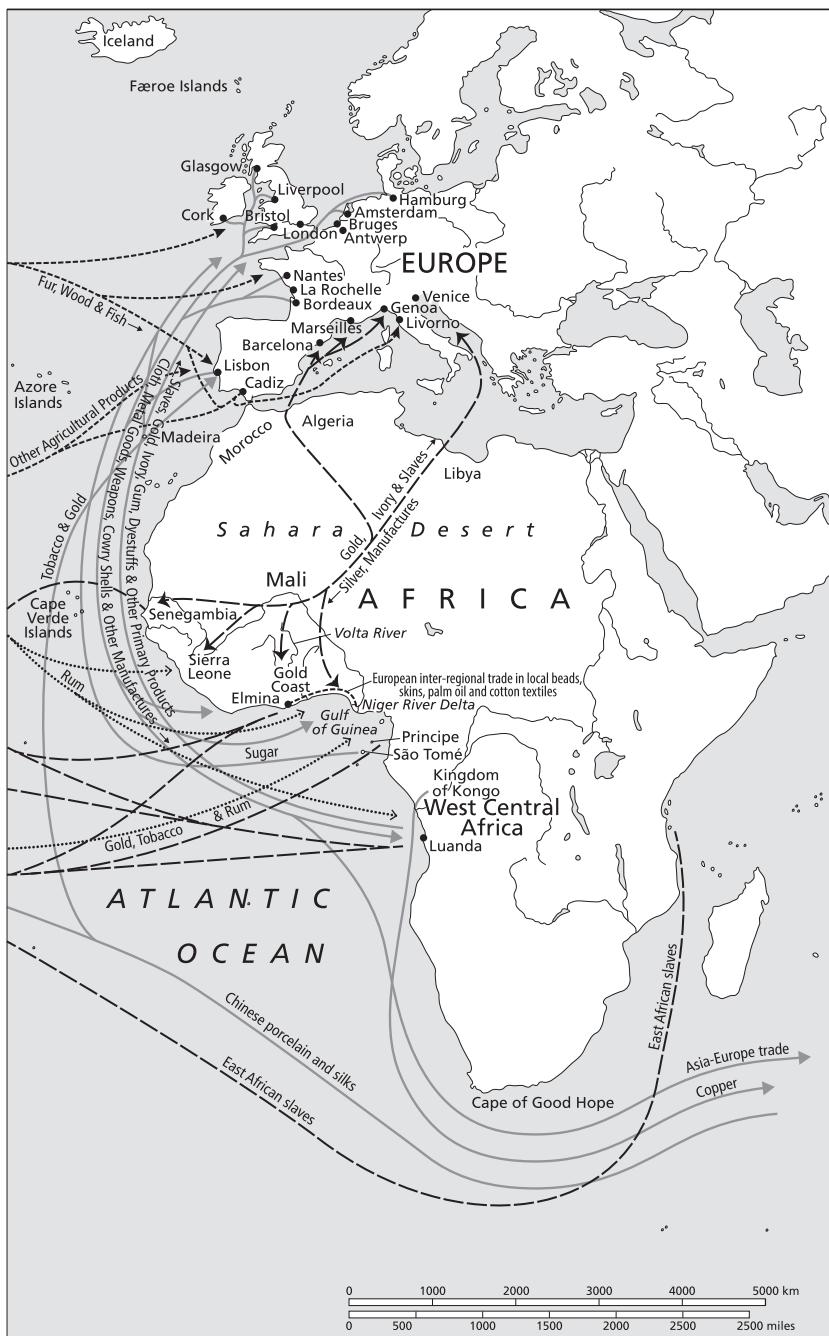
Map 1: (cont.)



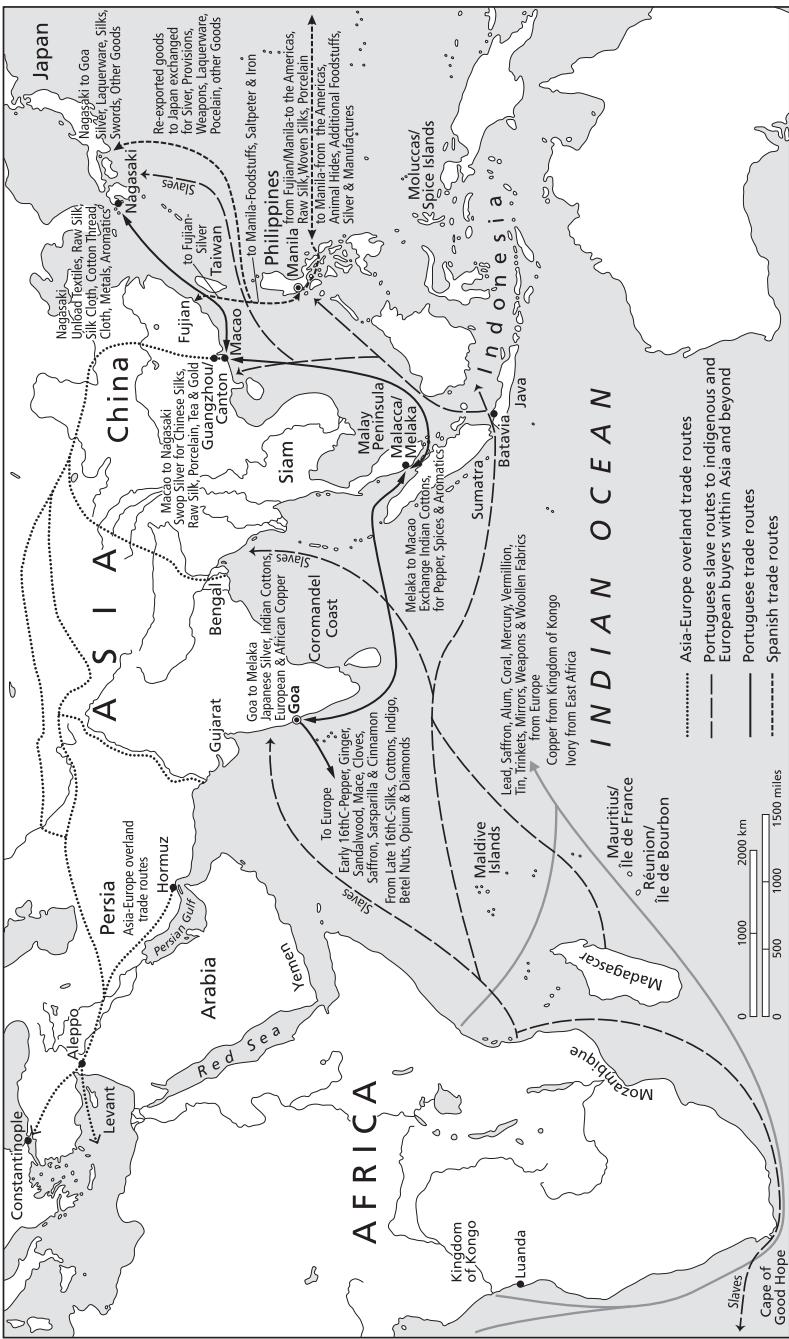
Map 2: European Towns and Cities



Map 3: Europe's Overseas Atlantic Commerce



Map 3: (cont.)



Map 4: Europe's Asian Commerce

Part I

1 Issues and Interpretations

In the early nineteenth century, at least four-fifths of Europeans lived in small towns and villages or on individual farmsteads, where the majority engaged, as their ancestors had since Neolithic times, in farming characterized by generally low land and labor productivity. Aristocrats, urban residents, religious institutions, and others not directly involved in agricultural production owned a great deal of land and received much of the agrarian surplus. Artisans who worked in their homes or small shops using hand-powered tools made most manufactured goods. As in the past, Europeans traded mainly with each other, and they continued to spend most of their incomes on familiar goods. Protectionist laws, privileged groups, and poorly developed commercial institutions, communications, and transport often hobbled the effective operation of factor, commodity, and product markets.

Yet much had changed significantly across the early modern centuries. Population had risen from a post-Black Death low point of about 60 million around 1400 to more than 200 million in 1820; Britain and Scandinavia registered four-fold increases (see Appendix A).¹ The urbanization level – measured as the proportion of inhabitants living in towns of more than 10,000 residents – had doubled from some 5 percent in the fifteenth century to at least 10 percent in 1800. The rate of advance was greatest in England and Wales, which jumped from 3 percent to 20 percent, and the level highest in the Dutch Republic, which by 1800 boasted nearly 29 percent city dwellers (see Appendix B).² Commercial farming

¹ Lacking proper censuses, all early modern population figures are estimates; they also often omit portions of Eastern Europe, the Balkans, and European Russia. See Massimo Livi-Bacci, *A Concise History of World Population*, 5th ed. (Chichester, UK, 2012), 25, Table 1.3; Paolo Malanima, *Pre-modern European Economy. One Thousand Years (10th–19th Centuries)* (Leiden, 2009), 9, Table 6; Angus Maddison, *The World Economy: A Millennial Perspective* (Paris, 2001), 232, Tables B-2 and B-3.

² Lowering the urbanization threshold to 5,000 residents yields higher percentages of city dwellers at both dates (some 15–20 percent around 1800 in Europe as a whole). See Paolo Malanima, “Italian Cities 1300–1800. A Quantitative Approach,” *Rivista di Storia Economica* 14 (1998): 91–126, especially 92 Table 1, and 98 Table 5.

had become broadly dominant, and new crops, practices, and tenurial systems had boosted agricultural output and productivity in key regions. Industries had spread into new areas, and were notably abundant in many rural districts, as countless farm families spun thread, wove cloth, drew nails besides raising crops and tending animals; in addition, a large and growing population had wholly abandoned agricultural for manufacturing work. Entrepreneurs who bought raw materials, put them out to rural and urban wage-earners (occasionally assembling them in large workshops or proto-factories), and sold the finished goods on markets near and far now controlled a substantial share of manufacturing throughout Europe, and in some places predominated. Innovations ranging from navigation instruments and assembly-line shipbuilding to maritime insurance and trading company organization had helped reduce transaction costs (the various expenses associated with commercial exchange); new financial institutions and instruments had improved some markets' efficiency. Overseas exploration, colonization, and globalizing commerce had greatly extended merchant networks, introduced unfamiliar consumer goods and raw materials into Europe, and stimulated the development of novel re-export and import-substitution industries. Europe's economic center of gravity, since antiquity located in the Mediterranean, had shifted to the northwestern region; according to recent calculations, at least England and the Low Countries had achieved impressive GDP gains.³ By the end of the period, factories equipped with new technology were springing up, most thickly in England, but also on the Continent. Most momentous, as northwestern Europe had become hegemonic over Europe, its overseas colonies, and its global commercial networks, capitalism had taken root in northwestern Europe.

Understanding the causes, nature, extent, and significance of these manifold phenomena has long occupied scholars. In his epochal *An Inquiry into the Nature and Causes of the Wealth of Nations*, published in 1776, Adam Smith (1723–1790) argued that interdependent processes of market expansion, specialization, and widening divisions of labor were generating quantitative growth within the “commercial society” of his time. Due to an innate “propensity to truck, barter, and exchange,” Smith held, humans engage in commerce to obtain necessary goods and services, and to trade most advantageously they specialize in tasks at which they excel. The resulting divisions of labor had upgraded skills and increased wealth, stimulating innovation that raised productivity,

³ For estimates, see Angus Maddison, *Contours of the World Economy 1–2030 AD: Essays in Macro-Economic History* (Oxford, 2007), 382, Table A.7; Luciano Pezzolo, “The Via Italiana to Capitalism,” in *The Cambridge History of Capitalism*, eds. Larry Neal and Jeffrey G. Williamson, 2 vols. (Cambridge, UK, 2014), I: 269, Table 10.1.

lowered prices, and unleashed growth. Public authorities and private bodies had repeatedly intervened to shape economic activity to their advantage through regulations, monopolies, tariffs, and the like, but their main accomplishment, in Smith's view, had been to divert land, labor, and capital from their most productive uses, constraining improvement. To promote the true wealth of nations – the full development of agriculture, industry, and commerce – individual initiative, competition, and free trade had to flourish. Enabling them, Smith and his fellow “political economists” insisted, liberated inherent human qualities within a self-regulating natural order, an “invisible hand” that through market transactions begot the common good from individuals’ admittedly clashing “self-love” (self-interest).⁴

Smith did not propose that European economies had embarked on a process of unending growth. The complication was not simply obstructive pressure groups and institutions: rather, despite specialization and division of labor, over time economies experience diminishing returns (when additional inputs yield progressively smaller increments to output), halting advance. *An Essay on the Principle of Population* (1798) by Thomas Robert Malthus (1766–1834), built on the kinds of empirical data that practitioners of “political arithmetic” (the application of statistics to policymaking) had been systematically gathering since the late seventeenth century, evaluated early modern economic outcomes yet more somberly. Periods of expanding output and rising standards of living had occurred, Malthus acknowledged. But that was not a boon. The demographic growth that inevitably ensued sabotaged these achievements, as technological limitations and a fixed land area prevented agricultural output from matching population increase. The subsistence crises that had invariably eventuated had only been resolved by what Malthus termed “positive” population checks (famine, disease, war) or – less often – “preventive” checks such as delayed marriage or sexual abstinence. In either case, the result was demographic decline to the point where a new cycle could begin – but only to repeat the same predetermined pattern.

Malthusian views long dominated interpretations of early modern European economies. Despite recurrent periods of improvement, demographic, institutional, behavioral, and technological features internal (or “endogenous”) to the economy sooner or later frustrated sustained growth, resulting in long-term immobility or at best minimal and fragile advance. A powerful external (“exogenous”) force – in most accounts,

⁴ Adam Smith, *An Inquiry into the Nature and Causes of the Wealth of Nations* (New York, 1937), 13, 423, 14.

breakthrough technology – had therefore been necessary to usher in ongoing growth, improvements in standards of living, and changes in behavioral practices and economic structure alike.⁵ More recently, however, scholarship grounded in fresh quantitative analyses and a Smithian emphasis on the knock-on benefits of market enlargement has challenged the stagnationist orthodoxy. Without denying that serious downturns and setbacks occurred, this revisionist historiography maintains that by exploiting a combination of existing and new practices, techniques, and organizational forms, northwestern Europe in particular achieved significant growth, which over time sparked the innovations that set off continuous development.

To Karl Marx (1818–1883), on the contrary, it was profound structural transformation, the establishment of a wholly novel form or “mode” of production subsequently dubbed capitalism, that induced the new and more productive divisions of labor, specializations, and technologies necessary for sustained growth.⁶ In Marx’s definition, capitalism is an order of structured inequality between wage-earners who lack productive property and capitalists who control such resources. To earn their subsistence, workers must sell their labor – or, more precisely, the productive power embodied in it. The capitalists who purchase labor power earn profits (in Marxist terminology, extract surplus value) by selling the goods made with it for more than their total production costs. To maintain their profits in competitive markets, all capitalists constantly seek to reduce the cost of their inputs, wages most of all, by investing in innovation. Thus the technological and/or organizational prerequisites for growth were the outcome rather than the cause of the capitalist system.

The genesis of capitalism lay in the process that Marx called “original” or “primitive” accumulation. At once destructive and creative, original accumulation was an economic, social, political, and cultural phenomenon that encompassed town and country, industry and agriculture, expropriation and concentration of capital assets. For capitalism to arise, Marx asserted, capital – both in the form of land and equipment, and in the form of specie and credit – had to be amassed by individuals who invested it productively rather than consuming it. This process involved dispossessing peasants from their holdings, crushing autonomous artisans and guilds, and engaging in slaving, colonial exploitation, and usury. Government laws, monopolies, taxes, and debt promoted

⁵ This type of growth is often termed “Schumpeterian” after the theorist of innovation Joseph Schumpeter (1883–1950).

⁶ The term “capitalism” is a mid-nineteenth-century neologism, but analyses of the system it characterizes and of “capital” as a distinctive entity had been taking shape across the early modern period.

these undertakings and supported the system thereafter; far from being a brake on or enemy of economic change, the state was one of its principal progenitors and servants. These initiatives took time to come to fruition and often eventuated in transitional forms of production. Still, Marx maintained, across the early modern centuries original accumulation gave birth to European capitalism.

Later scholars have sought to flesh out Marx's sketchy historical account of capitalism's origins. The "world-system" approach, represented most prominently by the work of Immanuel Wallerstein, derives in part from Marx's postulate that capital derived from commercial exploitation of colonial possessions was both a prime solvent of Europe's prior feudal order and a source of funds to finance its successor. It also amplifies Smith's argument that the growth of trade furthers the division of labor, combining this with theories holding that capitalist development in favored areas necessarily bred underdevelopment elsewhere. According to Wallerstein, capitalism in western Europe (the "core" of a new world economy) was built on the exploitation of other regions, notably eastern Europe and the colonized New World (the "periphery"). Together with an intermediate "semi-periphery," these regions were assembled into a global economic order characterized by a unified market but sharply hierachic forms of production, labor regimes, and polities: capital-intensive agriculture and industry, a predominantly free and skilled workforce, and strong states in the core, labor-intensive production, mainly coerced (enslaved and enserfed) and less skilled workers, and feeble states in the periphery, intermediate forms in the semi-periphery. Unequal exchange of more profitable European items for less lucrative colonial goods, backed up by similarly unbalanced power relations, transferred surplus capital from the periphery to the core where it built sustained development simultaneously with minimal growth in the semi-periphery and outright backwardness in the periphery. Though subsequently the world-system incorporated additional areas and states shifted position within and between zones, before the mid-seventeenth century a Europe-based capitalist economy with a global reach was firmly in place.

Issuing from Marx's insistence on the importance of peasant dispossession, analyses by Robert Brenner and his followers locate the principal early modern economic dynamic in class structure and attendant class struggle in the countryside. In particular, they emphasize social relations between lords and peasants founded on asymmetrical property ownership and expressed in peaceful and violent interactions mediated, in a variety of fashions, by state institutions and policies. The different outcomes of this interplay, they maintain, accounted on the one hand for divergent

patterns and levels of growth both within the western European core and between western and eastern Europe, and on the other for the eventual advent (or frustration) of agrarian capitalism, “the indispensable foundation” for industrialization and subsequent “ongoing economic development.”⁷ In contrast to world-system theory, which contends that capitalism issued from the resources and structures provided by Europe’s global commerce, Brennerian approaches situate its mainsprings within Europe, notably rural England and the Netherlands.

This book draws on and evaluates these interpretations; deploys theoretical insights and empirical data from disciplines including cultural anthropology, sociology, women’s and gender history, slavery studies, and consumption and material culture research; and examines global influences on early modern Europe’s economic development. It maintains that

—early modern Europe was characterized by a variety of non-hegemonic, contemporaneous economic arrangements including peasant farming, demesne lordship, artisanal handicrafts, manufacturing in urban and – most of all – rural households – all, across the eighteenth century, increasingly dominated by merchant capital and control;

—these formations achieved growth, albeit uneven and discontinuous over time and space, by more thoroughly exploiting locally adapted best practices and techniques; product, process, and organizational innovation; creation and incorporation through overseas trade and colonization of critical new resource supplies, finished goods, and consumer markets;

—though wage labor, market orientation, secure private property, and entrepreneurial activity were to be found in these formations, and in them new financial instruments and institutions emerged, domestic and overseas trade expanded, and technical and organizational change occurred, they did not represent quasi-, proto-, or incomplete capitalism but were organized according to their own logics, dynamics, and purposes;

—capitalism was the unforeseen outcome of crisis in the cottons industry in the second half of the eighteenth century rooted in Europe’s globalizing commerce and consumption that was resolved by technological innovation that crystallized elements of preceding formations into a novel configuration, dynamic, and logic of production.

The multifarious nature of early modern economies and the many debates and research their history has stimulated have determined the scope, subject matter, and shape of this book. Chapter 2 sketches common and distinctive features of European economies in the fifteenth century. Its anatomy of European economies at the dawn of Europe’s early modern overseas exploration, colonization, and commercial

⁷ Robert Brenner, “Property and Progress: Where Adam Smith Went Wrong,” *Marxist History-Writing for the 21st Century*, ed. Chris Wickham (Oxford, 2007), 109, 107.

expansion identifies influences that molded subsequent developments, examined in the next six chapters. During what is often labeled “the long sixteenth century” (1450/70–1620/50), the subject of Part II, trade, migration, and commodity flows initiated and directed by Portugal and Spain interacted with discrepant agricultural and industrial trends to alter economic conditions within and among European states and regions as well as abroad. Crisis during the seventeenth century interrupted some of the impressive growth and stirrings of structural change that had characterized the previous period. The period also saw significant shifts in economic primacy, the brief but splendid Dutch cultural and economic “Golden Age,” and the first stages of renewed expansion.

These developments bore fruit in the eighteenth century. Part III examines the multiple global and domestic forces that refashioned commerce, agriculture, and industry, and by disproportionately advantaging northwestern Europe enabled capitalism to achieve hegemony there. They also consolidated regional economic disparities, lately dubbed a “little divergence” as contrasted to the “Great Divergence” that the Industrial Revolution purportedly opened between Europe and Asia. The Conclusion reviews the opportunities and constraints that shaped early modern Europe’s diverse economic formations, the birth of the system that superseded them, and interpretations that help make sense of these phenomena.

Whereas short series of data are exhibited in tables within individual chapters, the appendices should be consulted for data that are cited throughout the book: Appendix A – European population grouped nationally and regionally; Appendix B – European urbanization percentages by nation and region; Appendix C.1 – trans-Atlantic shipments of enslaved Africans by 25-year period and annual average; Appendix C.2 – European and American shippers of enslaved Africans by flag of ship; and Appendix C.3 – regional disembarkations of enslaved Africans throughout the Atlantic basin.

To reveal both the general patterns of early modern Europe’s economic history and its discrete shapes and tempos, this book is geographically, chronologically, and topically expansive. It ranges from East India Company trading networks in Southeast Asia to slaving stations on the Atlantic coast of Africa, from Mediterranean latifundia to minuscule market gardens in Flanders, from European industrial zones to New World plantations. In addition to the increasingly similar and interconnected ways by which crops were cultivated, animals bred, raw materials obtained, goods manufactured and exchanged, *Transitions* explores features specific to disparate places and institutions. Each of these arrangements implied a characteristic set of economic and social relations, so the

book introduces wage-earners and entrepreneurs, artisans and merchants, slaves and masters, serfs and lords.

To examine the rise of capitalism is to investigate the origins of the economic order that at present dominates Europe and the world. But it is also to court epistemological danger. Knowing how the story has “come out” so far can all too easily lead into a teleological and deterministic account of the origins of that result. This is not an easy problem to avoid in early modern economic history, because the very phrase “early modern” implies movement toward the present. Similarly, “transition” acquires its logic retrospectively, from the vantage point of capitalist hegemony, while terms like “pre-capitalist,” “pre-industrial,” and “proto-industrial” can imply partial or defective versions of subsequently dominant systems.

This book does not entirely avoid the trap of teleology; present concerns inevitably – and appropriately – suggest questions about the past and ways of answering them. *Transitions* does, however, seek to understand the operation of early modern economies in their own terms, rather than insinuate that they obeyed flawed logics so that the ascendancy of capitalism was ineluctable. By attending to a broad range of regions, structures, sectors, and patterns of change and continuity between the mid-fifteenth and early nineteenth centuries, it attempts to recapture the diversity and contingency of economic development during that momentous period.

Suggested Reading

Book III is the most explicitly historical section of Adam Smith’s *An Inquiry into the Nature and Causes of the Wealth of Nations* (many modern editions), while Chapters I–III of Book I discuss the division of labor in a context of expanding markets. The several editions of Thomas Robert Malthus, *An Essay on the Principle of Population* have also been frequently reprinted; some editions include sources and commentaries. For a brief survey of the thought of these and other early analysts, along with a useful bibliography, see José Luís Cardoso, “The Political Economy of Rising Capitalism,” in *The Cambridge History of Capitalism*, eds. Larry Neal and Jeffrey G. Williamson, 2 vols. (Cambridge, UK, 2014), I: 574–99. In their bulk, the three volumes of Karl Marx, *Capital, A Critique of Political Economy* (originally published 1867–1894; many English translations and editions) can be intimidating. For historical materials, see especially volume I, Chapters 14, 26–32, and volume III, Chapter 20. Karl Marx, *Pre-Capitalist Economic Formations*, ed. E. J. Hobsbawm (New York, 1965), provides a superb introduction to Marx’s thinking. The earlier Marxist-inspired transition debate can best be followed in Paul M. Sweezy, *The Transition from Feudalism to Capitalism* (London, 1976); S. R. Epstein, “Rodney Hilton, Marxism and the Transition from Feudalism to Capitalism,” *Past and Present Supplement* 2 (2007):

248–69, is a recent evaluation; for an update, Shami Ghosh, “Rural Economies and Transitions to Capitalism: Germany and England Compared (c. 1200–c. 1800),” *Journal of Agrarian Change* 16/2 (2016): 255–90. For Immanuel Wallerstein’s work, see his *The Modern World-System*, 4 vols. (New York, 1974–1989; Berkeley, 2011). *The Brenner Debate: Agrarian Class Structure and Economic Development in Pre-Industrial Europe*, eds. T. H. Aston and C. H. E. Philpin (Cambridge, UK, 1985), includes Brenner’s work and commentaries by other scholars. Ellen Meiksins Wood, *The Origin of Capitalism: A Longer View* (London and New York, 2002), ably synthesizes Marxist scholarship arguing that agrarian capitalism caused English industrialization.

Recent essays that emphasize the cyclical nature of early modern economies requiring an exogenous shock to set off ongoing growth include George Grantham, “Contra Ricardo: On the Macroeconomics of Pre-industrial Economies,” *European Review of Economic History* 3 (1999): 199–232; Jack A. Goldstone, “Efflorescences and Economic Growth in World History: Rethinking the ‘Rise of the West’ and the Industrial Revolution,” *Journal of World History* 13 (2002): 323–89. For more extended presentations that cover longer time spans, see Gregory Clark, *A Farewell to Alms. A Brief Economic History of the World* (Princeton, 2007), and J. L. Luiten van Zanden, *The Long Road to the Industrial Revolution. The European Economy in a Global Perspective, 1000–1800* (Leiden, 2009). Bas van Bavel, *The Invisible Hand? How Market Economies Have Emerged and Declined Since AD 500* (Oxford, 2016), maintains that markets inevitably self-destruct; Ronald Findlay and Kevin O’Rourke, *Power and Plenty: Trade, War, and the World Economy in the Second Millennium* (Princeton, 2007), attribute responsibility for long-term cycles of growth and contraction to the interplay of war and international trade. For interpretations arguing that primarily endogenous forces slowly accumulated, eventually causing qualitative change, see Jan de Vries, “Economic Growth Before and After the Industrial Revolution. A Modest Proposal,” in *Early Modern Capitalism: Economic and Social Change in Europe 1400–1800*, ed. Maarten Prak (London, 2001), 175–92; and Regina Grafe, “Economic and Social Trends,” in *The Oxford Handbook of Early Modern European History, 1350–1750*, ed. Hamish Scott, 2 vols. (Oxford, 2015), I: 269–94. Francesco Boldizzoni, *The Poverty of Clio* (Princeton, 2011), is a sustained critique of dominant quantitative approaches and economic theories that currently inform many explanations of early modern economic history; Jürgen Kocka, *Capitalism. A Short History* (Princeton, 2016), gives a very brief introduction to concepts and scholarship covering the title subject up to the present day.

Notable broader works that amply repay further study, are Fernand Braudel, *Civilization and Capitalism, 15th–18th Centuries*, 3 vols. (1979; New York, 1981–1984); *The Cambridge Economic History of Europe*, eds. Stephen Broadberry and Kevin H. O’Rourke, vol. I (Cambridge, UK, 2010). *The Cambridge History of Capitalism*, vol. I, reveals the wide variety of definitions of capitalism and approaches to its history, though it is disappointingly incomplete on medieval and early modern Europe. *The Oxford Encyclopedia of Economic History*, ed. Joel Mokyr, 5 vols. (Oxford, 2003), contains fine short introductions to many subjects explored in this book, though some entries are becoming dated. In

economic history as in economics in general, much of the path-breaking scholarship appears in journals. Some, like *Economic History Review*, *Explorations in Economic History*, *Journal of Economic History*, and *European Review of Economic History*, include a broad range of topics and eras; others, like *Textile History* and *Agricultural History Review*, specialize in particular sectors. An increasing number of national and regional periodicals, such as *Rivista di storia economica*, *Histoire, Économie & Société*, *Low Countries Journal of Social and Economic History*, *Scandinavian Economic History Review*, and *Revista de Historia Económica-Journal of Iberian and Latin American Economic History*, are published wholly or in part in English. More general scholarly journals such as *Past and Present*, *Journal of Interdisciplinary History*, and *Annales. Histoire, Sciences Sociales* (English edition) also regularly publish important articles on early modern European economies.

2 European Economies on the Eve of Globalization

The mid-fifteenth century provides a good vantage point from which to locate the salient characteristics of Europe's economies after a long period of adversity. For nearly two centuries, Europe had suffered repeated harvest failures, famines, and epidemics (including, in 1347–1353, the notorious Black Death); abandoned fields and deserted villages; diminished manufacturing and mining output; disrupted domestic and international trade; destructive wars and rebellions. Conditions had not been uniformly difficult. Epidemic disease spared some areas; elsewhere, post-plague labor shortages boosted many workers' wages; peasants were able to add vacant land to their holdings; new crops, crafts, and commercial areas developed. Still, over Europe as a whole population had dropped by a third to a half; governments had intervened to block wage increases; those already in possession of land and capital often captured many of the gains from innovation. Again, while upswings had periodically interrupted the protracted "late medieval crisis," most had petered out after a few decades. By no later than 1470, however, economic indicators pointed to broad-based improvement.

Demographic revival would bring overall population and urbanization levels back to their medieval high points by about 1500. Long-neglected fields were plowed, forests cleared, marshes drained. Urban workshops hummed again; craft production spread throughout the countryside; rich new mines boosted output. Agricultural and industrial commercialization accelerated; numerous international fairs sprang up; direct trade routes advanced ever further south along the west African coast and west into the Atlantic as Madeira and the Azores were colonized. Few years were free from the clash of arms. But the most baleful conflict, the interminable Hundred Years' War (1337–1453) between England and France, had wound up, freeing resources and improving security.

Against this backdrop of incipient recovery, this chapter outlines the situation of European economies as the Middle Ages came to a close. It describes the organization of agriculture, industry, and commerce; relations obtaining between and among peasants and landlords, artisans and masters, shopkeepers and merchants; and conditions that shaped economic structures and practices.

Agrarian Structures and Relations

As befitted an area that had experienced countless migrations, invasions, and changes of regime and legal codes, and which encompassed a bewildering array of topographies, climatic conditions, and soil qualities, the agrarian arrangements and usages that had evolved in Europe across the Middle Ages were extremely complex. Broad patterns in the ways that land was owned, occupied, and worked can nevertheless be discerned. Some property was “allodial,” owned by those who inhabited and farmed it though often owing a tax and perhaps military service to a superior. The greatest proportion of land belonged, however, to landlords who rarely cultivated it themselves, instead deriving their income from peasants who did. All lordly estates yielded their owners land rents. Most had a bundle of feudal (seigniorial) rights attached as well. Enshrined in law and custom, these rights were upheld in the seigniors’ own courts or, if necessary, by the threat or use of force. Although serfdom and compulsory labor services had disappeared from most of Europe, feudal rights survived. They permitted lords to levy cash or in-kind (produce) dues; demand payments when peasants sold, exchanged, or bequeathed holdings; collect fees for peasants’ mandatory use of seigniorial monopolies like ovens, wine-presses, and mills; demand market fees and bridge tolls; and charge for the civil and criminal justice administered in their courts.

Though some country folk were landless, most peasant families occupied individual “tenements,” private tenures or holdings often exploited in accordance with collective regulations enforced by communal institutions. Specific contractual terms varied greatly, but peasants enjoyed effective possession of most land so long as they fulfilled the obligations imposed by lords. The confusion of ownership and occupancy, not to mention disagreements over the nature and level of appropriate lordly charges, ensured continuous conflict over the division of the surplus that the peasantry generated. Yet extensive customary and written rights and organized village communities, together with occupancy of the land and control of agricultural production, not only allowed peasants a good deal of autonomy in their daily lives but gave them powerful weapons for negotiating with or even defying seigniorial demands.

Peasants and Lords

Lords’ land was organized into manors (seignories). Although mainly lay nobles and princes, proprietors also included ecclesiastical institutions, clergy, and, increasingly, bourgeois merchants, financiers, lawyers, and notaries. A lord might own one or more manors; sometimes a single

manor was subject to several lords. The boundaries of manors and villages ordinarily coincided, yet some manors comprised more than one settlement, whereas others contained just a portion of a single village, so in size they ranged from a few to thousands of hectares.

Manorial territory typically comprised two parts of unequal size: the lord's "demesne" and the peasants' holdings, which in the aggregate were larger. Neither farming practices nor technology distinguished them, however: similar crops were planted, livestock raised, rotations followed, and implements used on demesne and holdings. In the earlier Middle Ages, demesnes employing slaves, serfs owing labor services (*corvées*), and on occasion paid workers had produced farm goods for lords' consumption and/or sale. But from the twelfth century onwards, resistance to *corvées* stiffened and slaves became harder to obtain; concurrently, rural and urban population growth raised demand for land, foodstuffs, and raw materials, while a growing throng of landpoor and landless needed wage work to earn subsistence; in the fourteenth century, peasant rebellions weakened lords' ability to levy feudal dues, payments, and fees. In the circumstances, many lords had granted or sold freedom to slaves and serfs, exchanged ("commuted") labor services for payments in cash or kind, and leased their demesnes to cultivators. Late medieval demographic collapse confirmed these trends; even lords who maintained demesne agriculture usually hired wage labor to raise crops or rear livestock for market exchange.

Well before the end of the Middle Ages, therefore, the peasant tenement had become the basic unit of agricultural production. A holding was typically occupied by one household consisting of a nuclear family, augmented as needed by a spouse's aged parent, live-in servants, or local or migrant farmworkers. In mountainous or insecure areas, several related nuclear families might reside together in a house and work a single tenancy.

A model holding contained a dwelling and outbuildings; garden for fruits, vegetables, and sometimes industrial crops like madder or flax; and access to arable (cropland), pasture, meadow, waste, forest, and waterways. As these resources were not distributed uniformly across Europe, disparate agrarian structures had arisen. Primarily pastoral or livestock grazing regions covered much of Scandinavia, Celtic-speaking areas (notably Scotland, Ireland, Wales, Brittany), upland districts throughout the continent, and the Pannonian Plain in east Elbian Europe. More often, cropland predominated. Some arable districts specialized in tree and vine crops, horticulture, or industrial crops; but cropland principally grew cereals (mainly wheat and rye, though also barley and oats, which could grow on the poorest land) used in bread, gruel, and ale, the staples

of the popular diet. Grain fields were customarily farmed on a triennial (“three-course”) rotation planted successively in the fall and spring, followed by fallow; on light, thin soils and in the warmer Mediterranean basin, two-course rotations were preferred, with fall planting and fallow every second year.

Holdings in some grain areas comprised little but cropland. They were the exception. In most regions, occupancy of a tenement conferred right of access to common pastures and wastes to graze horses, oxen, cows, and sheep that supplied dairy products, wool and hides, hauling power, and manure. Tenants likewise might claim a share of hay from common meadows; building materials, fuel, nuts, and game from woodlands, where their pigs, the most common source of meat, also foraged; and fish from the manor’s waterways. Lords might demand recompense for the use of forests, fishponds, and streams, but peasants evaded payment whenever possible. What was poaching to the one was legitimate custom to the other.

Peasants in mainly cropland districts usually lived in nucleated villages or hamlets surrounded by large open arable fields divided into numerous plots; an individual holding routinely included plots scattered among several fields. Over time, rules had developed to regulate plowing, sowing, harvesting, and grazing on fallow in the open fields, as well as the exploitation of common resources. In “closed field” regions, dispersed settlement on isolated farmsteads was the norm and fences, hedges, ditches, or other barriers separated the individual plots often dedicated to specialized crops. But there, too, and in pastoral areas, access to common lands was controlled by limits or “stints” placed on the quantity of stock that each household could graze.

Initially, perhaps, landlords had enforced the regulations that mandated the sharing of common resources. But by the later Middle Ages, if not earlier, village communities, embodied in periodic assemblies of heads of households, discharged this and other important administrative duties such as levying taxes, managing the parish church’s land, resolving intra-village disputes, and, in frontier and other thinly populated areas, dividing and leasing vacant land to settlers. These functions conferred a good deal of power on village communities, equipping them to help defend peasant interests against landlords, tax collectors, and other officials. Performing these tasks also promoted communal solidarity, as did practices like trading labor among households or teaming up individual families’ draft animals to pull village-owned plows. Villages, which usually coincided with parishes, also celebrated carnival, processions, and similar collective rituals and festivities.

Villages were not, however, egalitarian, nor the peasantry homogeneous. Gender disparities were deeply rooted. The bulk of peasant holdings required the labor of all household members save the underage or infirm, and female wages could be vital to the survival of smallholders and the landless. Yet despite their significant economic roles, medieval rural women occupied a subordinate position grounded in work patterns, property relations, the patriarchal household, and widely prevalent beliefs. Family crises, harvest time, or labor shortages could temporarily override habitual gender-based divisions of labor, and among the poor and on farms raising the greatest variety of crops, jobs tended to be less segregated by sex. Yet conventional if informal norms associated specific tasks with one sex or the other; women's work was complementary to rather than interchangeable with men's. Whereas men plowed and herded, women gardened, cared for animals, and performed domestic chores.

Women also enjoyed fewer opportunities for wage labor than men, and found it difficult to establish a secure and recognized position in the labor market. Hired only when men were unavailable, women normally held less skilled, unspecialized, low-wage, frequently part-time and seasonal jobs. Women also typically worked close to home, whereas male laborers could move farther afield. And even when women held the same jobs as men they could count on earning just half to two-thirds as much. Women's access to and control over land was likewise restricted. Most inheritance customs favored males, although in some places a woman might receive up to one-third of her father's holding. Usually cotenant of the family holding, a married woman was nonetheless the junior partner: as head of the household, her husband administered the property. Unmarried women and widows could hold land in their own right in a few regions. Customarily, however, they were unable to transfer land freely, lest it leave the patrilineal family, and they faced pressure to marry, remarry, or turn the holding over to an adult son. Apart from widows and heads of households, moreover, women were excluded from the village communities that made important decisions about many aspects of peasant life. Whatever a woman's authority within her family, or her indispensability to the operation of the holding, it rarely translated into sanctioned power in the public arena.

Other village distinctions arose from differences in tenurial arrangements, size of holdings, and market access. Variations in such matters as lengths of leases, terms under which they could be renewed or bequeathed, levels of rent and dues, and rights of landlords to levy fees or "entry fines" when heirs took up holdings resulted in dissimilar degrees of peasant security and prosperity. Disparities in size and quality of

holdings, inheritance of land and capital, skill and other personal characteristics, and just plain luck likewise helped to create stratified farming populations. And while some peasants hired farm workers, others survived by wage labor; similarly, some profited from selling surplus produce, but others had to purchase their subsistence.

Three broad groups can be distinguished: a minority of well-to-do farmers; a throng of small to middling peasants; and a sizable body of landpoor and landless. The small group at the apex of the peasant hierarchy employed paid laborers to produce for the market and their families' subsistence. Their origins can be traced far back into the Middle Ages, but they came into their own following the epidemics, wars, and other calamities that afflicted Europe in the fourteenth and early fifteenth centuries. Adding to their existing acreage, rich peasants assembled large holdings by leasing multiple abandoned tenements, even whole demesnes. Up to the mid-fifteenth century, when grain prices were low and farm worker wages high, some rich peasants cut labor costs by converting arable to pastoral; others emphasized industrial crops like flax, hemp, dyestuffs, and oleaginous seeds, or fruits, vegetables, and other specialty foodstuffs, for which demand was buoyant. They also exploited their dominance of village institutions to arrogate disproportionate shares of communal resources. This peasant elite was well positioned to capitalize on generally rising agricultural prices and declining wages after about 1450.

The third or more of peasants reliant on paid employment to achieve subsistence – the landless, cottagers living in dwellings with only gardens attached, and occupants of puny tenements – occupied the bottom of the rural order. For nearly a century after the Black Death, conditions benefited them as well. Agricultural wages were high, grain prices low. Commutation of labor services owed by persons into rents attached to holdings also lightened their burden, since their tenements were so insignificant. But after about 1450, all prices began to rise and real wages drop, though the spread of industrial by-employments into many rural areas did yield vital additional income. By the end of the Middle Ages, indeed, the lower ranks were perhaps most dependent of all peasants on markets both to sell their labor and purchase their subsistence.

On balance, late fifteenth-century conditions were favorable for the majority of peasant families, those cultivating small to medium-sized farms. Requiring minimal use of hired labor, their farms were productive enough not only to assure their households' subsistence but frequently to send a surplus to market; like their richer neighbors, those with access to urban consumers might diversify out of grain into lucrative specialized crops. Reduced seigniorial labor services and clear title to their holdings

also contributed to their good fortune, as did the wages for agricultural and craft work that smallholders in particular often took on. Still, post-1450 demographic and economic recovery posed some clear threats to the peasant majority: rising rents, falling wages, and division of properties.

Landlords were unequal in wealth, holdings, and ability, but despite turnover in its ranks the group retained its economic position across the late medieval crisis by variable admixtures of innovation, seigniorial levies, and governmental aid. Before the fourteenth century, rising demand, prices, and population had encouraged lords to expand their manors onto previously uncultivated land and to raise rents and dues on existing holdings. Subsequent market contraction, price decline, monetary instability, and demographic collapse required new strategies. With grain cultivation unprofitable, they might convert arable to pasture or lease their demesnes. To repopulate deserted holdings, or to keep tenants from absconding, lords often cut rents; they also redoubled the commutation of labor services to payments. Sovereigns' beneficence in the form of land grants, offices, pensions, and tax exemptions became vital for some lords' survival. With princes' backing, too, lords used the substantial political and juridical authority that they retained to continue collecting feudal taxes, fees, tolls, fees, and fines. And as economic and demographic conditions improved from the mid-fifteenth century, lords adapted to profit from rising demand. Some replaced customary fixed rights, obligations, and payments with adjustable rents and fees. Others, notably in central Italy, southern France, and Flanders, switched to sharecropping (*mezzadria* or *métayage*) contracts, furnishing land, buildings, tools, livestock, seed, capital, and, if necessary, food in return for half tenants' produce.

Before 1500, then, lords' incomes thus depended significantly on market activity, even if many also retained seigniorial rights to non-market appropriation of peasant surplus. The peasantry's market engagement was likewise on the rise. Besides land rents and feudal dues, they owed ecclesiastical tithes (in principle, one-tenth of field crops; in reality, proportions and items assessed varied considerably) and central state taxes, all increasingly demanded in cash to be earned by commercial agriculture and/or wage labor. Despite – and along with – feudal constraints, the medieval European countryside was more commercialized and its agrarian structures more flexible and productive than scholars have usually recognized.

Commercialization without Capitalism

By the end of the Middle Ages, peasants leased the great majority of land in Europe; according to recent estimates, up to four-fifths in the lands

around the North Sea was held on competitive leases with fixed terms.¹ Some landlords did invest in agricultural innovation both on their remaining demesnes and on tenant holdings. But peasants were most responsible for producing profitable, marketable surpluses to satisfy the demands of landlord, church, and state, not to mention to purchase necessities from salt to iron – or even part of their subsistence – that their holdings did not provide.

Yet if market forces were widely felt, commercial farming predominated in only a few regions during the fifteenth century. Most were densely populated and heavily urbanized relative to Europe as a whole, creating concentrated demand for the produce of the land as well as a ready supply of labor; a few, like the Alpine uplands and Hungarian plain, specialized in dairy goods or livestock that could be readily transported or driven to cities. In most, too, village communities had traditionally been weak, which eased the introduction of new practices. Disparities in farm size, conditions of tenure, crop specializations, and roles of peasants and lords in promoting commercialization distinguished market-oriented agricultures, and they involved only a minority of Europe's land and peasantry. Still, they indicate the possibilities for development present within agriculture.

Commercial agriculture based on large farms and strong landlord leadership had developed in several parts of the Mediterranean basin. On the riverine plains of northern Italy, where urban political and economic dominion over the surrounding countryside (*contado*) facilitated the rise of sizable regional markets, noble, ecclesiastical, and bourgeois investors assembled units of up to 100 ha. These were operated by tenant households assisted by numerous farm workers, many of them seasonal migrants from towns or mountainous regions. To extend their political power while strengthening the economic foundations of their states, rulers like the Visconti and Sforza dukes of Milan assisted landlord-sponsored agrarian change. They promoted major canal and irrigation projects, together with new crops, at the expense of open fields, common pasture rights, small peasants, and traditionally minded seigniors.

Some of these large properties went in for conventional grain-based farming, others for cattlebreeding. But many turned to large-scale dairy-ing and food and industrial crops such as rice, grapes, olives, fruit, vegetables, hemp, mulberries, and dyestuffs for urban markets. They invested in improved seed, stock, and buildings and systematically used advanced if labor-intensive methods. These included “interculture,”

¹ *The Development of Leasehold in Northwestern Europe, c. 1200–1600*, eds. Phillip Schofield and Bas van Bavel (Turnhout, 2009).

whereby vines and mulberry trees – which to cultivate required relentless hoeing, plowing, and tending – were planted in grain fields; “water meadows” that, by dint of repeated flooding and mowing, produced several harvests of hay a year; and rice growing in specially constructed fields that demanded continuous maintenance. The substantial labor and capital inputs achieved impressive results – on intensively cultivated irrigated fields, for example, four or five woad crops could be harvested each year – and yielded handsome profits.

Sizable farms also characterized the commercial agriculture of southern Italy (Sicily and the mainland Kingdom of Naples) and Andalusia in southern Spain, where huge estates or *latifundia* had arisen in the aftermath of military conquest and civil disorder between the twelfth and fourteenth centuries. Some latifundia operated as single units employing day laborers. Others were divided into farms of 50–100 ha. that were leased for short terms, often on sharecropping tenures. Both tenants and laborers lived in populous villages into which the rural population had been regrouped to facilitate lords’ control.

Olive groves, mulberry trees, saffron fields, and vineyards were features of latifundia areas, as were sugar cane plantations, which moved westward from Cyprus from the fourteenth century onward, on the larger Mediterranean islands. But most land was devoted to cereals, cattle, and sheep. Traditional crops did not imply backward agriculture. Sicilian grain yields were high, and latifundia owners regularly deployed large amounts of capital and credit in production, as well as employing free and mobile wage labor. Individual landlords were attentive to estate organization and the sale of agricultural commodities on urban and export markets, and the landlord class, which easily bought and sold fiefs and divided its patrimony among heirs, welcomed wealthy merchants and urban patricians into its ranks. Governments played a particularly noteworthy role in these regions’ commercial agriculture. In addition to organizing and regulating grain marketing, they provided the necessary legal and institutional setting for the transhumant sheep grazing practiced in these hot, dry climates. In Spain, the *Mesta* or herders’ association had been set up in the late thirteenth century to promote wool production for export, adjudicate between herders and sedentary populations, establish migration routes between summer pastures in northern Castile and Léon and winter grasslands in Andalusia and Extremadura some 450 miles to the south, and collect tolls for the Crown and fees for the military orders that owned the main southern grazing lands. The Kingdom of Naples founded a similar body termed the *Dogana* in 1447, centered on the royal customs house at Foggia, in Apulia.

In the regions along the North Sea known as the Low Countries or Netherlands, the peasantry initiated and directed commercial farming. Small-scale intensive agriculture relying upon household labor was practiced throughout the provinces of east Flanders and Brabant in today's Belgium. In this area of partible inheritance and historically dense populations, where by the mid-fifteenth century half the farms had just two to three ha., high urbanization and commercialization levels made small holdings viable. The third of the total population that lived in towns furnished concentrated demand in accessible markets, while trade along road, canal, and river brought grain from nearby west Flanders, Hainaut, and Cambrésis, encouraging many east Flemish and Brabantine farmers to diversify into other crops and livestock.

Long leases and weak collective regulations left nearly complete control over agriculture to peasants who gradually introduced innovations that exemplified "Flemish farming" or *petite culture*. Abandoning fallow or reducing it to just once in every seven or eight years, they planted fodder (usually nitrogen-fixing) crops like buckwheat, clover, vetch, and spurrey on the formerly idle land; the requisite hoeings also served to clean the soil. In addition, they alternated cereals and legumes (peas and beans); created temporary meadows for livestock by putting arable under grass for three to six years and then returned the well-fertilized land to crops; farmed waste and other marginal plots for brief periods followed by long rests; and squeezed in a weed-suppressing turnip crop between fall reaping and spring sowing of grain. Flemish farmers also took up new tools: harrows to break up clods and uproot weeds, plows adapted to local soils, and scythes that harvested faster than the sickles they replaced. Generations of experimentation and accumulated knowledge turned these smallholders into highly productive suppliers of both foodstuffs – they boasted yields often twice the European norm – and such raw materials as wool, leather, hemp, dyestuffs, and hops for urban industry. So productive was the intensively worked, abundantly fertilized land that it sustained flax cultivation, notorious for rapidly depleting soil, reducing yields and quality. Indeed, a flax-growing family that engaged in some handicrafts on the side – as many did – could survive though not thrive on a holding as small as half a hectare.

A nearly independent peasantry and weak lordship shaped the commercial agriculture emerging in the northern Netherlands provinces of Holland, Utrecht, and Friesland. In order to attract colonists to this swampy frontier wilderness, eleventh- and twelfth-century seigniors had offered personal freedom along with low, fixed cash rents and dues. From the beginning, therefore, peasants enjoyed nearly complete ownership of their holdings, which they freely bought, sold, leased, and mortgaged. By

the late fifteenth century, they effectively owned as much as 50 percent of Holland's land, nobles no more than a tenth; though more likely to be tenants in Friesland and Utrecht, peasants there enjoyed secure, de facto renewable and heritable leases. Most often, moreover, lords' holdings were widely scattered and did not include commons and forests, so did not provide an adequate material basis for dominating the peasantry. Since towns controlled the provincial representative assemblies ("estates") and juridical feudalism was weak, northern Netherlands lords had few extra-economic means of gaining income.

Anemic lordship did not entail strong village communities; if anything, the absence of conflictual relationships between seigniors and tenants inhibited development of collective institutions that might have helped form common interests and practices. What is more, the land was settled, "impoldered" (drained and turned into viable fields and pastures), and worked in individual canal-enclosed family farms without common arable fields to regulate cooperatively. The most important collective organizations were the drainage boards or *waterschappen* that undertook the never-ending tasks of maintaining windmills, pumps, canals, and related facilities. Yet while legally autonomous and elected and managed by the peasants, and thus wholly independent of lordship, the waterschappen had nothing to do with the kinds of agricultural regulation that structured communal institutions and solidarities elsewhere in rural Europe.

In the mid-fifteenth century, most Dutch farms remained too poorly drained and frequently flooded to support a family or fully utilize its labor, thereby foreclosing both self-sufficiency and specialization. Instead, peasant households in the northern Netherlands engaged in a variety of pursuits – grain growing, fishing, peat digging, transport, construction, handicrafts – and thus were considerably less efficient or productive than farmers in northern Italy or nearby Flanders and Brabant. But market gardening, dairying, and livestock herding, already starting to become significant, promoted a monetized and market-oriented rural economy, since so many foodstuffs and other items had to be bought. Forms of intensive cultivation were beginning to appear, and so were trading and transport facilities needed to bring in grain and carry out bulky agricultural commodities.

These regions of commercial agriculture demonstrated the rural sector's ability to vary supply in response to market stimuli like changes in relative prices and items in demand, the increasing role of agricultural and industrial wage labor in the countryside, and the emergence of markets for land and leases. Commercial farming built on and furthered divisions of labor within and between regions. These might occur over sizable distances, as between Hungarian stockbreeders and western European

specialized farmers. But many were between adjacent districts. Eastern Sicilian peasants, for example, produced wine, oil, and livestock for sale on the western parts of the island, which sent them grain. At the end of the Middle Ages, however, these phenomena did not add up to agrarian capitalism. Even if they leased their manors, commuted labor services, and relied increasingly on rents based on commercialized peasant production, the greater number of landlords retained lucrative extra-economic feudal dues, fees, and monopolies that restricted peasants from freely disposing of their labor or produce. Nor did either peasants or lords possess exclusive title to land. Effective peasant control of land – their chief means of production – kept them from becoming full proletarians dependent only on the sale of their labor power, even when they engaged in wage labor as well as farming. Very few farms depended just on full-time wage laborers; the overwhelming majority either combined paid with family workers or relied wholly on household labor. And while in exceptional cases late medieval peasants could be as productive as their descendants at the end of the eighteenth century, local conditions and conventions dictated appropriate techniques and practices. Again, explicit and tacit codes, customs, and institutions protected consumers somewhat from market exploitation and instability; they also created protected, at times monopolistic markets that discouraged or even prohibited price competition among producers. Agriculture was not stagnant at the end of the Middle Ages, but it was governed by a logic and power relations that were not capitalist.

Industrial Organization and Trends

Late medieval European crafts possessed distinctive attributes that persisted into the early modern period. Textiles were the largest single industry; the apparel, leather, food processing (especially grain milling and beer brewing), and construction trades were also significant. Physical plant like mills was capital-intensive, but even costly machines like smelting furnaces could be financed by associations of the producers who shared them. Gradually and unevenly, technologies that had originated in the East were adopted; new machines were invented in Europe as well. Still, most production was carried out in small, dispersed artisan shops, in which working capital used to purchase raw materials and pay wages far exceeded the fixed capital embodied in buildings and equipment. Corporate rules ordered many aspects of production relations, while also structuring labor mobility. In mining, metallurgy, and milling, proximity to supplies of raw materials or sources of inanimate energy usually determined industrial location. In contrast, the many crafts whose raw materials could be readily transported, and whose motive power was

human or animal, were much more widely dispersed. Their siting owed more to the cost and availability of labor, commercial and transport facilities, sufficient food supplies, and government or corporate regulations, laws, and privileges.

Agrarian rhythms affected many industries. Rural laborers regularly interrupted manufacturing work for better paying harvest jobs. Demand for manufactures rose when abundant harvests lowered food prices; conversely, subsistence crises caused industrial joblessness because consumers had to devote more of their income to foodstuffs. Nevertheless, as expanding agricultural specialization and commercialization increased consumption of industrial goods by peasants and lords alike, manufacturing for sale spread through town and country across late medieval Europe. Much output consisted of lower quality goods for local or regional customers, but there was also a considerable international trade in European products. Some were expensive luxuries, like fine Cordovan leather from southern Spain, Leiden broadcloth, or Venetian glass, destined for a restricted, widely dispersed clientele. Large quantities of goods for middling- and lower-income consumers also traveled long distances, particularly once military conflict waned after the mid-fifteenth century: thus relatively cheap woollen textiles from Flanders became available from the Baltic to the Mediterranean.

Mobility and Innovation

The industrial geography of medieval Europe was fluid. In the early Middle Ages, most manufacturing was rural, employing farm families as well as specialized artisans. Young peasant women, for example, often fulfilled labor services to their lords by making cloth in workshops or *gynaecea* built for that purpose. After about 1000, much industry shifted to towns to tap more skilled labor, larger amounts of capital, concentrated demand, better transport, and more efficient commercial facilities. Yet some manufacturing remained in the countryside, for certain areas were blessed by plentiful raw materials, cheap energy sources such as water and wind, or abundant labor. And as the fifteenth century advanced, rural production flourished once again.

Some of the rural manufacturing revival came at the expense of towns. Yet rural industrial growth did not necessarily cause urban decline; city and countryside often prospered together. Sometimes both town and country made the same kinds of goods, usually of middling or lesser quality: in south Germany, countless villages wove flax and cotton “barchents” (fustians) alongside Ulm and Augsburg. More often, a regional division of labor developed. Towns usually specialized in higher

priced goods involving costly equipment or raw materials, high skill levels, elaborate finishing, or close supervision, while villages focused on simpler, less expensive items made of cheaper materials and requiring less labor. These might be versions of urban products, but they might be quite distinct, especially where cities had secured local monopolies for their own goods. Frequently, city merchants or artisans organized systems in which rural and urban artisans performed different stages in the manufacture of a single product or performed distinct operations in the transformation of raw materials into finished goods. Thread was washed, spun, combed, and bleached in the countryside; cloth was woven, dyed, and sheared in town. Similarly, rural folk smelted and refined metals but urban workers made most weapons, tools, hardware, and jewelry. In short, industries in town and country could be complementary as well as antagonistic.

Reflecting the mobility of capital in search of greater profit, the effects of competition, and the results of social conflict and political upheaval, manufacturing also shifted within and between regions. In the Low Countries, for example, towns and villages in Artois pioneered the making of standardized woollen cloth for export during the twelfth century, but in the decades around 1200 much of the industry migrated to Hainaut and Flanders. By about 1300, it had moved again, this time to large cities in Brabant; in the following decades it relocated to smaller cities in that province and Flanders; and by the fourteenth century it had expanded into the province of Holland. Similar relocations also occurred on a larger scale: already by the fourteenth century Netherlands primacy in the international fine-woollens trade had been successfully challenged by manufactures from northern and central Italy, which in the next century ceded it to England.

Technological innovations had been introduced across the Middle Ages. Many had Asian origins; often transmitted by Muslim intermediaries, they underwent adaptation and improvement. Some were major breakthroughs, like printing with movable type, which spread swiftly throughout Europe after Johann Gutenberg perfected his innovation in 1453. Even less dramatic appropriations provided significant productivity gains. By the fifteenth century, the spinning wheel, which arrived in Europe about 1200, had acquired a mechanical drive for flyer and bobbin as well as a fixed and thus faster moving spindle, doubling or tripling output as compared with the distaff and spindle. Other imports from the East were less a matter of technological innovation than of new styles that nonetheless gave birth to new industries. Such were fustians, mixed cotton and flax fabrics that arrived in Sicily during the twelfth century,



Fig. 2.1: This depiction of glass manufacture in Bohemia about 1420 shows its location in the countryside near local supplies of glass sand and wood, the peasants who transported the raw materials, and the small size of the artisan group that exploited the works collectively and performed the several stages involved in production

which were later taken up with success in northern Italian towns, and in the fourteenth century became a leading craft in south Germany.

Many inventions were devised by anonymous European artisans building on accumulated knowledge that the late medieval crisis did not interrupt. Compared to boats with overlapping or “clinker” planking, ships of the new “carvel” (caravel) type, in which boards were fitted side by side over beams and then caulked, saved on construction outlays by using less wood. Lighter and larger than clinker-planked ships, carvels sailed faster and carried larger cargoes per crew member, so they also reduced unit transport costs; highly maneuverable and easier to navigate, they admirably served explorers’ needs. Blast furnaces using water-driven bellows reached higher temperatures than traditional bloomeries, economizing on fuel while yielding more pig iron of higher quality at less expense. After about 1460, greatly improved water-driven pumps and better drainage channels enabled operations deeper underground. Together with the Saiger process, which by employing molten lead to separate silver from copper allowed formerly worthless ores to be exploited, they raised the output and productivity of central European mines sufficiently to justify the substantial capital investments they entailed. Windmills became much larger, more powerful, and more productive with the late fifteenth-century Dutch invention of the movable cap or turret that allowed only the top to be moved to face into the wind, whereas with the earlier post mill, the entire – necessarily smaller – structure had to be laboriously repositioned.

New technologies generally spread slowly, sometimes because innovations threatened jobs. Fullers who beat cloth with their feet bitterly opposed the introduction of mills with water-driven hammers. Quality concerns also delayed adoption of new machines. Spinning wheels were often rejected because they gave flimsy, irregular thread unsuitable for the warp (which must be strong because it is stretched on the loom during weaving). Technological change could also threaten socially and culturally sanctioned patterns of work and sociability: whereas a spindle could be carried around and operated during other activities, the wheel confined the spinner to the home, so even women not producing warp thread objected to it.

The most familiar and acceptable form of innovation involved using existing technology to make new products. Typically, these were variants of established goods that employed novel, cheaper, or fewer raw materials and smaller amounts of skilled labor. The development of new types of woollen fabrics is a case in point. Expensive “old drapery” was woven on two-person looms from the finest English wool, fulled for up to five days, carefully napped (teased) and trimmed smooth by highly skilled

shearers wielding great scissors, then dyed for up to a week using costly ingredients (dyestuffs and wool together accounted for three-quarters or more of total production costs). In contrast, by using less and cheaper wool and simplified finishing techniques, most “new drapery” could be sold for just half the price of the best “old” (which it imitated). “Light drapery,” a bewildering variety of fabrics, could utilize the lowest grades of wool, often mixed with linen, hemp, cotton, goat hair, and other cheap or fashionable yarns. Woven on one-person looms, given little or no fulling, unteased and unsheared, light drapery sold for a third or less of the price of the best woollens, a half of new draperies. So despite impediments to the diffusion of technological change, geographical mobility and new product development enabled medieval manufacturers to reduce costs and thereby win a broader clientèle.

Work Sites and Corporate Institutions

Medieval Europe was dotted with mines, forges, kilns, papermills, shipyards, and other specifically industrial locations. A few were large – Sicilian sugar refineries employed forty to fifty people – but most enterprises were much smaller. Central European silver mines, for instance, were worked by four or five men who banded together to exploit a seam. Even the greatest manufacturing site of the age, the Venetian Arsenal where the communal galleys (large cargo vessels-cum-warships) were built, was not a single, unified enterprise. Instead, scores of independent skilled masters each employed a few assistants to fabricate the many distinct components required for a ship. A central managerial staff existed only to monitor quality and organize final assembly.

Most goods were produced in modest shops or dwellings. Operated by a trained artisan assisted by family members young and old, an apprentice, perhaps a handful of wage laborers or even household servants, the typical production unit required little fixed capital investment. Machinery was simple, inexpensive, and manually powered. More capital was needed for operations, but supplies could be purchased through “trade credit” (which deferred payment until finished products had been sold), intrafamily loans were common, and dowries often brought artisans cash and equipment. Guild and municipal regulations also often favored small shops run by individual masters. The most common measures limited output per shop, restricted the number of apprentices or workers a master could employ, and forbade non-masters to operate workshops.

Urban artisans usually practiced one often highly specialized trade. Making fine woollens involved a dozen or more separate crafts; carpenters, wheelwrights, cabinet-makers, turners, wet coopers, dry coopers, and still

others produced specific wooden goods. Yet within individual shops the division of labor was usually flexible, as each person performed a variety of manufacturing and marketing tasks. Household members might engage in a different craft than the head of the family. Women frequently practiced several trades – often in areas like food preparation and the making of cloth and clothing, that were related to household tasks – depending on their domestic imperatives and the resources they had available. Ale, for example, could be brewed using common kitchen implements; spinning could be interrupted for childcare. Some women – wives as well as the widowed and the never-married – worked outside their households at everything from mining to tailoring.

Though full-time artisans and industrial laborers could be found in the countryside, many rural crafts employed peasants who worked during slack agricultural periods but left during sowing and reaping. Climatic conditions also interrupted rural industry: water-driven mills, for example, stopped when streams ran low in late summer. But since this was the period when grain, grapes, and other crops had to be brought in, industrial and agricultural work could dovetail nicely. Women were heavily involved in rural manufacturing, notably in textiles. Each new drapery loom, for instance, required the output of four spinning wheels, and farm women were employed in every step of linen production from raising flax through bleaching woven cloth.

Statutes often regulated hours and wages. Typically, mandated workdays stretched from sunrise to sunset, albeit interrupted by specified meal and rest breaks. Winter days were considerably shorter than summer, because working by candlelight was forbidden to reduce the danger of fire. Prescribed winter wages were up to 30 percent below summer levels, indicating that pay was based on hours worked though formally calculated by the day and paid weekly. The workweek was conventionally set at six days. Fifty or so religious holidays interrupted the year, so a fully employed artisan could legally work 250–70 days a year, or about five days a week. But actual work schedules and wage rates often – probably usually – differed from statutory. Beyond the many crafts not covered by regulations – which were mainly limited to towns and males – much work was seasonal, paid by the piece, or off the books.

Many (in some places most) urban trades were organized into guilds or “corporations” recruited along occupational lines; merchants, including retailers, might have their own corporations or belong to artisan guilds. Some guilds had roots in voluntary associations ranging from lay religious societies to criminal syndicates; municipal or princely governments had established others. Many, however, sprang up as spontaneous, autonomous unions of masters and merchants attempting to enhance their

personal liberties, regulate competition among themselves, and mediate differences with other social groups; only later were their rules and privileges ratified by public authorities. Irrespective of their specific origins, guilds were juridically defined, semi-public bodies endowed with diverse social, cultural, and political attributes. Religious, charitable, and festive activities, conducted by brotherhoods or “confraternities,” were central to their identity. To advance their members’ collective interests, guilds often engaged in politics, whether as well-organized (and, because they staffed urban militias, customarily well-armed) pressure groups or as constituent elements of the urban polity. In Flanders, northern Italy, and Germany, some large and rich guilds had won representation in municipal governments; in many towns, a citizen wishing to participate in politics had first to enroll in a guild.

For all that, guilds were primarily hierarchic economic institutions that regulated producers, production, and traders for the benefit of the masters or merchants who dominated them. Only men and (in a few trades) women who had successfully completed apprenticeship in the manner prescribed by guild rules and had amassed sufficient capital to buy the requisite tools, open a shop, and purchase admission to the guild were permitted to make and sell the goods reserved to that corporation. Guilds also helped masters recruit and discipline their labor force. They reserved the training of apprentices to guild masters, prescribed the content and length of the education that apprentices were to receive, and examined candidates at the end of their term of apprenticeship, usually requiring the satisfactory fabrication of a more or less elaborate “masterpiece.” Journeymen and other wage-earning employees, both male and female, likewise fell under the jurisdiction of guilds, which set up hiring procedures, fixed wage rates, regulated laborers’ mobility, and whenever possible crushed autonomous worker organizations.

To protect masters and merchants against competitors inside as well as outside their crafts, guilds deployed various strategies, including local or regional monopolies, output quotas, ceilings on workshop size, and limits on entrepreneurs’ investment in manufacturing. These types of restrictions led eighteenth-century economists and, until recently, most historians to consider guilds (in Adam Smith’s memorable phrase), “a conspiracy against the public,” inherently obstructive of free exchange and innovation in service to privileged insiders at the expense of both the wider community and economic development. Newer interpretations hold that guilds were compatible with or even promoted economic improvement, particularly in crafts requiring advanced expertise. According to some scholars, corporations were critical in the formation of skills through apprenticeship. Others emphasize guilds’ role in

enforcing quality standards that helped maintain customer confidence and thus prices, or argue that guild privileges and monopolies encouraged innovation by providing patent-like protection to new processes, or (if unintentionally) by promoting labor mobility of journeymen who circulated techniques and knowledge as they “tramped” in search of employment. At times, to be sure, corporations sought masters’ security by resisting changes in products or procedures, particularly those that threatened their skills or required considerable capital outlays. But new methods that cut costs by saving on working capital, or innovations that enhanced a craft’s competitive position by expanding the variety of goods offered or improving their quality, were welcomed when regulations could be devised to spread the benefits among masters.

Guilds were fundamental to medieval – and, we shall see, early modern – urban industrial economies, but the sheer bulk of their surviving records and their multifaceted role in public life can create an exaggerated sense of their strength, solidarity, inclusiveness, and significance. In the past few years, numerous studies have minimized guilds’ ability or concern to control training, labor and product markets, even innovation. Underlining regional diversity in guild structure and power, they consider corporations to have responded – even been subject – to market forces as much as shaping them. Guilds often could not enforce monopolies and other privileges, even within a city’s walls. Corporations dominated by merchants and/or municipal authorities ordinarily had few rules about production or apprenticeship and relaxed them when conditions warranted; their main interests were securing privileged market positions, controlling workers, and assuring quality by enforcing local standards and practices however learned. Even in trades controlled by masters, a large minority of apprentices did not complete the full term stipulated in regulations or contracts. This suggests that apprenticeship served to manage labor relations in a situation in which possibilities for exploitation by masters and incomplete repayment for training by apprentices created inherent strains. It also indicates that skills were not wholly or only learned during apprenticeship but were imparted in diverse settings, at various times, often in the course of paid labor.²

In addition, there were always guild masters who flouted production limits, cheated on standards, or made goods that rightfully belonged to other trades. Numerous artisans also remained outside corporations. Some were in unregulated “free” trades or worked as cheap contract

² Robin Schalk, Patrick Wallis, Clare Crowston, and Clair Lemercier, “Failure or Flexibility? Apprenticeship Training in Premodern Europe,” *Journal of Interdisciplinary History* 48 (2017): 131–58.

labor for guild members; others lived in seigniorial enclaves or suburbs beyond the reach of municipal law. Rural artisans might not belong to guilds; indeed, the absence of guilds is frequently said to have induced industry to grow up in or relocate to rural locations. Recent research has dethroned that view. Though perhaps dissimilar in structure from their urban counterparts, distinct corporate institutions frequently existed in the countryside, and in some places urban-based guilds incorporated rural artisans. Moreover, village crafts producing for export were regulated to assure the quality standards that merchants and consumers demanded, and urban restrictions were often no more extensive or rigid than those in the countryside.

Women, whether rural or urban, constituted the largest group discriminated against by guilds, kept out as much by custom as by written rules. Many medieval women were employed in manufacturing, their participation frequently invisible because documents only specified husbands' or fathers' occupations. Female artisans aided by apprentices and wage laborers long operated workshops; in England, some fabricated fine ironwork. Women were particularly common in textile crafts. They practiced every specialty from combing to dyeing in the Spanish cloth industry, spun gold thread in Cologne, made tapestries in Paris, wove silk in cities throughout Europe. Labor shortages that had emerged in the aftermath of the Black Death and later fourteenth-century epidemics had strikingly favored women: many had been taken on as apprentices and thereafter attained mastership. But by the mid-fifteenth century it had become very difficult for a woman to work as an independent guild mistress.

In a handful of French and German cities a few luxury textile guilds like cloth-of-gold and silk were primarily or even exclusively female. Men administered nearly all of them, however, and men handled political matters relating to the corporations. In addition, husbands or other male relatives usually marketed the guildswomen's goods. Elsewhere, women were rarely corporate members on their own, since guilds were organized around units of production led by men. A widow who was a head of household might be permitted to join a guild and carry on her late husband's trade. But frequently she could only participate for a limited time and then had to remarry a master or journeyman from the same craft or lose her right to practice it; furthermore, some crafts explicitly barred widows. Little wonder that widows comprised a tiny percent of guild masters or that women predominantly served as the vast, cheap, flexible work force required in such labor-intensive tasks as washing, combing, carding, and spinning. Most picked up their training informally, and women who did enter apprenticeship rarely attained journeyman status.

It seems, too, that the few guilds formerly open to women began to bar them as the Middle Ages drew to a close. In some places, women could not afford entry fees that became steeper as corporations became oligarchic. Other women found increasingly formal work rules imposed in numerous trades incompatible with family responsibilities. Women were likely to be pushed out of guilds that got involved in formal political institutions, which never welcomed a female presence. Many women continued to find employment. But more and more had to work illegally – and thus with fewer protections and at lower wages.

Late medieval corporations were also marked by a widening gap between ethos and actuality. As many guilds fell under the control of wealthy hereditary elites closely allied to – at times identical with – the merchant and patrician oligarchies that ruled cities, they served more to levy taxes, shoulder charitable services, strengthen market controls, and police the laboring population than to defend the interests of the majority of masters. In the fifteenth century, civic and royal authorities imposed new guilds to help administer urban society and economy. Apprentices were liable to be treated not as masters in training but as very cheap laborers owed little or no pay beyond room and board; in some cases, apprenticeship was prolonged years beyond the time needed to impart the appropriate skills. Masters' children, in contrast, were increasingly advantaged by exemptions from formal apprenticeship and often substantial mastership fees, further obstructing upward mobility of those outside existing masters' families.

Journeymen experienced most sharply the dichotomy between ideal and reality. Having successfully completed their training, journeymen could and routinely did perform exactly the same work as the masters who hired them. Yet many found accession into the ranks of masters blocked because they lacked sufficient capital to pay guild fees, buy tools and raw materials, and rent a shop. Formal and informal exclusionary practices ranging from rules favoring masters' sons to agreements among employers also helped keep mastership in the hands of a relatively small group. In fact if not in name, journeymen were being turned into permanent wage earners.

Production Relations and Working Conditions

Within a single town or village – even within the same trade – relations of production might vary considerably. Three broad categories of workers can be distinguished: autonomous artisans, artisans employed in “putting-out” and subcontracting, and dependent wage earners. The boundaries between groups were fluid, however, and an individual might move

among them over the course of a career or even participate in two at the same time. At one extreme stood those artisans – many of them guild masters – who had charge of the production process from the purchase of raw materials to sale of the commodity, whether to another artisan for further manufacture, to a merchant, or to the final consumer. These independent artisans customarily owned their shops and tools, though they often leased equipment like kilns, forges, and mills that demanded large capital outlays. Autonomous artisans mainly worked in crafts producing for the local market. But they were also found in export-oriented trades organized into the system known as “small commodity production” or *Kaufsystem*. In this arrangement, textile weavers, for instance, bought thread in the market, wove it in their households, and then sold the unfinished cloth to merchants for further processing. Corporate and municipal rules attempted to protect urban artisans’ autonomy by granting them privileged access to raw materials supplies, limiting shop size, and forbidding merchants and others from outside the guilds to invest in production. An analogous although less regulated system existed in the countryside when artisans could raise or mine or gather raw materials, or purchase them directly from neighbors, then sell their products to itinerant merchants or in nearby town markets.

Many artisans, including guild masters, were employed in putting-out arrangements (also referred to as “outwork,” “domestic” systems, or the German *Verlagssystem*). In putting-out, artisans contracted to manufacture a commodity or perform a stage in production (e.g., weave, full, or dye a piece of cloth) using equipment they owned or rented, aided if necessary by workers they hired; materials were supplied by the entrepreneur or *Verleger*, who typically paid piece-rates. Often well-to-do guild masters organized networks of small workshops to which they subcontracted work in order to minimize their capital investment and risk yet also meet demand.³

Virtually any craft could be organized on a putting-out basis, but it was most likely to be found in export industries where entrepreneurs – usually merchants – could monopolize access to imported raw materials and non-local consumers, thereby forcing producers to work for them. Domestic systems were also prevalent in trades where working capital and credit requirements exceeded artisan resources, whether because of the substantial sums needed to purchase expensive materials like raw silk and pay skilled labor, because a process such as soaking hides for leather

³ See Catharina Lis and Hugo Soly, “Subcontracting in Guild-based Export Trades, Thirteenth–Eighteenth Centuries,” in *Guilds, Innovation and the European Economy, 1300–1800*, eds. S. R. Epstein and Maarten Prak (Cambridge, UK, 2008), 81–113.

immobilized funds for so long, or because of a protracted interlude between completion of manufacture and receipt of payment. For entrepreneurs, putting-out guaranteed access to marketable products without immobilizing capital in equipment should demand change; the arrangements also skirted – or exploited – guild regulations designed to protect masters' autonomy by limiting output or size of workshops, or forbidding outside ownership of means of production.

Over time, the credit and advance payment characteristic of outwork could turn an artisan into a virtual wage laborer dependent upon a single employer. Yet such a change was neither inevitable nor necessarily permanent. Many artisans worked for more than one Verleger and, depending on the state of the business cycle and their judgment about opportunities for profit, switched between outwork and production of commodities that they personally sold in the market. Some carried on both at the same time. Other artisans simultaneously worked on contract and subcontracted to others, or combined contract work with trading, and this sometimes became the avenue by which they themselves became entrepreneurs or merchants.

The least autonomous workers of all were those employed for a wage: whereas independent and putting-out producers sold the products of their labor, dependent workers sold only their labor. Comprising semi-skilled and unskilled workers, most women (no matter what their proficiency), some apprentices, journeymen, and even ruined masters, this heterogeneous group labored under disparate conditions. On rare occasions, medieval entrepreneurs sought to establish large shops in which wage-earning employees using tools and equipment supplied by the owner carried on many or all stages of production. But most towns and guilds, championing small shops and separate trades, discouraged such ventures. As a rule, moreover, entrepreneurs themselves looked askance at big units. Aware that labor and raw materials accounted for most production costs – so few if any gains could be realized from controlling production processes – they avoided tying up much capital in fixed investments like manufacturing equipment or buildings that would lie idle in a downturn. The bulk of entrepreneurial capital remained in circulating or working form – in raw materials, advances for wages, goods in shipment – and profits came overwhelmingly from commercial and credit transactions. Thus most wage earners, like most putting-out workers or independent artisans, labored in small shops.

Such workers might have long-term contracts or get hired by the week or day; they might use their own tools or their employers'; they worked at a variety of industrial sites. Paid according to piece rates or by time, their wages could vary by gender, by the inclusion of meals or residence in the

employer's house, or by advances that bound them almost as servants. Over time, specific places and times had emerged as informal "hiring halls" or been explicitly established for that purpose, with competition for work magnified by the presence of migrants, pauperized masters, and failed journeymen. But free labor markets attuned to changes in supply and demand were slow to appear. Their emergence was hampered by guild and municipal regulations, the continuing importance of personal relations for obtaining jobs, and pervasive assumptions about correct wage levels fixed by custom. Thus wages tended to be "sticky," remaining unchanged for years or even decades, whereas prices were more volatile.

Nevertheless, the supply of labor did affect wages, which had generally favored workers in industry (as in agriculture) for nearly a century following the Black Death. To be sure, short-term crises combining high prices and joblessness had recurred every two or three years, in some industries intensified competition put a damper on wage growth, and even in expanding trades the pace of work may have accelerated as employers more closely supervised expensive labor. Yet real wages had at least doubled, thanks to low prices for grain, the central determinant of the cost of living, and a tight labor market. Just as it had encouraged specialization in more profitable arable crops and stockraising, so the declining cost of cereals had freed a larger proportion of consumer spending for manufactures, helping maintain industrial wage levels and employment. From 1450/1470, however, improvements in living standards halted or even went into reverse, as price increases began to outpace wages once demographic recovery became widespread.

Late medieval European manufacturing encompassed, then, an impressive variety of institutional forms, work relations, and labor conditions. The unskilled wool beater employed for piece-rates by Florence's Lana guild had a work experience unlike that of the independent female ironmonger of the English Midlands; a rich goldsmith in Paris was a producer of a different stripe than a village flax spinner in East Prussia. Guilds provided much of Europe's manufacturing structure, job training, and industrial discipline, not to mention important charitable, religious, and convivial services, yet a large part of the workforce found itself outside of corporate rules, protections, and controls as casual and wage labor became integral to industrial production. Some entrepreneurs sought to cut costs and increase efficiency, and adopted innovative processes and products to exploit new market conditions. But they pursued profit not from direct involvement in manufacture, which they left to predominantly small producers, but from financing production and exchanging the finished goods in the market. Consider Florence, where attitudes encouraged moneymaking, corporate institutions were weak, and

government policy supported pervasive entrepreneurial initiative. Even there, great textile manufacturers like the Medici, who provided work to scores if not hundreds of artisans and workers and made their city one of the richest in Europe, never tried to create unified businesses – or even centralized accounting – much less invest substantial fixed capital, stock large amounts of raw materials, or pursue growth by adopting new techniques. Rather, they developed networks of putting-out contractors who organized all stages of production that artisans and workers carried out in small workplaces.⁴ Such merchant entrepreneurs lacked, in short, the mentality, practices, and structures definitional of capitalism. As in the agricultural sector, so in the industrial: what anachronistically might be identified as capitalist elements were embedded in an economic environment governed by different imperatives.

Commercial Practices and Participants

Agriculture and industry both promoted and reflected late medieval developments in trade. Population recovery and revived urbanization intensified demand. Rising productivity per capita resulting from agricultural specialization stimulated consumption by middling and even less prosperous groups as more affordable goods supplemented existing varieties – new and light woollens alongside old drapery, for example – and new tastes were indulged: butter and cheese as well as wheat. Europeans increasingly purchased items once made at home: thus ale and beer were now likely to be bought from a commercial brewery. Commerce also quickened as new consumer items – reasonably priced pleasures rather than necessities – won favor: tin pins and buckles instead of copper adornments, or pewter and ceramic tableware rather than silver.

Demographic resurgence and market broadening were the leading domestic spurs of Europe's commerce. Increased traffic on long-existing routes, the spread of best merchant practices and commercial institutions, and rising market participation by occasional as well as professional traders also contributed. In retrospect, most significant was exploration of new trading zones and the launch of a new phase of colonization. None of the changes was dramatic or rapid, and to a large degree they regained ground lost during the late medieval crisis. All the same, they laid the groundwork for more pronounced alterations in the early modern period. They also hinted at the coming shift in Europe's center of economic gravity from the Mediterranean basin to Atlantic coastal states.

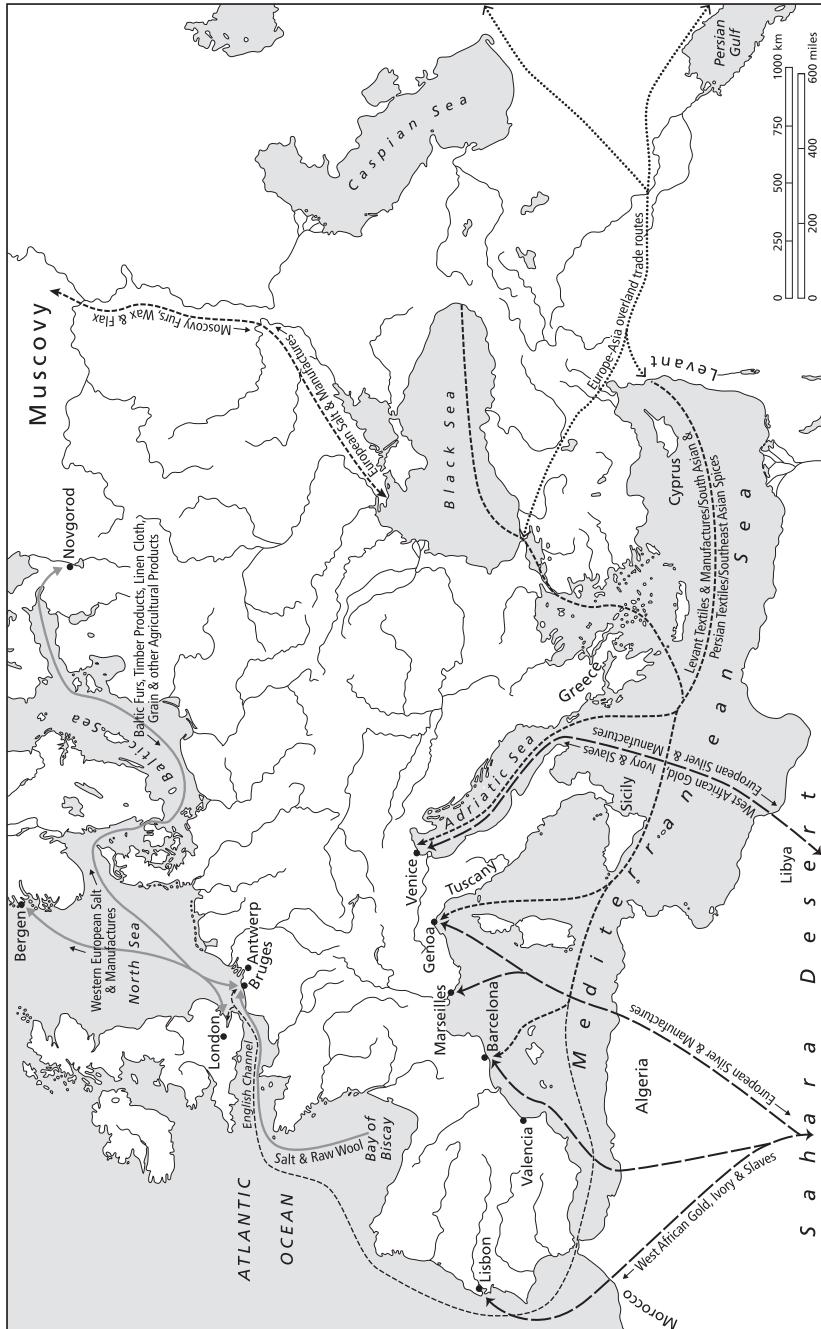
⁴ Richard A. Goldthwaite, *The Economy of Renaissance Florence* (Baltimore, 2009), especially 583–94.

Routes and Goods

Europeans had long traded among themselves and with other lands far and near both directly and through intermediaries. Big full-rigged ships made it less expensive – and more profitable – to move goods over considerable distances. But small boats that could travel far inland on Europe's many rivers carried more goods and at lower cost thanks to productivity gains that probably outstripped those realized by larger vessels. Luxuries for elite consumers were the most celebrated cargoes, lucrative enough to be shipped long distances even in times of war. Yet bulky, low-margin items comprised a surprising amount of freight loaded on ships, carts, and pack animals, particularly when peace lowered security costs. Primary among them were foodstuffs: grain, wine, and, increasingly, beer, as well as lesser quantities of olive oil and salt. Demand was also high for building supplies, notably timber products needed for ships, residential construction, and public works, and for masonry and stone items. The unequal geographic distribution of ores assured, too, that metals regularly traversed Europe, usually after undergoing some processing. Again, while virtually every area in Europe wove some sort of textile, fabrics constituted far and away the largest share of manufactures traded, and textile raw materials – notably wool, flax, hemp, and dyestuffs and related items – were among the leading industrial raw materials exchanged. And though demand varied according to the state of labor markets and changes in elite signs of prestige, enslaved humans from the Balkans, Asia, and Africa were also to be seen on European trade routes.

Many goods traveled overland, whether to local markets or further away. Often road networks were centered on regionally dominant towns or cities, but myriad inter-regional routes also existed. The most intensively used were the transalpine roads and passes connecting the Continent's most heavily urbanized regions: northern-central Italy, southern Germany, and the Low Countries. Where available, waterborne transport was usually preferred for its lower cost, essential if voluminous, heavy, low-margin commodities like grain were to be moved affordably more than a short distance. Rivers were often used for this purpose, and so was the brisk cabotage that took place along every coast, sometimes extending to further shores, as across the English Channel or North Sea.

Commerce of every sort, on every type of route, was particularly intense throughout the Mediterranean. Much trade was inter-regional: Sicily, for instance, was a major supplier of grain and sugar to Tuscany; Venice received agricultural goods from its colonies along the Adriatic coast, on the Greek islands, and on Cyprus. North Africa was likewise a leading destination for European merchants, once again for grain, but also for



Map 5: Europe's Long-distance Commerce at the End of the Middle Ages

gold, ivory, and slaves brought across the Sahara. Genoese, Venetians, and to a lesser extent Catalans had trading posts along the Levant coast in the eastern Mediterranean and around the Black Sea. At them, they purchased locally produced textiles and other manufactures, and luxury goods including silks, spices, and cottons brought from central Asia, India, or China by adventuresome Europeans like Marco Polo or (more regularly) by indigenous merchants. The rise of the Ottoman and Mamluk empires, however, curbed European traders' privileges and access, prompting attempts to circumvent these states by developing new trade routes.

Colonies on the northern Black Sea coast also dealt with Russia. Most Russo-western European trade was conducted, however, at Novgorod, a "*Kontor*" (office or enclave) of the Hanse, a merchant association established to ensure traders' security and obtain commercial privileges or monopolies in the Baltic and North Sea region. With additional main Kontoren at Bergen, Bruges, and London, and another half dozen posts in between, the Hanse managed trade throughout much of the area, sending furs, timber products, wax, flax, honey, and rough linens west, salt and manufactures east. In the southern Baltic region, Dutch merchants developed a flourishing trade in grain, in return selling specialized agricultural products and textiles, turning the area into a northern version of Italian cities' Mediterranean hinterland. Western Europe also received goods from Italian and Iberian merchants who extended their Mediterranean routes north along the Atlantic coast, particularly to England and the Low Countries in order to exchange with Hanse or domestic traders.

Ever since the Vikings had settled in the Faeroes, Iceland, Greenland, and (briefly) Newfoundland from the ninth to early eleventh century, small-scale but vital long-distance trade had exchanged European food-stuffs and manufactures for North Atlantic fish. From the early fifteenth century new Atlantic trade routes began to be constructed. Portugal, long an intermediary between western European and Mediterranean markets, took the lead. A search for new means of access to known trade goods, backed by political and religious ambitions, led the Portuguese crown, nobles, and merchants to move decisively into the African Atlantic. Initially, they sought control over Moroccan trans-Saharan route termini and grain-growing areas; the main results, however, were years of fruitless warfare and creation of new routes and termini that Muslim merchants continued to dominate. More successful were repeated expeditions ever further south along the West African coast in search of direct access to gold and, after the Ottoman capture of Constantinople in 1453 disrupted eastern Mediterranean trade, spices. These efforts resulted as well in the

discovery and settlement of Madeira (1420), the Azores (1427), the Cape Verde Islands (1456/1461), and São Tomé and Príncipe (1470).

The maritime knowledge and navigational skills that the Portuguese learned from these voyages were to come to fruition in subsequent decades. Yet already before the late fifteenth century Portugal had not only greatly extended European Atlantic trade routes. The Portuguese had also attained more direct access to gold mining areas near the Gulf of Guinea and new sources of sugar and grain, cultivated on plantations quickly established on their new island possessions. In addition, they sold manufactures to West African consumers, notably textiles including European linens and woollens, Indian cottons, and most of all North African woollens. Such fabrics were not a novelty for West Africans, who for centuries had bought imported cloth from trans-Saharan merchants, as well as cottons woven in inland western Africa. But if their goods were familiar, the Portuguese were new suppliers. Moreover, they were laying the foundations of a commerce that subsequently became central to early modern Atlantic Europe: selling globally sourced manufactures – textiles most of all – in Africa, some for gold and ivory but increasingly for enslaved men and women to labor on plantations throughout the Atlantic world.

Medieval routes and goods were not immutable but adapted to constantly changing conditions that were as much political as economic in nature. Some influences intruded from the edges of Europe or beyond, such as the enlargement of Ottoman and Mamluk territories that curbed European control over trade in the eastern Mediterranean while encouraging the search for alternatives. Most often, however, the circumstances impelling commercial change were internal to Europe. Warfare repeatedly diverted routes and by raising transport costs affected the composition of shipments. The shift in England's primary export from raw wool to woven woollens, favored by Crown policies that from the late fourteenth century imposed much higher taxes on wool than on cloth, likewise promoted London to predominance among English ports. The switch also had lasting effects on Continental trading patterns and broader economic development. It facilitated the rise of Castilian raw wool exports – thereby, if unintentionally, bolstering the Mesta's efforts – and the emergence of Seville as a major port, poised for the much larger role it would play in the long sixteenth century. Exports of English woollens also helped Antwerp, its urban core and hinterland home to substantial dyeing and finishing crafts, not just supplant Bruges as the Netherlands' chief port but become a great European entrepôt situated at the vibrant intersection of Channel, Baltic, North Sea, Atlantic, and overland routes.

Techniques and Traders

Within Europe, many overland routes had long converged on locations that held fairs. During these periodic markets, merchants from far and near exchanged goods and information, settled debts, and refreshed their credit, all under the protection of powerful lay and clerical lords who controlled access in return for collecting lucrative tolls and fees. Situated on heavily traveled routes between Italy and the Low Countries, the Champagne fairs were particularly important; they were supplemented by similar gatherings in many other places. The rise of merchant companies with partners resident in numerous cities and the development of direct Mediterranean-North Sea maritime routes had already diminished the significance of the Champagne fairs before the Black Death, when they disappeared for good. But major fairs continued to be established thereafter, since they remained effective means for many merchants to do business, notably financial transactions, thereby stimulating trade along routes leading to them and the places where they were held, while also promising to swell state treasuries. For those reasons, in the second half of the fifteenth century French monarchs successfully promoted a fair at Lyon that attracted Italian merchants and bankers, many of whom abandoned the fairs of nearby Geneva; with similar goals in mind, public authorities revived or founded fairs at Frankfurt-am-Main, Châlons-sur-Marne, Antwerp, and many other places.

Still, late medieval commercial activity increasingly occurred in other settings, aided by a host of developments in organization and practice. Though hosting some renowned fairs, northern and central Italians were the medieval European pacesetters in developing novel commercial techniques and institutions. Besides its position between Muslim and Byzantine civilizations and Asian trade connections, and less advanced transalpine societies, from shortly after 1000 CE Italy benefitted from precocious urban revival, turn to commercial agriculture, and broad range of specialized manufactures. These forces had given rise to vibrant trade with its own culture, which in turn fostered commercial innovations that were intended to – and often did – acquire and dominate markets abroad.

Many enhanced security for merchants and their goods while increasing efficiency. Insurance guarded against piracy and shipwreck as well as less dramatic forms of loss. Bills of exchange avoided dangerous and expensive coin transfers. They also augmented the amount of money available for transactions, a matter of importance at a time when bullion was scarce in Europe – a dearth which explains as well both late medieval merchant investment in new silver mining technology like pumps and the

Saiger process, and Portuguese campaigns to access West African gold. By forming merchant companies and networks, individual traders no longer had to accompany goods but could rely on agents or partners resident abroad, enabling them to do business in multiple but segmented and specialized commodity and product markets. In addition, companies mobilized funds for use in banking and credit operations both within the merchant community and more widely. Guarantees of private property and contracts by city-state governments dominated by mercantile interests cut the cost of doing business by reducing risk of expropriation and negligence. The same authorities also enacted barriers to limit or even exclude competition by foreign traders, or even those outside merchant guilds or other privileged groups. Improvements in accounting methods enabled merchants more accurately and profitably to track their affairs.

These innovations, mainly originating in the twelfth and thirteenth centuries, did not disappear during the subsequent late medieval crisis. In fact, Italian merchants and states further elaborated them to deal with the more difficult business climate. During the fifteenth century, northern Europeans slowly adopted some Italian practices. Yet whereas, for instance, Italians had long sought partnerships and capital from wide groups of merchants, their counterparts elsewhere clung to exclusive kin-based or ethnic associations. Italian cities also continued to adopt new export-oriented industries, especially those involving higher levels of skills and value added during manufacturing, that won, and as often as possible monopolized, new markets. Venice, for instance, became a preeminent center of printing and book publishing; Florence, Genoa, Bologna, and other towns took up silks. As a result, northern and central Italy maintained commercial leadership across the period, despite slower rates of demographic and urban growth than much of northern Europe, and probably declining agricultural productivity and per capita GDP.

While dominating the big international fairs and long-distance trade, the great merchants were just one set of participants in trade. Artisans producing finished goods, commercial farmers, and landlords who collected rents in kind all engaged in market exchange as sellers and consumers. Women were heavily involved in marketing foodstuffs, often the garden crops, poultry, and dairy they raised. For many, if not most, part-time vendors, a stall at a regular fair or weekly market sufficed, or even just a spot on the ground. Specialist retailers were also plentiful. Itinerant peddlers circulated door-to-door, or farm-to-farm, so townspeople or countryfolk who lacked access to a marketplace, or had nothing to sell in one, could purchase the goods they needed and wanted. Individual retail spaces were also emerging: not just the front room (or even the space in front) of workplaces, but distinct shops, some even complete with windows in which merchandise was featured.

Consumers drawn into these establishments – or buying from peddlers, at fairs, or in markets – rarely paid fully in cash and might use no coin at all. Alternatives included payment in kind, in labor, or in services. But no matter how accounts were satisfied, credit was essential to every type of market exchange. The characteristics of long-distance trade – notably recurrent shortages of specie, long time lags between purchasing goods and selling them, and volatile and only partially known conditions on diverse, far-flung markets – required merchants constantly to extend trade credit, supplying goods in the present while requiring payment at a future date. Credit was also fundamental for constructing and maintaining the merchant companies and networks needed to dominate profitable market niches. Payment rhythms were flexible, and new credit was often granted before full repayment had been completed. Increasingly, states edicted laws regarding debt collection. Most enforcement, however, relied on informal modes of persuasion, particularly a reputation for trustworthiness that merchant networks helped nurture and compel.

Credit was equally indispensable for many other economic activities. Artisans normally required advances to purchase raw materials and pay workers. Guilds or, more often, confraternities might make funds available. Merchants were another major source of liquid capital; in return, artisans typically entered into putting-out arrangements, particularly when manufactures were destined for distant markets to which merchants had privileged access. Peasants, too, might need capital for seeds and other farm expenses incurred long before harvest. They might thus become indebted to merchants or other townspeople eager to extend credit, or to more affluent agriculturists; the same need underlay sharecropping contracts. Borrowing also undergirded much consumption. Pawnbrokers and moneychangers, many of them Jews and “Lombards” (as Italian bankers were often known), provided some small consumer loans, as did the “monti di pietà” (municipal pawnshops) inspired by anti-usury discourses, which opened in central Italian cities starting in the 1460s and were thereafter copied elsewhere in Europe. But credit provided by artisans and shopkeepers to their customers was probably more common, in the main nominally interest-free though a fee may have been folded into the price of the goods. Full repayment was usually due within several months of purchase, but like trade credit, consumer borrowing was often converted into a kind of ongoing debt with partial repayment leading to new advances of merchandise – indicating that a main purpose of credit was creation of loyalty between buyers and sellers. Like commercialization, in short, credit was central to the late medieval European economy.

Opportunities and Constraints

European economies at the close of the Middle Ages exhibited a mixture of characteristics. Rising agricultural specialization, adoption of new practices and crops, and enhanced regional divisions of labor coexisted with persistent and often substantial feudal levies, limited infrastructural investment, and complicated tenurial relations and property ownership regimes. Trade had expanded in response to market demand, but markets remained little integrated as distinctions of status, gender, citizenship, and corporate membership most often determined access, while rather than growth achieved through systematic accumulation and investment of capital, merchants sought profit through market privilege and protection, speculation, and credit exploitation.

Demographic recovery and renewed urbanization betokened rising standards of living and (despite periodic plague recurrences) the taming of epidemic disease. Beginning in the second half of the fifteenth century, however, rising food prices and declining real wages indicated that the burden of seigniorial appropriations and unequal distribution of resources had begun to outstrip productivity gains. New crafts, products, and areas emerged, but some long-standing industrial districts withered. Barchent weaving flourished in southern Germany and Switzerland, for instance, yet fine German linens lost markets in the Low Countries and even at home to aggressive producers in Flanders and Hainaut who had seen their own cheap linen crafts disappear. Whether prompted by hopes of profit or forced by state and seigneurial levies, peasants introduced new crops and practices. Landlords did so less often, since experience and ideology taught that they were likely to achieve better returns through investment in office or conspicuous consumption than through often risky agricultural improvement. Artisan innovations focused on new versions of existing products not technical advances, while entrepreneurs realized their gains much more from credit operations and sales of raw materials and finished goods than from involvement in production. New routes began to reach new areas, but merchants faced severe competition in, if not total exclusion from, previously important marketplaces.

Northern and central Italy continued to be the most productive and affluent regions in Europe: their traders retained preeminence and their artisans crafted luxuries sought across the continent. But there were signs that Europe's economic center of gravity was shifting. Portugal's thrust into the Atlantic was one manifestation of the change. Equally indicative were demographic and probable per capita GDP advances registered in England and Holland, which contrasted particularly sharply with Italian trends. Though still minor players in overseas trade, thanks to a greater

degree of agricultural innovation and considerable rural non-agricultural activities, both initiated an occupational switch from farming to industrial and service employment that likely increased total productivity and output.⁵ On the eve of the “long sixteenth century,” in short, European economies and regions embodied at once diverse possibilities for change and powerful impulses favoring continuity. Which of them were to come to fruition, how, and why?

Suggested Reading

The best current English-language overview of medieval economic history is Steven A. Epstein, *An Economic and Social History of Later Medieval Europe, 1000–1500* (Cambridge, UK, 2009). Michael North, *The Expansion of Europe, 1250–1500* (Manchester, 2012), provides a more detailed survey; Bruce M. S. Campbell, *The Great Transition. Climate, Disease and Society in the Late-Medieval World* (Cambridge, UK, 2016), emphasizes environmental factors. For individual nations and regions, see Christopher Dyer, *An Age of Transition? Economy and society in England in the later Middle Ages* (Oxford, 2005); *The Cambridge Urban History of Britain. Vol. 1, 600–1540*, ed. D. M. Palliser (Cambridge, UK, 2008); Richard A. Goldthwaite, *The Economy of Renaissance Florence* (Baltimore, 2009); Bas van Bavel, *Manors and Markets: Economy and Society in the Low Countries, 500–1600* (Oxford, 2005); Teofilo Ruiz, *Crisis and Continuity: Land and Town in Late Medieval Castile* (Philadelphia, 1994); Stephan R. Epstein, *An Island for Itself. Economic Development and Social Change in Late Medieval Sicily* (Cambridge, UK, 1992); Leonor Freire Costa, Pedro Lains, and Susana Münch Miranda, *An Economic History of Portugal, 1143–2010* (Cambridge, UK, 2016), Chapter 1. Clive H. Church and Randolph Head, *A Concise History of Switzerland* (Cambridge, UK, 2013), sketches Swiss economic history across the whole period covered in this book. Most recent scholarship on Europe, however, is available only to those who read languages besides English.

There is no synthesis of late medieval European agricultural history. *Agrarian Change and Crisis in Europe, 1200–1500*, ed. Harry Kitsikopoulos (London, 2012), surveys critical issues. Robert C. Allen, “Economic Structure and Agricultural Productivity in Europe, 1300–1800,” *European Review of Economic History* 3 (2000): 1–25, calculates long-term trends. For England, see *The Agrarian History of England and Wales. Vol. III. 1348–1500*, ed. Edward Miller (Cambridge, UK, 1991); David Routt, “The Late Medieval Countryside: England’s Rural Economy and Society, 1275–1500,” *History Compass* 11 (2013): 474–85, for brief introduction and bibliography; Mark Bailey, “Beyond the Midland Field System: The Determinants of Common Rights over the Arable in Medieval England,” *Agricultural History Review* 58/2 (2010): 153–71; Shami

⁵ Bas van Bavel and Jan Luiten van Zanden, “The Jump-start of the Holland Economy during the Late-medieval Crisis, c. 1350–c. 1500,” *Economic History Review* 57 (2004): 503–32; S. N. Broadberry *et al.*, “When Did Britain Industrialise? The Sectoral Distribution of the Labour Force and Labour Productivity in Britain, 1381–1851,” *Explorations in Economic History* 50 (2013): 16–27.

Ghosh, "Rural Economies and Transitions to Capitalism: Germany and England Compared (c. 1200–c. 1800)," *Journal of Agrarian Change* 16/2 (2016): 255–90; Mark Bailey, *Medieval Suffolk: An Economic and Social History 1200–1500* (Woodbridge, 2007); Ben Dodds, *Peasants and Production in the Medieval Northeast: Evidence from Tithes, 1270–1536* (Woodbridge, 2007). For other parts of Europe, English-language studies are sparse. Carla Rahn and William D. Phillips, *Spain's Golden Fleece. Wool Production and the Wool Trade from the Middle Ages to the Nineteenth Century* (Baltimore, 1997), includes material on the rural economy; for Italy, see Giovanni Federico and Paolo Malanima, "Progress, Decline, Growth: Product and Productivity in Italian Agriculture, 1000–2000," *Economic History Review* 57 (2004): 437–64; and John Marino, *Pastoral Economics in the Kingdom of Naples* (Baltimore, 1988). Some edited collections include essays on late medieval Continental agriculture: *The Development of Leasehold in Northwestern Europe, c. 1200–1600*, ed. Phillip R. Schofield and Bas van Bavel (Turnhout, 2009); *Landholding and Land Transfer in the North Sea Area (late Middle Ages–19th century)*, ed. Peter Hoppenbrouwers and Bas van Bavel (Turnhout, 2004).

Of all industries, textiles have been most studied. The best surveys are the *Cambridge History of Western Textiles*, vol. I, ed. D. T. Jenkins (Cambridge, UK, 1997); Angela L. Huang, *Textiles and the Medieval Economy. Production, Trade and Consumption of Textiles, 8th–16th centuries* (Oxford, 2015); *The European Linen Industry in Historical Perspective*, eds. Brenda Collins and Philip Ollerenshaw (Oxford, 2003). For other industries, see John L. Langdon, *Mills in the Medieval Economy: England 1300–1540* (Oxford, 2004); Kristian Jensen, *Incunabula and their Readers. Printing, Selling, and Using Books in the Fifteenth Century* (London, 2003); Andrew Pettegree, *The Book in the Renaissance* (New Haven, 2010).

To sample studies of medieval work organization and experiences, see Samuel K. Cohn, Jr., "After the Black Death: Labour Legislation and Attitudes towards Labour in Late-medieval Western Europe," *Economic History Review* 60 (2007): 457–85; Steven Epstein, *Wage Labor and Guilds in Medieval Europe* (Chapel Hill, NC, 1991); *Labour and Leisure in Historical Perspective*, ed. Ian Blanchard (Stuttgart, 1994); *Labour and Labour Markets between Town and Countryside (Middle Ages–19th century)*, ed. Bruno Blondé, Michele Galand, and Eric Vanhaute (Turnhout, 2001). For up-to-date scholarship on guilds, Peter Stabel, "Guilds in Late-medieval Flanders: Myth and Realities of Guild Life in an Export-oriented Environment," *Journal of Medieval History* 30 (2004): 187–212; *Guilds, Innovation and the European Economy, 1400–1800*, ed. Stephen R. Epstein and Maarten R. Prak (Cambridge, UK, 2008), emphasizes the positive contributions of guilds; Sheilagh Ogilvie, *The European Guilds: An Economic Analysis* (Princeton, 2019), stresses corporations' negative aspects. *The Oxford Handbook of Women and Gender in Medieval Europe*, ed. Judith M. Bennett (Oxford, 2013), includes up-to-date essays on women's varied economic roles.

Martha Howell, *Commerce before Capitalism in Europe, 1300–1600* (New York, 2010), provides a subtle anatomy of late medieval economic practices and attitudes that challenges anachronistic arguments. Laurence Fontaine, *Le Marché. Histoire et usages d'une conquête sociale* (Paris, 2014), presents important general considerations about markets and commercialization. Peter Spufford, *Power and*

Profit: The Merchant in Medieval Europe (London, 2002), is an illustrated introduction to traders and their goods; Edwin S. Hunt and James M. Murray, *A History of Business in Medieval Europe 1200–1500* (Cambridge, UK, 1999), focuses on merchant practices. R. H. Britnell, *The Commercialisation of English Society 1000–1500*, 2nd ed. (Manchester, 1996), remains the best study of growing market orientation and institutions across all sectors of an economy. Among specialized works, see Evelyn Welch, *Shopping in the Renaissance. Consumer Cultures in Italy 1400–1600* (New Haven, 2005); Maria Teresa Ferrer, “Catalan Commerce in the Late Middle Ages,” *Catalan Historical Review* 5 (2012): 29–65; Donald Harrel, *Brill’s Companion to the Hanseatic League* (Leiden, 2015); Jessica Dijkman, *Shaping Medieval Markets: The Organisation of Commodity Markets in Holland, c. 1200–c. 1450* (Leiden, 2011); Jennifer Kermode, *Medieval Merchants. York, Beverley, and Hull in the Later Middle Ages* (Cambridge, UK, 1998); Olivia Remie Constable, *Trade and Traders in Muslim Spain. The Commercial Realignment of the Iberian Peninsula, 900–1500* (Cambridge, UK, 1994); Quentin Van Doosselaere, *Commercial Agreements and Social Dynamics in Medieval Genoa* (Cambridge, UK, 2009). Avner Greif, *Institutions and the Path to the Modern Economy. Lessons from Medieval Trade* (Cambridge, UK, 2006), foregrounds game theory and Genoese trade history. Studies of specific commodities shed light on larger issues regarding commerce: Richard W. Unger, *Beer in the Middle Ages and the Renaissance* (Philadelphia, 2004); Phillips and Phillips, *Spain’s Golden Fleece* (cited above). *The Cambridge World History of Slavery*, vol. 3, eds. David Eltis and Stanley L. Engerman (Cambridge, UK, 2011), examines the sorry but central institution from 1420 CE to 1804 CE; when published, volume 2 will cover the millennium from 500 CE to the early fifteenth century. Daniel L. Smail, *Legal Plunder. Households and Debt Collection in Late Medieval Europe* (Cambridge, MA, 2016), discusses uses and problems of consumer credit.

Part II

Introduction: The Long Sixteenth Century

Beginning in 1450/1470 and continuing for about a century, Europe experienced swelling agricultural and industrial output, increasing domestic and international trade, sustained demographic expansion and urbanization. Broad advance was followed by nearly as general deceleration: by 1620/1650 the upswing had ground to a halt virtually everywhere. Though chronologies, characteristics, and intensity varied among regions and sectors, historians consider the “long sixteenth century” of growth and slowdown an integral period encompassing all Europe’s economies.

The long sixteenth century was also the age when Europeans ventured around Africa into the Indian Ocean and established oceanic trade with Asia; explored, seized, and settled much of the Americas; inaugurated the brutal transatlantic slave trade; fundamentally – often bloodily – reformed religious beliefs and ecclesiastical institutions; strengthened monarchic government and rebelled against it; evolved a radically new cosmology and fiercely persecuted purported witches; and exploited on a far greater scale late medieval adoptions and adaptations like printing and gunpowder. Many scholars have interpreted it as an era of equally sweeping economic change. They have pointed to a “price revolution” – led by grain prices that jumped as much as seven-fold in nominal terms – that redistributed incomes, disadvantaging wage-earners while encouraging the propertied to invest; to an “agricultural revolution” that at least in England ostensibly renewed structures and techniques, setting off rapid growth in productivity; and to the creation of a “capitalist world-economy” grounded in unequal exchange that favored Europe’s development.

Closer study has modified and moderated these claims. Established structures, institutions, and practices inhibited, even baulked, innovation and transformation, so economic achievements and adjustments during the long sixteenth century were overall more modest and their impact slower to be felt than is often imagined. Price movements – including deflation that set in around 1600 – were just one of many forces affecting outcomes, and could both stimulate and slow economic expansion. Recent research has downgraded the depth, breadth, novelty, and results of

agricultural undertakings, whether in England or on the Continent. And if Europe's intercontinental trade grew impressively, its effects on systems of production were as yet subdued. Yet the period did witness some dramatic initiatives, and in a few places significant changes began to take root. How and why these complex processes unfolded are the subjects of Part II.

3 Goods and People on the Move

Across the long sixteenth century, trading systems authorized, aided, protected, and taxed by the Portuguese and Spanish monarchies but increasingly disrupted and appropriated by their political and commercial rivals greatly extended existing European commercial networks. Advantages in ship technology, cartography, and navigational knowledge; the ability to mobilize sizeable amounts of capital and manpower; and willingness to use force to gain market access facilitated this commercial expansion. Impressive as their achievement was, Iberians did not create the networks from whole cloth, did not exclusively control their operations, and did not monopolize the gains. Rather, the large maritime trade systems they sponsored were polycentric, multilateral, and multiethnic; comprising new long-distance interoceanic routes between Europe and its colonies, they intersected with long-established and still substantially autonomous commercial networks where European merchants and their commodities were of secondary importance. The Iberian states asserted trading monopolies, but these were widely flouted by privateers, smugglers, and interlopers who disregarded such exclusive claims. From the years around 1600, moreover, state-backed merchants from other European lands – most successfully the Dutch – encroached upon Spanish and particularly Portuguese overseas trade circuits.

The Iberian-initiated enlargement of overseas trade built on and contributed to the concurrent shift of Europe's commercial center of gravity from Mediterranean to Atlantic ports, particularly in the Netherlands. Monopolies directed most Iberian trading among Africa, Asia, and the Americas through Lisbon and Seville, where state-controlled or -sanctioned institutions were given charge of managing Portugal and Spain's increasingly far-flung maritime traffic. But Antwerp and subsequently Amsterdam were the crucial European emporia. Besides boasting Europe's first stock exchanges and related financial institutions, the two cities were the hubs of dense webs of terrestrial, fluvial, and maritime routes that distributed foodstuffs, raw materials, semi-processed goods, and manufactures within and between Europe and distant lands. Initially

weakened by the new direct sea links with Asia and by Ottoman policies, Mediterranean trade recovered after the mid-sixteenth century: imports from and exports to the Levant increased, routes to interior Asia revived, and Spanish wool exports were reoriented. From the 1590s, however, the rapid growth of Dutch long-distance and intra-European commerce increasingly subordinated both Iberian and Mediterranean traffic.

The intercontinental commercial networks were integrated and global in reach: American silver was bartered for Asian goods for export to Europe and increasingly the wider Atlantic, where they were exchanged for slaves in Africa and for American agricultural commodities and bullion. Europe's extending and intensifying commercial reach can be gauged by its shipping capacity, which perhaps tripled between about 1500 and 1670, when it stood at more than 1 million tons. Admittedly, trade did not grow steadily; wars, domestic crises, climatic events, and boom-and-bust commodity cycles brought repeated interruptions. Nor was its advance uniform across hemispheres: over the three centuries 1500–1800, Jan de Vries has calculated, Asian trade rose about 1.1 percent a year, Atlantic about 2.2 percent.¹

How this commercial expansion affected European economies has long been a matter of significant debate. For Smith, who considered exchange of goods and services a basic human trait, increasing trade could foster the division of labor and specialization that would ramify throughout an economy, enhancing productivity and wealth. But while acknowledging that overseas commerce had broadened markets for manufactures, he insisted that colonial and chartered company monopolies had selectively enriched planters and merchants at the expense of taxpayers and consumers, limiting trade's potential for boosting domestic growth. Marx evaluated early modern global trade and the institutions that structured it more positively: the "new world market" had created at once the need and the means for accelerated development of capitalist industry. Treasure from the Americas, chartered-company trade with Asia, and African slaving – all promoted by "the power of the state" – had generated the requisite original accumulation of investment capital. Subsequent colonial systems, comprising export-oriented plantation colonies that were also highly profitable protected markets for metropolitan manufactures, enabled Holland and from the end of the seventeenth century England to acquire the "commercial supremacy" that determined "industrial predominance."² For its part, world systems analysis has argued that

¹ Jan de Vries, "The Limits of Globalization in the Early Modern World," *Economic History Review* 63 (2010), 717–19.

² Karl Marx, *Capital*, 3 vols. (New York, 1977), I: 914–18.

inequitable commercial relations intrinsic to the early modern global political economy underwrote capitalist development in the European core while doing little for semi-peripheral lands like the Iberian kingdoms and dooming the periphery to backwardness.

Statistics-based “cliometricians,” in contrast, have contended that intercontinental trade of the time supplied little investment capital and few raw materials and generated minimal demand for manufactures anywhere in Europe, even the northwestern core. Yet revisionary current scholarship, by foregrounding overseas trade’s effects on consumption as well as production, has shown how newly desirable imports created broad domestic and colonial demand to which European industrial entrepreneurs responded by imitation, import substitution, and eventually technological and structural innovation.

Intercontinental trade reached its high point in the long eighteenth century, so full evaluation of these interpretations must wait until Part III. This chapter explores commercial systems created during the initial phase of globalization in the long sixteenth century, the goods they circulated, the ways in which commerce was organized and pursued, and the participants who engaged in it. It also attends to trade among Europeans, which by all accounts remained larger in scale and showed greater gains in productivity than overseas commerce, and concludes by assessing effects of early trade expansion on the Iberian trailblazers, the Dutch who increasingly challenged them, and European producers and consumers as a whole.

Global Routes and American Colonies Established

Beginning in the early fifteenth century, exploration and trade expansion patronized by the Crown but mainly organized by private merchants and financed by Italian and German capital had endowed Portugal with agricultural colonies in the Atlantic islands and commercial outposts stretching from Morocco along the Atlantic coast of West Africa to the Equator. From the reign of King João II (1481–1495), state involvement became more systematic, central, and directive. New African *feitorias* (“factories,” trading posts that also had security and administrative functions) were established and existing factories came under royal authority; all were supervised by a royal *Casa da Guiné* founded in Lisbon. Seeking to open direct trade with Asia, the Crown funded Bartolomeu Dias’s 1488 reconnaissance of the South Atlantic and passage around the Cape of Good Hope and Vasco da Gama’s 1497–1499 voyage to India; nearly annual expeditions thereafter consolidated the Indian Ocean route and initiated trade. By 1518, the Portuguese had feitorias along the East

African coast, at Hormuz (Ormuz) at the entrance to the Red Sea, and at Malacca (Melaka) on the way to the “Spice Islands” (as Europeans called the Moluccas or Malaku) of central Indonesia and to East Asia. They had also founded an entrepôt and administrative structure (*Estado da Índia*) at Goa, chief among half a dozen posts along the west coast of India, where Asian goods were assembled for shipment to Lisbon via eastern and southern Africa. Already in 1513, the first Portuguese ships had reached coastal China and in 1557 the Ming court authorized Portuguese merchants to establish a trade colony at Macao (Macau) on the approach to the great Chinese port of Guangzhou (Canton); trade with Japan had begun in 1543. The routes to China and Japan made additional trading zones and goods directly accessible to Europeans rather than immediately increasing traffic: Portuguese tonnage on the *Carreira da Índia*, the Cape of Good Hope route that connected the Indian and Atlantic Oceans, had already reached its peak in the 1530s.³

Focused on Asia, João II famously refused to support Columbus’s proposed 1488 westward expedition. Yet the Portuguese hardly ignored the Atlantic. Besides busy African routes and rapidly growing commerce with Madeira and São Tomé, trade with Brazil – first noted in 1500 by a fleet on its way to India – developed smartly from the 1530s. Despite spurning Columbus, moreover, the Portuguese crown did finance a voyage in 1500 to locate a northwest passage to Asia. No route was located, however, and while Newfoundland was sighted, exploiting rich fisheries remained Portugal’s only interest in the North Atlantic. Spanish monarchs more resolutely turned toward the west from the late fifteenth century, backing Columbus’s voyages to the Caribbean and many subsequent expeditions of exploration and conquest to, around, and across large parts of the American continents. Soon, westward from Seville stretched a route that stopped at the Canary Islands, then divided. One wing went south to Trinidad, Venezuela, Cartegena, and its terminus at Nombre de Dios (after 1598 Portobelo); the other to Hispaniola, Cuba, and Central America before ending at Veracruz. Ships on both branches met in Havana for the return journey via the Bahamas Channel and the Azores. The Spanish also had ambitions for wider trade and empire. Though the 1529 Treaty of Zaragoza reserved most of Asia for Portugal, Spain arrogated the Philippines. With the 1565 inauguration of annual galleon connections with Acapulco on the west coast of Mexico,

³ For detailed data by European country, see Jan de Vries, “Connecting Europe and Asia: A Quantitative Analysis of the Cape-route Trade, 1497–1795,” in *Global Connections and Monetary History, 1470–1800*, eds. Dennis O. Flynn, Arturo Giráldez, and Richard von Glahn (Aldershot, UK, 2003), especially Table 2.4, 56–59.

Manila became the hub for a vigorous and profitable trade among China, Japan, Southeast Asia, and the Americas.

By the early 1570s, Iberian-sponsored trade connected factories and colonies across much of the globe. Most innovatively, Spanish and Portuguese networks had pioneered long-distance routes across the Atlantic and the Pacific, linked Europe by sea to Asia, Africa, and the Americas, and established regional maritime circuits in the Caribbean and Gulf of Mexico, as well as between the Atlantic islands and the mainlands of both Africa and Europe. Within the Americas, Iberian-backed traders, institutions, and infrastructure largely supplanted indigenous merchants and systems, distributing imports and commodities mainly cultivated or manufactured by or (more often) under the direction of settlers. In Africa and Asia, in contrast, where the Portuguese and Spanish rarely controlled production, they inserted themselves into existing supply chains to appropriate some commodities and profits. They placed factories at or near indigenous posts, trade routes, and areas of production, and they used force or persuasion to intrude into long-flourishing polycentric local, intra-, and inter-regional networks and acquire goods for their own maritime networks. Long before the arrival of Europeans, for example, cottons from India were a common consumer item from Africa to China. Portuguese merchants quickly joined in the trade, acquiring Indian cottons to exchange in Indonesia for spices to be exported to Lisbon; by the end of the sixteenth century, indeed, this “country trade” (as the English called it) was more valuable than Portugal’s Asia-Europe commerce. Similarly, at Manila Spain’s transpacific route from Acapulco tapped into existing East and Southeast Asia networks of Muslim, Malay, overseas Chinese, Japanese, and Indian merchants. Yet if many of the goods moving among areas, routes, and merchants were destined for Europe, no single global Iberian system emerged. For one thing, the Atlantic and Indian Ocean/Pacific commercial networks of both Spain and Portugal functioned discretely. For another, though the Cape of Good Hope route linked the Indian and Atlantic Oceans, and some Manila galleon cargoes transited Mexico on their way to Europe, the Portuguese and Spanish networks were never unified, not even during 1580–1640 when Habsburg monarchs ruled both nations.

In the wake of Iberian-patronized territorial and commercial expansion, states, merchants, and entrepreneurs from northwestern Europe established competing trading posts, attempted to organize route systems, and founded colonial settlements. More often, they copied Iberian precedent by interloping in both indigenous and Portuguese and Spanish networks by some combination of raiding, privateering,

contraband, and/or legitimate trade. Until the later sixteenth century, most of these initiatives failed or caused the Iberians only short-term disruption. The Dutch Revolt (1566–1648) had more serious effects. To obtain resources and weaken their Habsburgs rulers during that prolonged struggle, the Dutch and their eventual English allies vigorously attacked Spanish and Portuguese ports, forts, and ships across the globe; blockaded the Habsburg's great northern European emporium of Antwerp from 1585; made inroads into Portuguese West African trade; and allied with Asian merchants to challenge Portuguese pepper trade dominance in the Malay Peninsula and Indonesia.⁴ In the years around 1600, too, the Dutch and English built on sporadic private ventures to found chartered companies intended to replace the Portuguese in the Indian Ocean. The Dutch quickly experienced success. Already in the 1590s, Dutch-flagged return tonnage on the Cape route nearly equaled Portuguese, and, seconded by the English, from the 1620s pulled ahead for good on both outbound and return voyages. In fact, Dutch and English trade not only captured most Portuguese traffic – ending Portugal's long monopoly on the Carreira da Índia – but brought a significant increase to the route after a long period of stability.

From the late sixteenth century the Portuguese also lost ground on key intra-Asian routes: Dutch traders, Chinese smugglers, and armed merchant ships licensed by the Japanese government cut into their business in East and Southeast Asia. Similarly, in the last third of the sixteenth century predation throughout the West Indies and adjacent North and South America laid the bases for later English, French, and Dutch systematic settlement and exploitation of Caribbean islands and North America, as well as development of legal and illegal trade with Spanish colonies. Still, if Iberian-focused networks were yielding primacy in long-distance maritime trade around 1600, they remained crucial players in trades from spices to slaves; moreover, the new entrants essentially appropriated and more efficiently exploited rather than altered the overseas trade systems established under Spanish and Portuguese patronage.

Globally Exchanged Goods

A wide variety of foodstuffs, raw materials, and manufactures – along with enslaved men and women – circulated through Iberian-initiated networks. Some people and goods traveled long distances, crossing imperial

⁴ As the Low Countries were ruled by Spanish Habsburgs, during the dynastic Union of the Habsburg Crowns (1580–1640) the Dutch warred on Portugal's trade and empire as well as Spain's.

and hemispheric boundaries; others were bought and sold regionally. From complexly interwoven production zones, markets, and routes, Europe drew distinctive Asian, African, and American goods; at the same time, several crucial trade items linked regions across the world. Each network depended on privileged hubs that assembled and redistributed exports and imports; these entrepôts – Goa, Malacca, and Lisbon, for Portugal; Manila, Havana, Cartagena de Indias, Seville for Spain – became large port cities inhabited by indigenous and foreign merchants, throngs of artisans and laborers, enslaved and free individuals. But the greatest hubs of all, where exports and imports of both the Portuguese and Spanish networks were exchanged for European goods, lay in the Netherlands: up until the 1560s, Spanish-ruled Antwerp at the juncture of European terrestrial and maritime routes, thereafter Amsterdam, which subsumed European and Iberian networks into its own developing global system.

In Asia, Iberians participated in but also partially reorganized and reoriented regional trade to provide exports for Europe besides goods for local needs. In a schematic Portuguese country trade voyage, merchants loaded ships with Japanese silver, Indian cottons, European and African copper, and other items in Goa, journeying first to Malacca, where they exchanged some Indian textiles for pepper, spices, and aromatics. They continued to Macao, center of an existing system, which the Portuguese further developed, that combined private and public, official and illegal, licensed and unregulated commerce. After swapping silver for Chinese silks, raw silk, porcelain, tea, and gold, the traders went on to a Japanese port (from 1571 only Nagasaki), where they unloaded nearly all their textiles (raw silk and silk cloth, cotton thread and cloth), non-argentic metals, and aromatics. Finally, they returned to Goa laden mainly with newly acquired Japanese silver, along with lacquerware, silks, swords, and a few other goods, some destined for Europe, the rest – including all the silver – for renewing the intra-Asian trade cycle. The Portuguese, like their European successors, also participated in long-existing slaving networks that in the sixteenth century circulated a minimum of 12,500–25,000 captives from East Africa, India, Southeast Asia, Madagascar, and Indian Ocean islands to indigenous and European buyers both within and beyond Asia.

Spanish-coordinated country trade had its Asian hub at Manila, already an important meeting place for Japanese merchants and pirates as well as Chinese private merchants whose diasporic kinship networks evaded restrictions on direct China-Japan trade. Chinese and Spanish merchants shipped silver to Fujian ports, receiving in return foodstuffs, saltpeter, and iron for customers in the Philippines; following a 1593

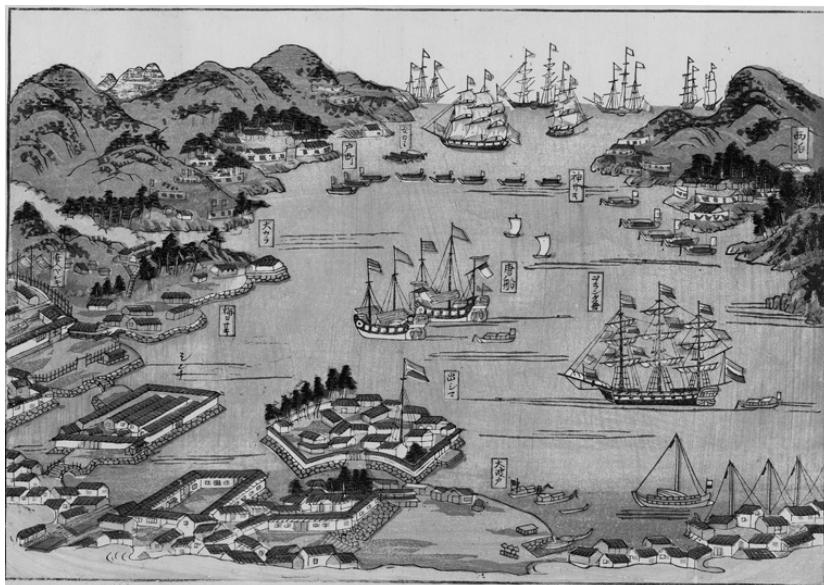


Fig. 3.1: Starting in 1571, Nagasaki was the sole Japanese port where outsiders were authorized to trade; from 1634 the trade factory was located on the one-hectare artificial island of Dejima shown in the bottom center of this print. After the Portuguese were expelled in 1639, the Dutch East India Company (VOC), whose flag flies over above the factory as well as on its three-masted VOC East Indiaman, were the sole Europeans authorized to trade there until 1853. They were joined by Chinese merchants, two of whose junks are also anchored just off Dejima.

Spanish edict, only Chinese vessels handled the trade. Most prized of all, the Fujian to Manila ships transported raw silk, woven silks, and porcelain, much bound for the Americas and some, after transshipment across Mexico, Europe. Together with American animal hides and additional foodstuffs and manufactures loaded in Manila, the remaining Chinese manufactures were re-exported by Spanish and Japanese traders to Japan in exchange for silver, provisions, weapons, lacquerware, porcelain, and other items for markets in the Philippines, the country trade, and the Americas.

Products destined for Europe and the Americas were assembled at Goa, Asian terminus of the Cape route to Lisbon, and Manila, for shipment to Acapulco. The establishment of direct maritime routes allowed the shipment of some goods like fine furniture, artistic objects, and

porcelain that had been too bulky and fragile for overland transport. But the mainstays of cargoes sent to Europe by the Cape route were pepper (between four-fifths and nine-tenths of cargoes in the first half of the sixteenth century, two-thirds in the second half) and spices like ginger, sandalwood, mace, cloves, saffron, sarsaparilla, and cinnamon (between a sixth and a tenth across the sixteenth century) which though small in quantity yielded the largest profits. They were accompanied by silks, cottons, and indigo in the later sixteenth century, and small amounts of stimulants like betel nuts and opium; diamonds were a sporadic but occasionally notable part of cargoes.⁵ From the 1580s, a fashion for calico and chintz (printed or painted cotton cloth) emerged in Europe and the colonies as Portuguese merchants and Indian producers collaborated on designs particularly suited to moneyed consumers; less expensive varieties were also imported. Though quantities fluctuated considerably from year to year, between 1586 and 1631 from 100,000 to 900,000 pieces of Asian textiles (mainly cottons but also including Chinese silks and Persian carpets) arrived annually in Lisbon, comprising a tenth or more of cargoes. Many were re-distributed throughout Europe; others went on to the Americas and Africa.⁶ Many of the same goods traveled to Acapulco on the Manila galleons; however, Chinese woven silks, raw silk, and porcelain formed the largest share.

The array of goods that Europeans carried to Asia narrowed across the long sixteenth century. Up until the 1580s, the Carreira da Índia transported substantial amounts of copper from Central Europe and the Kingdom of Kongo in West Central Africa, along with small quantities of lead, saffron, alum, coral, mercury, vermillion, tin, trinkets, mirrors, weapons – even expensive European woollen fabrics and some ivory from East Africa. But those goods never fully paid for the return cargoes, in large part because of limited Asian demand for European manufactures. Accordingly, from the late sixteenth century, gold and particularly silver – already a substantial share of Asian-bound cargoes – financed a growing majority of Europe's negative commercial balance. In addition, a large commodity trade in silver to China developed, since that empire, despite

⁵ Costa, Lains, and Miranda, *An Economic History of Portugal*, 81–85; *The New Cambridge History of India. II.5. European Commercial Enterprise in Pre-colonial India*, ed. Om Prakash (Cambridge, UK, 1998), 36. During Portuguese domination of the spice trade on the western Indian coast up to c. 1550, their profit margins may have reached several hundred percent; Tirthankar Roy, *India in the World Economy. From Antiquity to the Present* (Cambridge, UK, 2012), 83.

⁶ Maria João Ferreira, "Asian Textiles in the Carreira da Índia: Portuguese Trade, Consumption and Taste, 1500–1700," *Textile History* 46 (2015): 147–68; Giorgio Riello, *Cotton. The Fabric that Made the Modern World* (Cambridge, UK, 2013), 94 (Fig. 5.3).

having very few domestic sources, employed silver both as currency for its growing private economy and as the obligatory medium for tax payments. Silver therefore commanded a high price in China, so merchants trading there who had access to silver from areas where the metal was abundant and cheaper could profit by engaging in “arbitrage,” taking advantage of the discrepancy in silver’s price in the different markets. For all these reasons, between 45 and 110 tonnes (metric tons) of silver equivalents per year flowed into China between 1550 and 1650; and at least as much into India and Southeast Asia.⁷

With Central European silver supplies always restricted and expensive – the more so as Europe’s own economy expanded in the sixteenth century – Europeans needed other sources of bullion. Indeed, the search for precious metals to enable continued expansion of internal European commerce was a prime motivation for Iberian and subsequently other European overseas exploration, trade, and colonial development, inaugurated by Portugal’s ventures along the West African littoral. Helped by the lower costs of maritime transport compared with overland, Portuguese and eventually other European coastal factories came to control three-quarters of West African shipments, supplanting the trans-Saharan caravans that throughout the Middle Ages had brought Europe gold via North Africa. Exports totaled 340–380 kg of gold per year from the 1460s to 1600, up to 920 kg thereafter. The bulk came from the area Europeans named the “Gold Coast” on the Gulf of Guinea near the Volta River basin that had replaced Mali and Senegal as the main African gold-producing region. Between 1487 and 1559, the Portuguese factory of São Jorge da Mina, usually called simply “The Mine” (“El Mina” or “Elmina”), alone exported an annual average of 332 kg.⁸ As already noted, Portuguese country trade also obtained some gold from China.

From the early sixteenth century, Spanish America provided larger amounts of gold. In the early years of exploration and conquest, plunder and tribute yielded some; more came from mines on Hispaniola. With the opening of mines on Puerto Rico and Cuba, output grew to an annual

⁷ For the bullion trade estimates cited in this chapter, see de Vries, “Connecting Europe and Asia,” 78–81; Dennis O. Flynn and Arturo Giráldez, “Arbitrage, China and World Trade in the Early Modern Period,” *Journal of the Economic and Social History of the Orient* 38 (1995): 429–48; Tremml, *Spain, China, and Japan in Manila, 1571–1644*; von Glahn, *The Economic History of China*, 308–9. Japanese exports were all silver; gold comprised about 15 percent of American bullion.

⁸ Ralph A. Austen, *Trans-Saharan Africa in World History* (Oxford and New York, 2010), 30, 43–44; Ward Barrett, “World Bullion Flows, 1450–1800,” in *The Rise of Merchant Empires. Long-distance Trade in the Early Modern World, 1350–1750*, ed. James Tracy (Cambridge, UK, and New York, 1990), 247; Costa, Lains, and Miranda, *An Economic History of Portugal*, 79–81.

average of 910 kg in 1511–1520.⁹ Though Caribbean gold output declined after that point, from the 1520s central Mexico supplied much greater quantities. Together with lesser quantities from Central America and today's Chile and Ecuador, and rich alluvial deposits exploited from the 1530s and 1540s in today's Colombia, overall Spanish American gold output peaked at some 1,700 kg (1.7 tonnes) per annum in the early 1530s, remaining at about that level until the 1620s.¹⁰ Still, gold could not meet Europe's need for bullion.

Thanks to deposits discovered during the 1530s and 1540s in central and northern Mexico and the spectacular "Rich Hill" (Cerro Rico) at Potosí in Upper Peru (today's Bolivia), the Americas became a copious source of silver. The introduction of the amalgamation process using Spanish and Peruvian mercury boosted American volumes perhaps seventeen-fold in a century: an average of 19 tonnes per year in the 1530s was 326 tonnes in the 1630s. With American silver comprising two-thirds of world production in that period, the Spanish "piece of eight" (*peso de ocho*) became and long remained a principal global currency. In total, according to a recent estimate, Spanish American bullion production grew more than thirty-fold between the 1520s and the 1640s, initially due to increased gold mining but from the 1530s driven almost wholly by the silver boom. Smuggling and retention of bullion in the colonies for private and public uses make it difficult to calculate exports. It appears, however, that in the first half of the seventeenth century, about 6 percent a year of America's annual bullion production of 368 tonnes reached Asia via the Cape route, with up to three times as much shipped across the Pacific on the Manila galleons. The remainder of the Asian demand for silver was supplied through country trade with Japan, where output also rose impressively in the second half of the sixteenth century. Much more bullion went to Europe, contributing centrally to rising rates of inflation that drove up prices and eroded real wages up to 50 percent, striking Iberia first and hardest.

Europeans exported some domestic manufactures to West Africa – notably textiles (woollen blankets and caps, linens); weapons; copper, brass, and tin wares; and wrought iron to supplement inadequate local supplies – along with woollens and horses (more easily imported by sea than across the Sahara) from North Africa. From the early sixteenth

⁹ Frank Moya Pons, "The Establishment of Primary Centres and Primary Plantations," in *General History of the Caribbean. II. New Societies: The Caribbean in the Long Sixteenth Century*, eds. Pieter C. Emmer and German Carrera Damas (London and Basingstoke, 1999), 73.

¹⁰ For the American bullion estimates quoted here and below, see John J. TePaske and Kendall W. Brown, *A New World of Gold and Silver* (Leiden, 2010), 20, 27–29, 113.

century, Portuguese participated in existing inter-regional trade, shipping beads, skins, palm oil, and cottons from the Niger River delta area to the Gold Coast, and from around 1600 they brought tobacco and rum from Brazil. But two products from the Indian Ocean were crucial. Though cottons were made in and traded from several parts of West Africa, the supply seems to have been insufficient, even after Portuguese and African entrepreneurs established plantations and workshops on the Cape Verde islands in which enslaved men and women wove and dyed textiles with locally grown cotton and indigo for exchange on the West African mainland. Moreover, European cottons (nearly all mixed with linen) won little favor for their inferior yarn and dyeing. As a result, much of the Indian cotton cloth carried to Lisbon was destined for Africa. For their part, cowry shells had long been used as currency throughout West Africa, where they had arrived via Arabia since at least the fourteenth century, as well as in China, India, and Southeast Asia. Once again tapping profitably into existing Asian and African practices and networks, Portuguese (and later other European) merchants traded large volumes of cowries from the Indian Ocean, particularly the Maldives.¹¹

These exports and re-exports purchased gold – which remained West Africa’s chief export to the middle of the seventeenth century – ivory, melegueta (a cheaper black pepper substitute), gum Arabic, hides and skins, indigo and redwood dyestuffs, salt, and, increasingly, slaves, swelling that dismal trade in which the Portuguese had been engaged since the 1440s.¹² Some enslaved Africans (and some Asians – one-fourth of Portugal’s slaves during the sixteenth century) were dispatched to Europe, where they performed sundry agricultural, industrial, and domestic work. But it was the development of export-oriented plantations on the Atlantic islands, and subsequently the Americas, that lay behind the early beginning and subsequent expansion of Portuguese slaving. Admittedly, slaves did not produce all export-oriented colonial agricultural goods. The mainly family farms of Azores colonists sent 400,000 bushels of wheat to Portugal each year during the sixteenth century, along with 60,000 hundredweight bales of woad, a blue dyestuff. Nevertheless, slavery became steadily more central to the cultivation of sugar and similar crops (coffee, chocolate, and tobacco, often lumped together with tea and spices as “tropical groceries”) on the Atlantic islands and in the Americas, just as it had been in the medieval Mediterranean.

¹¹ Bin Yang, “The Rise and Fall of Cowrie Shells: The Asian Story,” *Journal of World History* 22 (2011): 1–25; Jan Hogendorn and Marion Johnson, *The Shell Money of the Slave Trade* (Cambridge, UK, 1986).

¹² David Birmingham, *Trade and Empire in the Atlantic, 1400–1600* (London and New York, 2000), 35–36.

Table 3.1 *Average Annual Sugar Exports from Iberian Colonies, 1455–1620 (in Tonnes)*¹³

	Madeira	São Tomé	Spanish West Indies	Brazil
1455	24			
1515–1525	2,938	1,469		
1550	558	2,204		
1566–1570			650	
1581–1584†	558–588	2,938	367	5,142
1607–1609/1610^			66	10,797
1616–1620/1617§			135	14,690

† 1581–1585 in the Spanish West Indies

^ 1610 in Brazil

§ 1617 in Brazil

During the long sixteenth century, Iberian trade with the Americas, as with Africa and Asia, was based on the exchange of treasure and primary products for re-exports and enslaved humans. Colonial sugar output rose impressively during the long sixteenth century; over time, leadership shifted from Portugal's Atlantic islands and the Spanish West Indies to Portuguese Brazil (Table 3.1). On Madeira, where slaves did much of the work on predominantly small farms, sugar production rose exponentially from the mid-fifteenth century to 1515–1525 before dropping almost as rapidly as supplies of timber, needed for processing mills, were exhausted. Sugar from large wholly slave plantations on São Tomé partially compensated, but even in the early 1580s the two islands' exports averaged less than sixty years before. The Spanish Caribbean was another early center of both sugar and slave plantations. However, between the later 1560s, when data first become available, and 1616–1620, annual exports fell by nearly four-fifths, and by even more in many of the intervening years, as population declined and Spain outlawed enslaving Amerindians. In Brazil, by contrast, where sugar cultivation (which long used indigenous slaves) began around 1550, output increased continuously. Found on international markets from about 1570, Brazilian sugar exports – mostly shipped by foreign merchants – nearly tripled between 1581–1584 (when they were already well above the combined exports of Madeira, São Tomé, and the Spanish West Indies) and 1617.

¹³ Calculated from Costa, Lains, and Miranda, *An Economic History of Portugal*, 77–78, and Carla Rahn Phillips, “The Growth and Composition of Trade in the Iberian Empires, 1450–1750,” in *The Rise of Merchant Empires*, ed. Tracy, 58–59.

Tobacco had long been cultivated in many parts of the Western Hemisphere for diverse personal and household uses and for local and occasionally regional trade; Amerindians in the eastern Caribbean initially exchanged it with Europeans for tools and weapons. From the 1590s, Iberian Americans cultivated it for export on plantations worked by enslaved and free laborers on several islands, in Central America, in northeastern Brazil, and especially in coastal Venezuela. Records are notoriously incomplete and fraud commonplace, but fragmentary data indicate rapid expansion, with registered imports into Seville of more than 180 tonnes by 1613.¹⁴

The Iberian Americas sent other goods to Europe. Prominent among them were dyestuffs – cochineal insects from New Spain for brilliant red, Mexican indigo, red logwood (campeachy wood) from Honduras, brazil-wood from the colony to which it gave its name – tallow and hides from both islands and mainland; and ginger, whose production nearly quintupled from 1581 to 1607. Olmecs, Aztecs, and Mayans had long used cacao beans in religious rituals, as a unit of measurement, and as money, and consumed them in beverage form, which elite colonists in New Spain had appropriated. After 1585, when the beans began being exported to the metropole, a taste for chocolate spread across Europe.¹⁵

Native people performed most mine labor in the Iberian Americas, along with an appreciable share of farming work. They were recruited through the *encomienda* system, in which individuals living on a *repartimiento* (land granted to a settler) owed various forms of tribute, including unpaid labor service. In addition, enslaved Amerindians and, increasingly, Africans produced a large part of Iberian American agricultural commodities, as well as supplying much of the domestic and artisanal labor force; African slaves also toiled in mines. Before 1580, 139,000 Spaniards and 58,000 Portuguese free migrants far outnumbered the 58,000 enslaved Africans. Thereafter, however, the proportions were sharply reversed. Though substantial Iberian migration continued – between 1581 and 1760, 539,000 Spaniards and 460,000 Portuguese crossed the Atlantic – 1,875,000 Africans were landed in their colonies.¹⁶

Soon after they arrived in the Caribbean, settlers began to enslave local people, and in Brazil indigenous slaves may have outnumbered Africans into

¹⁴ Marcy Norton, *Sacred Gifts, Profane Pleasures. A History of Tobacco and Chocolate in the Atlantic World* (Ithaca and London, 2008), especially 11–12, 141–43.

¹⁵ Pons, “The Establishment of Primary Centres and Primary Plantations,” 74; Phillips, “The Growth and Composition of Trade in the Iberian Empires,” 70–71; Norton, *Sacred Gifts, Profane Pleasures*, 141–44.

¹⁶ Stanley L. Engerman and Kenneth L. Sokoloff, *Economic Development in the Americas since 1500. Endowments and Institutions* (New York, 2012), 17.



Fig. 3.2: One of many versions of a sixteenth-century print, this illustration of the Potosí silver mine accompanies a text detailing how Native Americans dug ore hundreds of meters below ground then carried it to the surface up wooden ladders lashed together with ox-hide for loading into sacks borne away by the llama trains shown in the lower left and upper right. The miners' contorted bodies and crowding at the pit-face and on the ladder indicate some of the frenzy associated with the silver boom and suggest the compulsion under which the miners labored.

the seventeenth century. But catastrophic Amerindian demographic decline due to disease and overwork led Spanish colonists to turn toward Africa at an early date. The first transatlantic transport of enslaved men and women reached the Spanish Caribbean in the 1520s; shipments to the mainland began soon thereafter. During the first three-quarters of the sixteenth century, up to 90 percent of slaves sold to the Spanish Americas came from Senegambia and Sierra Leone, often via the Cape Verde Islands. In those years, at least 1,100 and perhaps as many as 2,500 individuals landed in the Spanish Americas each year (and another 100 in Brazil) after horrific voyages during which nearly a third of the original captives died.¹⁷

¹⁷ The figures in this and the next paragraph are calculated from data at Voyages: The Trans-Atlantic Slave Trade Database at www.slavevoyages.org/ [last accessed 19 May 2019]. Toby Green, *The Rise of the Trans-Atlantic Slave Trade in Western Africa*,

From the mid-1570s, Brazil's rapidly developing plantation economy received on average more than 1,000 slaves a year; by 1601–1625 three-fifths of all Africans transported were sent to Brazil. Contraband silver from Potosí paid for some, Brazilian manioc flour and tobacco for others. Growing Brazilian demand also led to a shift in the main slaving area. Nine-tenths of slaves now came from West Central Africa, often transiting via São Tomé; though still terrible, the death toll on shorter South Atlantic routes fell to 15 percent. No matter what their African point of origination or American destination, enslaved men and women were most likely to have been carried on Portuguese ships, for during the Union of the Crowns merchants from Portugal acquired the monopoly of *asientos* (contracts issued by the Spanish Crown) for supplying slaves to Spanish America.

As already indicated, many Iberian American imports originated in Asia, notably manufactures like porcelain, lacquerware, and silk cloth, as well as other luxury goods. Europe sent high-quality textiles, linens of every type, readymade clothing, paper, weapons, and books that passed muster with the Inquisition or were smuggled in. Most goods were not produced in Spain or Portugal, but were re-exports from elsewhere in Europe. Still, the Basque provinces supplied iron wares, Andalusia mercury for silver processing, and (up to the 1540s) Castile expensive wool-lens and Valencia and Grenada silks. Over time, however, much of the American market was lost to Asian silks and lighter, livelier, and cheaper cloth from European producers that were more efficient and less affected by inflation. In their initial decades of settlement, the colonies also received flour, but once grain was planted in New Spain, imports rapidly diminished. In contrast, wine remained the largest item by volume up to the 1620s, and even in the mid-seventeenth century accounted for a third of tonnage.

Due to policies that officially excluded foreign merchants and limits on fleets and galleons, shortages of imports were common, though contraband compensated to a degree. Concomitantly, the development of plantation agriculture and mining fostered interregional divisions of labor and multilateral intra-American trade networks: Cuba, for instance, furnished livestock to Hispaniola, Mexico sent grain to Cuba. And while imperial policies curbed colonial industry, textile manufacture, long established in several pre-Columbian America regions, continued with

1300–1589 (Cambridge, UK, and New York, 2012), 8, 195–97, 208–16, reports higher estimates. Ivan Elbl, “The Volume of the Early Atlantic Slave Trade, 1450–1521,” *Journal of African History* 38 (1997): 31–75, argues that substantial West Central African slaving began in the 1510s and overall Portuguese slave shipments were even larger than quoted here.

little interruption. Woven from indigenous cotton and wool from native camelids and, increasingly, from imported sheep, these textiles entered local, regional, and inter-regional trade, curbing the demand for European and Asian imports among much of the populace.

Trade Structures and Participants

The proliferation of routes, areas, and goods during the commercial expansion of the long sixteenth century, not to mention the greater distances involved, magnified defining characteristics of late medieval trade: slow transport and communications that despite improvements remained subject to frequent interruptions from weather, war, piracy, and other natural and human phenomena; slow payment and settlement of accounts, necessitating ubiquitous reliance on credit; non-standardized goods sourced from or destined for markets about which it was difficult – if not impossible – to acquire accurate knowledge of supply, demand, and prices, all of which were likely to fluctuate rapidly, significantly, and unpredictably. In addition, just as medieval cities had regulated and limited market participation both by gender, ethnicity, and status and by authorizing or sponsoring institutions like merchant guilds, urban commercial leagues, and trading “nations,” so emerging national and imperial states promoted or imposed a variety of restrictive privileged entities and practices.

As before, too, merchants took these conditions as given; indeed, they prospered by exploiting them. In particular, merchants established networks and subnetworks to control information and credit flows, dominate and manipulate unpredictable markets, and trade within and across diverse conventions and institutions. A network typically encompassed numerous members, handled many products, and boasted a broad geographical reach. To spread risks and multiply opportunities, network merchants invested in sundry partnerships and shipped mixed cargoes. But subnetworks were the key to success, sought through manipulation of rather than competition in markets. Founded on trust born of intense correspondence among smaller numbers of participants who exchanged critical – virtually insider – commercial information and of reciprocal credit relationships, subnetworks aspired to cartel-like domination over market segments. Their multipronged strategy involved assuring the acceptable quality of the products they traded not by control of production but by expertise about specific goods in specific places, excluding potential competitors by credit and information restrictions (or absorbing them into the subnetworks), and creating supply and demand shortages. Together, these tactics put them in a strong position to negotiate favorable prices. With commercial capital mobile, networks and subnetworks

were adaptable to new products, places, and participants, but they could be – and were – supplanted by competing networks endowed with superior privileges or enjoying more robust political or military patronage.

Merchant networks and subnetworks did not entail a distinctive or single organizational or political framework. On the contrary, early modern merchant practice mapped flexibly onto commercial structures that emerged from the interplay of disparate policy objectives and resource capabilities of European states with the diverse geo-economic ecologies of the markets within which Europeans traded or created across the globe. In most aspects of Portugal and Spain's long-distance maritime commerce and empire-building, state-controlled institutions played a major though not exclusive role, yet private – including foreign – merchants and capital were always essential participants. Northwestern European states also provided critical assistance to their intercontinental commerce and colonies – most often state-sanctioned and -enforced monopolies and strategic military intervention – but left trade and settlement undertakings largely to merchant- and investor-dominated organizations.

Initial Portuguese ventures to Africa and the Atlantic islands combined trading and raiding led by risk-taking, profit-seeking merchants (many of them Italians) and lesser nobles encouraged by royal grants of authority and tax exemption. But once markets had been established and settlements started or treaties for factories concluded, the Crown typically revoked privileges and redistributed them to favorites, collected taxes, installed its own officials, and engaged directly in trade from now royal feitorias. Still, some private individuals continued trading without royal permission or aid, often helped by marriage into indigenous commercial families.

In Brazil, no factory system was established, and while trading brazilwood was a Crown monopoly, sugar was not. All ships carrying sugar from Brazil did have to stop first in Portugal where their cargoes would be taxed (a smaller tax was levied in Brazil), but the reason was fiscal, rather than limiting commerce to a specific group. Moreover, unlike Spain's American commerce, restricted to Seville, and Portugal's Asian trade, confined to Lisbon, its sugar business was decentralized. Many Portuguese ports handled sugar, though Lisbon's better infrastructure, re-export connections, and availability of credit and insurance gave it a significant edge. Foreign as well as Portuguese private merchants organized in family-based, ethno-religious, frequently trans-imperial networks conducted the trade. During embargoes in the course of the Dutch Revolt, some local officials even provided false names and captains for the Dutch ships that had become indispensable participants in Brazil

sugar trading by lowering freight costs, supplying better credit instruments, and expanding access to markets across Europe.

Trade with Asia required much more substantial capital to purchase (or build), outfit, provision, and staff large ships and distant trade forts and factories; finance voyages lasting at least two years between initial shipment and return to home port; and absorb losses from weather, war, and piracy. In the Portuguese system, the state shouldered most of the costs; in return, state institutions directed Asian commerce, in which the Crown participated along with private merchants. At Goa, the *Estado da Índia* under a viceroy supervised taxes, tolls, and license fees on trade collected by royal agents in ports and feitorias from East Africa to Japan, as well as taxes and tribute on the indigenous population of factory territories. In Lisbon, the *Casa da Índia* had charge of Asian trade, registering and inspecting all imports and exports, levying customs duties and freight charges, supervising the loading and unloading of ships, checking for contraband, and clearing goods for re-export. The Casa administered the royal pepper and spice monopoly, managed sales in Lisbon, appointed functionaries abroad and issued rules for them, kept a record of shipboard personnel and sailings, and contracted with individuals to furnish and outfit ships in the government-organized *Carreira da Índia* fleets that carried crown and private goods.

Despite a pronounced and at first lucrative state role, the Crown never wielded exclusive control of Portugal's Asian trade. Throughout the sixteenth century, pepper was the main royal commodity carried on the Cape route, while private merchants' textiles, spices, jewels, and other luxury items comprised 25–30 percent of tonnage and perhaps two or three times as much of cargoes' value. In lieu of pay, crews and officers on *Carreira* vessels could transport tax-free merchandise in *caixas de liberdade* for sale at their destination. Forbidden to hold items monopolized by the Crown (some spices, drugs, lacquer, indigo, and other dyes), these large "liberty chests" were mainly filled with cottons, silks, thread, carpets, quilts, and other textile goods. Even during the first half of the century, moreover, when the *Estado* most effectively wielded power, interlopers and indigenous traders continued to operate, and after 1550, as reviving non-Portuguese Indian Ocean and overland caravan routes cut into profits while raising costs, the system was modified to regulate and tax rather than repress alternate routes and merchants. Shipping and commerce were sub-contracted to local and Portuguese merchants, administrators, and financiers in return for so-called "concession fees." Together with customs duties, these payments soon earned the state twice as much as the *Carreira* traffic, albeit at the cost of further weakening the Crown's ostensible domination, though it did retain the right to purchase half of

pepper and spice cargoes upon arrival in Lisbon. Already in the 1560s, legal and illegal private merchants commanded an estimated 40 percent of the spice trade.

Initially, trade with Spain's American colonies was open to non-Castilians and most ports in Spain, but from the 1540s it was restricted to Seville and Spaniards. Spanish monarchs never directly engaged in trade, but the *Casa de contratación* founded in Seville in 1503 was a crown agency modeled on the Lisbon Casa da Índia to supervise the movement of fleets, people, and goods. Merchants, ship captains, pilots, and emigrants had to obtain licenses from the "House of trade," which also authorized commercial and exploration voyages; collected taxes and customs duties on exports and imports; gathered trading information; drew up maps and navigational charts; and judged commercial disputes. In concert with – or perhaps under the direction of – the *Consulado de mercaderes* (Seville's merchant guild), the Casa organized the *Flota de Indias* from the 1520s and subsequently the Manila galleons as well. To protect increasingly valuable American cargoes, these convoys, usually provided with armed escorts, largely replaced previously unregulated, unprotected, and vulnerable voyages. In contrast with Portuguese practice, the Casa de contratación was only a regulatory body. Actual trading was contracted out to licensees who financed their voyages without state funding, though the Crown appropriated one-third of the registered bullion. In addition, *navíos de registro*, individual ships bearing special Crown licenses, continued to carry 15 percent of transatlantic tonnage outside the Flota system; small fast mail packets or *navíos de avisa* also carried freight for private merchants.

All direct trade with the Spanish Americas – both exported European manufactures and imported bullion and other goods – was funneled through Seville (after the mid-seventeenth-century Cádiz) to the exclusion of other ports save in emergencies. Similarly, the only legal entry points in the Americas were regulated ports like Nombre de Dios/Portobelo, Cartagena, and Veracruz. Save during a 1524–1538 interlude, foreign merchants were forbidden to trade with America, though frequent reiteration of the ban indicates repeated violations, often with connivance of colonial officials. Portuguese were particularly active, notably in the Río de la Plata area near Buenos Aires, where they traded textiles for both legal and contraband silver from Potosí. In Seville, many Spanish merchants took foreigners as silent partners who provided some or even all the capital with which they traded; Genoese and Florentines predominated until the 1580s, when Portuguese and some Catholic Flemings from troubled Antwerp replaced them. The Casa de contratación also sought

to monopolize Manila-Acapulco trade to profit from an ad valorem tax levied on all the mainly luxury imports and exports.

Despite the state's administrative and protective role, institutionally as well as financially private merchants controlled Spain's overseas commerce, even slaving to its American colonies. Though the Spanish government claimed a monopoly right to that traffic, it was farmed to contractors (*asientas*) for a fixed payment and promise to deliver a given number of slaves during a defined period. Evidence once again of the importance of Italian merchant capital to the inception of Iberian empires and trading networks, Genoese subcontracted the first asiento in the early sixteenth century. Subsequent contractors included other Italian, German, English, French, and Spanish merchants; Portuguese dominated in the sixteenth and seventeenth centuries. Asientos were valued not just – or mainly – for slaving profits (which were heavily taxed and reduced by frequent interloping) but for the entry they provided to otherwise heavily restricted Spanish colonial markets and most of all to American bullion.

Elsewhere in Europe, companies formed by private investors and merchants and enjoying state-authorized monopolies were the preferred model for overseas trade; even Portugal chartered an (abortive) India Company when attempting to reinvigorate its Asian traffic in 1629. Privileged companies with charters, in which sovereigns granted merchant groups collective rights to exploit overseas areas and markets, dated from the later Middle Ages. In England, the Merchant Adventurers was an early fifteenth-century foundation to help mainly London merchants export undyed woollen cloth to the Low Countries. From the mid-sixteenth century, groups of merchants – initially traders seeking new markets for woollens as Low Countries demand stagnated – adapted the privileged company model for commerce with more distant lands. The Muscovy Company, chartered in 1555 for trading cheap woollens, copper, lead, and tin for Russia flax, furs and skins, wax and tallow, and cordate, and the Eastland Company (1579), which bartered English cloth for Baltic and Scandinavian grain, naval stores, flax and hemp, linen and canvas, linseed, potash and iron, were regulated companies whose members traded individually for their own account using their own capital within rules laid down by the respective companies. The Levant Company (1581; reorganized 1592) brought together merchants already individually trading with the Ottoman Empire who intended to dethrone both the Portuguese dominance of Asian imports and Venetian and French as intermediaries between the eastern Mediterranean and England. A joint stock company with a charter of monopolies that private

interlopers constantly violated, the Levant Company – like the interlopers – also sold lighter woollens in Spain and Italy.

The largest and most innovative companies were the Dutch United East India Company (*Vereenigde Oost-Indische Compagnie* or VOC) and the English East India Company (EIC). Already in the 1590s, Dutch merchant consortia, backed by investors and subsidies from local governments, had entered Asian waters to buy goods that an embargo prevented them from obtaining in Portuguese ports; however, competition among Dutch traders had bid up prices in Asia and down in Europe, and their isolated vessels proved easy prey for pirates and Portuguese patrols. In response to these commercial and security problems – and with an eye on the ongoing military struggle with the Iberian powers – in 1602 the States General that governed the Dutch Republic amalgamated all private traders into the VOC, granting it a monopoly of Dutch Asian trade along with responsibility for building forts, raising military forces as necessary, and negotiating treaties with Asian rulers. Ownership was separated from management: the more than 1,800 original investors were divided between a majority of passive partners, many of moderate means, and sixty richer active partners, seventeen of whom served as managers. All partners enjoyed limited liability, a sharp break from previous practice, which imposed unlimited liability for debts on active participants.

Initially chartered for twenty-one years, with financial accounting owed at the end of each decade, the company soon became permanent. Breaking with usual practice, it was not liquidated and invested capital distributed at the end of each voyage or each accounting period. Instead, shares were traded on the Amsterdam exchange (*Beurs*), *de facto* making the VOC Europe's first joint-stock enterprise. It quickly proved profitable, though reinvestment of proceeds into building up trading capital in Asia and enlarging the Cape route and Asian country trade fleets deferred payment of first dividends until 1610 – and then in the form of spices. In its first half century, in fact, the VOC paid about 40 percent of its dividends in pepper, mace, and cloves, the rest in – often delayed – cash. While this policy of capital retention and aggressive investment raised hackles among shareholders not interested in selling spices, by the 1630s the VOC had become far and away the leading European trader in Asia, outstripping not just the Portuguese but even the rival EIC.¹⁸

The EIC, originally chartered in 1600 with just 101 shareholders to finance each voyage separately, was reorganized in 1613 on the VOC model but with much higher capitalization and public stock issue bought

¹⁸ Jan de Vries and Ad van der Woude, *The First Modern Economy. Success, Failure, and Perseverance of the Dutch Economy, 1500–1815* (1995; Cambridge, UK, 1997), 382–89.



Fig. 3.3: Modeled on its Antwerp predecessor, the Amsterdam exchange (*Beurs*) encompassed trading in commodities, company stocks, and government bonds, together with insurance, shipping, and financial services for businessmen of every nationality. Its location – close to the Amsterdam bank, city hall, grain market, VOC headquarters, seat of the Admiralty, pawn bank, and numerous coffee houses in which merchants gathered – fostered continuous, efficient exchange of information that kept Amsterdam a financial capital even when its commercial primacy faded in the eighteenth century.

largely by London merchants and shippers with global experience and interests (Atlantic trading, colonial ventures, and privateering), as well as more traditional enterprises like the Merchant Adventurers and Levant and Eastland companies. Unlike Atlantic commerce, however, based in west of England ports as well as London, the EIC (like the Levant Company) was managed from and operated out of London alone.

Its 1613 charter allowed the EIC to export bullion within specified limits, required tax payments to the Crown, and forbade other English merchants to trade in the EIC's monopoly zone east of the Cape of Good

Hope and west of the Straits of Magellan save with a company license; this proviso was regularly ignored and even company employees engaged in private trading. Though obliged by charter to promote export of English manufactures, the company quickly discovered that Asian demand for woollens was minimal. Like the Portuguese and Dutch, the EIC at first intended to focus on importing pepper and spices. However, competition and conflict with the Dutch and Portuguese, and relatively inelastic European demand for pepper and spices, kept profits low, while (again like its competitors) the company learned that good profits were to be made from country trade using Asian goods, which to boot provided additional items for export to England. Initially, intra-Asian EIC trading extended to mainland Southeast Asia and as far as Japan, but when traffic failed to meet expectations, the company abandoned its factories in Siam, the Malay Peninsula, and Japan in 1623 to focus on exchanging Indian cottons and silks for spices in Indonesia. In the early seventeenth century, the company won a growing share of total Cape route traffic, but except for the generally buoyant 1620s, its totals remained well behind the VOC's, though larger than the cargoes of the Danish East India Company and private French traders.

The success of the East India companies as profitable trading ventures and evidence that long-distance commerce enhanced state power encouraged formation of privileged joint-stock enterprises to found American colonies that would specialize in export-oriented commodities. Internal disputes, external attacks, difficulties in establishing viable crops or procuring valuable raw materials plagued most of the settlements; many limped along or even failed, while others had to be reorganized. Still, some did establish significant commodity production that boosted long-distance trade and metropolitan European economies. England's Virginia Company (chartered 1606) attracted nearly 1,700 investors, including women and institutions but mainly merchants and gentry. Despite planting improved varieties of tobacco and procuring indentured servants to solve labor shortages, the Company failed in 1624; nevertheless, the Chesapeake Bay region remained a major tobacco exporting center for nearly two centuries. Again, a series of troubled French companies initiated the long-lasting North American fur trade. Though short-lived, chartered companies also proved critical for inaugurating Dutch North Atlantic whaling (*Noordsche Compagnie*, 1614–1642) and England's organized participation in African trading (Guinea Company, 1618–mid-1650s); once established, however, both activities proved vulnerable to domestic and foreign interlopers and competitors who caused their demise.

Most wide-ranging was the Dutch West India Company (*Geocstroyerde Westindische Compagnie* or GWIC), founded in 1621.¹⁹ Like many chartered companies, it grew out of and amalgamated prior ventures: some to Brazil for sugar, others to Venezuela for salt and mainland contraband after the Spanish embargoed Dutch ships from Iberian ports. Amsterdam merchants had also formed a Guinea Company in 1600, followed soon after by merchants in several other towns, who together dispatched an average of twenty vessels a year by the 1610s; and in 1614 appeared the New Netherlands Company to trade furs in North America and, it was vainly anticipated, find a northwest passage to Asia. The GWIC copied the VOC in many respects, not least in being a monopoly enterprise uniting state support in pursuit of an explicit anti-Habsburg raiding and colonizing agenda with profit-seeking private capital and trading. With chambers in five ports (though dominated by Amsterdam and Middelburg), and led by a nineteen-member committee representing the leading shareholders, the GWIC received sizeable initial investments from the VOC and States-General. Granted a monopoly of trade to the Caribbean and control of the Dutch Republic's slave trade, it also enjoyed extensive privileges from coastal West Africa to the Pacific littoral of the Americas, and founded colonies in North America, the West Indies, and the northern coast of South America.

Besides its own commercial and settlement activities, the GWIC engaged – as intended – in attacking and on occasion conquering Spanish and Portuguese trading centers and lucrative privateering against Iberian vessels throughout the Atlantic. Before 1642 it had assaulted locations around the Atlantic and taken control of major Portuguese African factories at Elmina, São Tomé, and Luanda. Between 1623 and 1634, its armed ships captured 428 Portuguese vessels, and in 1628 the entire Spanish silver fleet in Cuba, topping its exploits off with the 1630 invasion and conquest of the Olinda-Recife sugar-producing area of northeastern Brazil. Still, in 1654, as Brazil became too costly to defend and sugar prices and profitability fell as Dutch suppliers flooded European markets, the GWIC abandoned its holdings. Nor did its other activities make money; by the 1630s expenses regularly exceeded revenues and the States General and individual provinces had to provide financial assistance. The GWIC did reroute much sugar from Portugal to Amsterdam to the advantage of Dutch refiners. Like other Atlantic companies, however, it could not maintain its monopoly. In trade with Asia, high costs posed a significant barrier to entry that helped safeguard companies' privileges. In contrast, shorter and more frequent trips,

¹⁹ For details, see de Vries and van der Woude, *The First Modern Economy*, 396–402.

smaller and less heavily manned ships, and less need for expensive infrastructure made participation in Atlantic commerce much less expensive, as privateers, smugglers, and interlopers – both fellow citizens and other Europeans – repeatedly demonstrated.

Private merchants operated within, across, and sometimes in conflict with state-run or privileged commercial institutions. Whether trading individually, in family firms, or in partnerships, they participated in informal but effective networks that exchanged information, capital, and goods across national, imperial, and continental boundaries. Others belonged to “nations,” linked groups of traders resident in entrepôts across the globe who shared common attributed birthplaces and were organized into communities granted privileges including a degree of self-government. Nations had long been a feature of maritime trade, with particular ethnic, religious, and/or linguistic diasporic groups dominant in specific areas, such as Gujaratis, Persians, and Chinese in Asian ports, Italians in the Mediterranean and northern Europe, and Basques and Bretons in the Atlantic; many of these flourished in the long sixteenth century thanks to globalizing trade.

The networks of the Portuguese Nation stretched the widest, with communities in Europe, the Americas, the Mediterranean, and on into the Indian Ocean. Unique in its mixture of “Old” and “New” Christians (as converted and crypto-Jews and their descendants were known), the Nation was large, boasting thousands of members in more than three dozen locations just around the Atlantic in the early seventeenth century. The multilateral Nation comprised overlapping networks and subnetworks of merchant houses, autonomous in their daily business though often linked through kinship and marriage. Each network focused on markets in a given region but was connected by credit and debt, information sharing, and exchange of goods with adjacent networks; together, they formed long-distance commercial chains. Members of the Portuguese Nation could trade licitly with Spanish America, so they frequently acted as consignees for Dutch, English, and French merchants who were also their rivals – and with whom they might cooperate in contraband ventures on other occasions. Maintaining close subnetwork relations with regional and local retailers as well as far-flung long-distance merchants, members of the Nation could dominate and from time to time monopolize lucrative slaving, silver, sugar, and textile trades in delimited locations. Some also financed mines and plantations that they supplied – on credit for payment in silver – with tools, clothing, and wine, and they made substantial loans to the Habsburg monarchy and farmed its taxes. Both individually and as a group, the members of the Portuguese Nation ranked among the greatest merchants of the age.

European Networks: From Antwerp to Amsterdam

Iberian long-distance oceanic networks funneled overseas goods and treasure through Lisbon and Seville, whence most continued on to Antwerp and later Amsterdam for distribution, together with European products, through existing networks. For Portugal, which produced few exportable goods (notably cork, salt, wine, and olive oil) and in small amounts, overseas commodities like spices, sugar, and textiles could account for over 90 percent of intra-European export cargoes by value, two-thirds by volume. Spain's exports of raw wool, by contrast, comprised a much larger share of its commerce: the tonnage sent abroad in the mid-sixteenth century required between 50 and 125 ships, as compared to 150–200 for Spain's entire American trade.²⁰

At Antwerp, fairs spaced throughout the year, sophisticated banking and finance techniques, and location in a densely populated, heavily urbanized, and industrially active region at the confluence of multiple land and water routes attracted merchants and financiers from throughout Europe. The foundation of a royal feitoria in 1499 made Antwerp the entrepôt for growing Portuguese trade in pepper, spices, sugar, and other overseas imports. At its height in the early 1560s, however, the city's trade was dominated by finished textiles and textile raw materials. Nearly three-quarters of commodity exports and re-exports by value consisted of Belgian linens, woollens, and tapestries, English woollens (most finished in and around Antwerp), German fustians, and other textiles sent to Italy, France, central Europe, and Spain and Portugal and their colonies. Woollen and linen cloth, raw wool, raw and woven silk, woad, cochineal, and alum comprised at least 40 percent of imports; also notable were grain (13 percent by value), wine (10 percent), spices (8 percent), salt, oil, sugar, and copper.²¹ Many of these items arrived and departed by sea, but substantial traffic also moved along rivers and especially overland to southern Germany and Italy.

Starting in the mid-sixteenth century, Antwerp's commercial position suffered sharp blows: declining traffic on Italian routes, decreased demand for central European copper and silver, the shutdown of Portugal's feitoria in 1549, and the Spanish monarchy's 1557 suspension of debt payments that struck hard at the city's financial markets, closely linked with commerce. The Dutch Revolt brought further disruption, culminating in a destructive 1584–1585 siege, Dutch closure of direct

²⁰ Costa, Lains, and Miranda, *An Economic History of Portugal*, 90; Carla Rahn Phillips and William D. Phillips, Jr., *Spain's Golden Fleece. Wool Production and the Wool Trade from the Middle Ages to the Nineteenth Century* (Baltimore, 1997), 224.

²¹ Calculated from de Vries and van der Woude, *The First Modern Economy*, 360.

ocean access in 1585, and an ongoing Dutch blockade of Flemish ports that might have served as alternatives. In response, merchants initially moved their business to northwestern German cities, northern France, and England – regular trade from England to the Levant, for example, began in the 1570s – but from 1590 the majority had relocated to Amsterdam. The damage to Antwerp redounded on Iberian merchants and transport as well. The Portuguese yielded primacy to Dutch and English shippers on routes they had once dominated thanks to royal subsidies for shipbuilding and laws requiring the use of domestic ships whenever possible. Similarly, whereas Spanish merchants operating through ports on the Bay of Biscay had once dominated the export of wool to key Low Countries markets, between the 1560s and the early seventeenth century exports through those ports fell by two-thirds as the center of the trade shifted to Spain's Mediterranean ports. Traffic doubled, but largely under the control of Italian merchants whose industries were now major consumers. Spanish dealers found their role redefined and reduced: rather than commanding all stages of wool trading from purchase of the clip through preparation and transport until final exchange in the Netherlands, they were now stay-at-home intermediaries between grazers and foreign exporters.

Well before 1500 cities large and small in Holland and Zeeland had served as Antwerp's outports and secondary destinations for overland routes. They had also developed their own bulky goods "mother trade" (*moederenegotie*), initially by virtue of flexibly employing cheap agricultural labor and herring boats ("busses") in their offseason, and in the sixteenth century by constant advances in ship design culminating in the long, low *fluit* (flyboat) that efficiently transported bulky low-profit cargoes with a small crew. Thus Dutch ships could integrate in a single round trip the exchange of Baltic timber and grain (essential for Portugal in particular), Bay of Biscay salt and wine, and Portuguese spices, undercutting Hanse competitors hobbled by restrictions and regulations besides locations that imposed unproductive winter layovers when ice closed harbors. As the overall volume of Baltic traffic tripled and grain imports quintupled between 1475–1485 and 1550–1555, the Dutch share climbed from less than 40 percent to well over half while the great Hanse center of Lübeck saw its part plummet from half to less than 20 percent. On the eve of their momentous Revolt, therefore, the Dutch already dominated bulk trading between northern and Iberian Europe. Yet Dutch commerce remained narrowly focused on a few commodities and a restricted area within limited networks and subnetworks. Even at Amsterdam, grain, herring, salt, and textiles accounted for three-quarters of exports, and nearly half were sent to the Baltic or North Seas, another quarter to

adjacent parts of the northern Netherlands, just a seventh to Lisbon. For all its impressive growth, moreover, Amsterdam's trade was long overshadowed by Antwerp's: in the mid-1540s, Antwerp exported by value more than 80 percent of the Habsburg Netherlands total, Amsterdam 4 percent.²²

The transformation of Amsterdam's commercial position, its rapid rise between 1570 and 1620 to the status of the first "fully fledged world entrepôt, not just linking but dominating the markets of all continents," was brought about by active merchants backed by strategic government assistance.²³ At Antwerp, which lacked its own long-distance fleet, foreign merchants organized into discrete nations met to trade goods they brought to periodic fairs. In Amsterdam, Dutch merchants reigned, continuously engaging in shipping, trade, and distribution rather than waiting for business to come to them. Merchants from Dutch cities competed and collaborated in trade across political and geographical boundaries (including with Iberian enemies during wartime), whereas the fortunes of their Antwerp counterparts had been closely linked with the Habsburg empire. The multilateral Dutch system allowed its traders much greater flexibility in circulating goods and arranging for payments with negotiable paper than the bilateral systems of their competitors. Hence the Dutch often served as intermediaries in Baltic commerce for English and French traders doing business there. The Habsburgs tried repeatedly to thwart the Dutch, not only by bellicose means but also by repeatedly embagoing Dutch ships and merchants from entering ports in their dominions. But enforcement was spotty and contraband flourished; the Habsburg realms could not dispense with the grain, naval stores, and copper that only the Dutch proved able to provide reliably and cheaply.

From the 1590s, as noted above, the Dutch captured a major share of Asian long-distance and country trade, in particular shipping pepper and spices to Europe, where they were distributed widely, undercutting the Portuguese and Venetians who had previously predominated. Dutch merchants acquired specie from participation in attacks on Spanish treasure fleets and interloping trade in the Caribbean alongside the English and French, and at Lisbon half Brazil's sugar was transshipped for Amsterdam. Together with European goods, these Asian and American commodities traveled a maritime route network that soon extended throughout European waters. In the Baltic, Dutch merchants strengthened their existing position. After 1610, they controlled 70 percent of the traffic, aided by access to the bullion required to cover the trade deficit

²² De Vries and van der Woude, *The First Modern Economy*, 350–62.

²³ Jonathan Israel, *Dutch Primacy in World Trade, 1585–1740* (Oxford, 1989), 13–26.

created because that area's exports to western Europe were worth twice as much as the goods imported. Traveling to Russian Narva (today in Estonia), they traded luxuries and silver for furs and hides, hemp and flax, wax and tallow. When Swedish conquest closed that port in 1581, the Dutch switched to Archangel on the White Sea, gaining primacy with metal goods, arms, silks, pepper and spices, wine, sugar, silver, and luxury items, and they offered better dyed and finished English woollen cloth to seize that substantial branch of trade from England's Muscovy Company. In Sweden, where Dutch traffic tripled just between 1600 and 1620, with their government's assistance Dutch merchants exploited rich copper and iron mines and exports and organized arms manufacture and trade. Greater efficiency also enabled them to dominate French coastal carrying trade.

Backed by armed convoys, Dutch traders bested Spanish warships and English and Barbary pirates to quadruple their Mediterranean tonnage between the 1590s and the early seventeenth century. When in 1587 the Duke of Tuscany declared Livorno a "free" port (something of a misnomer: customs barriers were reduced and access for all traders eased, but taxes and privileges remained), the Dutch brought it grain, textiles, fish, American dyestuffs, Asian spices, Russian furs, wax, and caviar. In the Levant, the Dutch exchanged cloth but mainly specie for textile raw materials and dried fruits. They put excess cargo capacity to effective use by engaging in intra-Mediterranean carrying trade, bringing Spanish salt and wool to Italy, and Sicilian, Greek, and Egyptian grain to Constantinople and Italian and Spanish cities. All these initiatives enabled Dutch shipping, second in the fifteenth century to north German rivals in productivity (as measured by tons per crew member), thereafter to register the greatest gains. By the early seventeenth century, Dutch shipping productivity ranked far above that of second-place England and every other commercial fleet. Baltic and Scandinavian routes proved most dynamic, thanks both to the use of efficient flyships (flutes) on more regular routes and to greater security as compared with the Mediterranean and West Indies, where the constant threat of piracy mandated weaponry that cut into cargo space and profits. The principal contributions to increased Dutch efficiency were found on shore, however: information sheets and newspapers, professional brokers, and specialized port workers all sped up turnaround times, putting fixed and working capital to more intensive and effective use.²⁴ And like their Iberian predecessors, if more adroitly, Dutch merchants benefited

²⁴ Jan Lucassen and Richard W. Unger, "Shipping, Productivity and Economic Growth," in *Shipping and Economic Growth 1350–1850*, ed. Richard Unger (Leiden, 2011), 3–44.

handsomely from such early modern market conditions as imperfect information, privileges and protections, and limited expertise that facilitated arbitrage, insider trading, and domination of market segments.

For all their vigor, Dutch merchants did not exercise hegemony over all routes and goods. Genoese traders distributed spices landed at Lisbon, which remained a major business into the seventeenth century. Following existing practice, Hanse and other northern European traders brought some grain and timber directly to Seville and Lisbon, returning with salt, wine, cork, fruit, and sugar carried north in large “hulks.” Yet if this business flourished during periodic Habsburg embargoes on Dutch traders across the eighty years of the Revolt, by 1600 Portugal was being pulled into the Dutch commercial orbit. England, too, maintained its long-existing direct trade with both Iberian nations, exchanging cloth for salt and agricultural products (including sugar from the late fifteenth century). Eastern Mediterranean trade in spices, raw silk and luxurious Chinese and Persian silk textiles, Indian cottons, and other Asian goods not only recovered after the 1550s but exceeded earlier levels as Portuguese forts failed to block reviving Red Sea and Persian Gulf traffic, and Ottoman trade policy eased access to foreign merchants and specie to counter competition from the Cape route. Despite Dutch inroads, the Venetian and French commanded the lion’s share of the exchanges (which also included locally produced dried fruit, honey, and oil): together more than three-quarters in 1613 Aleppo, western terminus of Asian overland routes, as against 15 percent for merchants from the Dutch Republic.²⁵

Nor did disruptions of Antwerp’s trade uniformly favor the Dutch. Though Spanish raw wool exports to the Low Countries dropped off sharply from the 1560s, Italian merchants carried fleeces from Alicante and other ports in south-eastern Spain to Venice, where demand now centered. Across every part of Europe, too, coasting and overland routes flourished outside the Dutch orbit, as regional specialization and trade within and among countries continued to develop. Overall Dutch commercial dominance cannot, however, be gainsaid.

The Iberian-pioneered construction of long-distance overseas maritime routes that integrated existing European networks with trading activities and commodities from around the globe was epochal for commerce and consumption from northern Russia to Madeira, Lisbon to Constantinople, not to mention worldwide locations from Africa to East

²⁵ Şevket Pamuk, “Crisis and Recovery: The Ottoman Monetary System in the Early Modern Era, 1550–1789,” in *Global Connections and Monetary History*, eds. Flynn, Giraldez, and von Glahn, 133–48; Israel, *Dutch Primacy in World Trade*, 55–60, 99.

Asia, the Caribbean to the Indian Ocean. Neither overseas nor European trading systems were static, moreover. As the long sixteenth century drew to a close, the strong Dutch challenge to Habsburg commercial hegemony – symbolized by Amsterdam's replacement of Antwerp as the dominant European trade emporium and the growing Dutch presence on the Cape route and in intra-Asian traffic – heralded and promoted the equally momentous transfer of Europe's economic center from the Mediterranean to the Northwest.

Impacts and Results

Across the long sixteenth century, exploration, route extension, and empire-building significantly increased Europe's intercontinental trade. Between the 1510s and the 1620s, Cape route tonnage and Atlantic sugar shipments approximately tripled, and African gold exports perhaps doubled. Other trades expanded even more: the number of enslaved Africans transported to the Americas at least sixteen-fold, American gold and silver output up to thirty times. The pace of growth was not uniform. Oceanic shipping between Europe and Asia swelled until the 1530s, then leveled off until late in the century, when the Dutch and English broke Portuguese hegemony and ended the overland trade revival to the Levant, doubling the annual rate of seaborne shipping growth. Transatlantic slaving volumes varied sharply from decade to decade, though the Brazil sugar boom caused them, too, to shoot up from the 1580s (see Appendix C.3).

Very few of the goods involved were unknown to Europeans, and their exchange of bullion for Asian commodities followed a long-established pattern. Nevertheless, direct access to existing Asian and African supplies and participation in local routes and networks that eliminated intermediaries, development of new routes and new production areas in the Americas, and much greater availability of gold and silver augmented the flow of goods from distant lands, outpacing Europe's population growth of one-quarter to one-third and boosting per capita consumption as the long sixteenth century went on. Though silks, lacquerware, porcelain, and some other items were luxuries destined for elites, the generally falling real prices of pepper, spices, sugar, and other commodities suggest that they reached a broader European public.

Besides greater consumer choice, recent estimates credit sixteenth-century intercontinental trade with increasing Portuguese and Spanish urbanization levels and wage rates by a few percentage points.²⁶ But the

²⁶ Nuno Palma, "Sailing away from Malthus: Intercontinental Trade and European Economic Growth, 1500–1800," *Chiometrika* 10 (2016): 129–49.

main Iberian beneficiaries were merchants, shippers, and shipyards. Thanks to their far-flung networks, Portuguese Nation merchant houses loomed large in or controlled many branches of legal and contraband trade within both the Spanish and Portuguese empires, earning returns that have been estimated at more than 30 percent in early sixteenth century slaving, 12–43 percent from Brazilian sugar in the early seventeenth century; they were also active on intra-Asian and European routes.²⁷ Many diversified into shipping and finance, including tax farming and leasing monopolies from and loans to Habsburg emperors. Involvement in long-distance trade encouraged Portugal's merchants to adopt modern techniques such as maritime insurance, bottomry, debt offsets, letters of exchange, and other forms of credit. Shipbuilding also flourished for a time, thanks to demand from both Asian and transatlantic traffic, while Lisbon – where population more than tripled from 30,000 to 100,000 between 1500 and 1600 – became not merely a major seaport but a center of logistical services.

Yet Portuguese commerce faced rising headwinds. With little manufacturing and unproductive agriculture, long-distance trade was central to Portugal's economic fortunes and to its state finances (levies on overseas trade provided about half government income) – and from the 1560s this leading sector proved vulnerable to rising competition and external shocks. The Dutch Revolt, involvement in Habsburg conflicts, increased attacks by European privateers and North African pirates, and Dutch commercial aggression in Asia hammered Portuguese trade, disrupting supplies, causing sharp price swings, requiring expensive armed ships and convoys to stem losses. Much diminished in Asia, its long-distance trade survived by focusing on the Atlantic. Even there, however, the seventeenth century promised intensifying problems: investment and thus productivity lagged in domestic shipyards, for instance, so while in principle excluded during wartime, cheaper Dutch shipping became increasingly common on the Brazil sugar route.

Spanish merchants, shippers, and shipbuilders also initially gained from overseas commerce. The dispatch of wool to the Netherlands, North Atlantic whaling, American bullion, and the Manila galleons not only provided profitable opportunities for an active commercial sector, but stimulated the development of a merchant fleet – much of it built in Bay of Biscay shipyards – second in size only to the Dutch and far ahead of the French and English. On the whole, however, Spanish merchants

²⁷ Christopher Ebert, *Between Empires: Brazilian Sugar in the Early Atlantic Economy, 1550–1630* (Leiden, 2008), 170–71; Elbl, “Volume of the Early Atlantic Slave Trade,” 39–40.

lacked sufficient capital to participate on their own in the growing American colonial trade that was by law restricted to them, so they either purchased goods on credit from foreign merchants or became fronts for them; similarly, Chinese traders took charge at Manila, while Mexico City's merchants increasingly assumed control of New Spain's commerce with both Europe and the Philippines. Portuguese merchants dominated slaving and made Brazil a center for contraband with Spanish colonies; Dutch, English, and French privateers and smugglers likewise interloped, particularly in the Caribbean.

From the 1570s, moreover, key elements of Spanish commerce and shipping entered into crisis or simply collapsed. The Dutch Revolt and changes in textile weaving favoring cheaper wools abruptly ended the wool trade to the Low Countries, and Italian merchants took control of fleece exports to their markets. Dutch challengers drove Spanish whaling into long and irreversible decline, and the French grain trade contracted sharply. Development of an American colonial merchant marine combined with an oversupply of Spanish vessels decimated metropolitan transatlantic shipping and shipbuilding, which to boot suffered from falling competitiveness in constructing the large vessels coming into favor for intercontinental routes.²⁸ As Spain's maritime trade and transport fell under foreign domination, only Seville's merchant guild and commercial nations – many of them foreign-controlled – continued to profit from an increasingly dysfunctional monopoly system.

Particularly during the Revolt, aggressive Dutch merchant and government policies deepened some Iberian trade difficulties. But the Republic's remarkable commercial and shipping boom from the 1580s until the early 1620s was more securely founded on integrating old and new trading routes into an emerging global system with its hub at Amsterdam; innovative ship designs and shipbuilding techniques that lowered construction and operating costs also contributed. Cooperation and competition among Dutch port cities created a flexible institutional environment adapted to commerce, and an openness to immigration that more than quadrupled the population of Holland and Zeeland ports between 1500 and 1620. Amsterdam grew even more, soaring from 14,000 to 104,000 residents as it became home to trading nations and individual merchants from across Europe and yet further. Little wonder that an increasing share of European trade, no matter what its place of origin or destination, passed through the Dutch Republic, most often on Dutch ships.

²⁸ Regina Grafe, "The Strange Tale of the Decline of Spanish Shipping," in *Shipping and Economic Growth*, ed. Unger, 81–115.

Early modern commercial growth gave Europeans access to and in some cases control of markets on a global scale. Along intensely trafficked Atlantic routes flowed the output of export-oriented American mines and plantations, large, heavily capitalized enterprises sustained by merchant credit. Though always marginal to Asian commerce, Europeans not only redirected some Asian goods to their trading channels and companies but profitably participated in and enlarged country trades. Moreover, presaging a process that would become more common in later centuries and eventually spark profound changes in consumption as well as the import-substitution Industrial Revolution, European merchants and Asian producers began to modify Asian textiles for Western markets. Long-distance transfers of crops, animals, and tastes (not to mention pathogens) accelerated. Though its impact subsequently increased, even in the sixteenth century this “Columbian exchange” had marked effects: after American maize was planted in northern Spain, for instance, imports of French grain slowed markedly, as seen above, dealing a harsh blow to the merchants, shippers, and sailors dependent on this long-established trade.²⁹ What Jan de Vries has called “soft globalization” – when sufficient ongoing direct trade among all major world areas significantly affects all participants – certainly occurred, though not “hard globalization,” measured by price convergence among markets integrated across space.³⁰

Globalizing commerce promoted development of port cities, regional specializations, and interregional divisions of labor during the long sixteenth century, but not everyone benefitted. Growing numbers of Africans and indigenous Americans faced enslavement and enforced migration. Within and beyond Europe, regions – even whole countries – suffered from shifting trade routes and relations. Though essential to long-distance and intercontinental routes, sailors had to compete in an increasingly international labor market, saw their work become ever more routinized and regimented, and toiled in conditions resembling the modern industrial capitalist factory. Other European workers suffered from inflation, partly driven by American bullion, that cut real wages. As consumers, however, many gained from declining prices for manufactures, and from buying novel goods in specialized shops that began to open in some cities. As subnetworks extended, merchants and shippers did best, their wealth probably growing at rates above productivity

²⁹ Alfred W. Crosby, *The Columbian Exchange: Biological and Cultural Consequences of 1492* (Westport, CT, 1972); Grafe, “The Strange Tale of the Decline of Spanish Shipping,” 107.

³⁰ De Vries, “The Limits of Globalization in the Early Modern World,” 710–15.

advances.³¹ Iberians initiated and for decades dominated long-distance trade. But they were increasingly marginalized by the Dutch who integrated intercontinental with intra-European commerce, reinforcing their growing hegemony by recycling their profits into trade, shipping, and finance while introducing innovations into their trading practices, institutions, and organization.

European commerce during the long sixteenth century at once created and depended on novel global trade networks and overseas colonies that accessed and exploited new sources of primary products, finished goods, and labor supplies; innovated commercial institutions and practices; and generated notable capital accumulation for many of the merchants engaged in it – but also rewarded unevenly groups and regions within Europe and its extensions abroad. The next two chapters explore whether similarly dramatic developments marked agriculture and industry.

Suggested Reading

Most works cited here include abundant bibliographies of classic and recent scholarship. Essays in *The Rise of Merchant Empires. Long-distance Trade in the Early Modern World, 1350–1750*, ed. James Tracy (Cambridge, UK, and New York, 1990), consider general issues and specific empires; some need supplementing with more recent works. Part I of *Portuguese Oceanic Expansion, 1400–1800*, eds. Francisco Bethencourt and Diogo Ramada Curto (Cambridge, UK, and New York, 2007), surveys that empire's economy. Chapter 2 of Leonor Freire Costa, Pedro Lains, and Susana Münch Miranda, *An Economic History of Portugal, 1143–2010* (Cambridge, UK, and New York, 2016), discusses Portugal's globalizing economy but slights discussion of slaving. Edmond Smith, "The Global Interests of London's Commercial Community, 1599–1625: Investment in the East India Company," *Economic History Review* 71 (2016): 1–29, corrects earlier interpretations.

Jan de Vries, "Connecting Europe and Asia: A Quantitative Analysis of the Cape-route Trade, 1497–1795," in *Global Connections and Monetary History, 1470–1800*, eds. Dennis O. Flynn, Arturo Giráldez, and Richard von Glahn (Aldershot, UK, 2003), 35–106, assesses European-Asian trade and compares it with Atlantic traffic. John E. Willis, Jr., "Maritime Asia, 1500–1800: The Interactive Emergence of European Domination," *American Historical Review* 98 (1993): 83–105, reviews prior scholarship. For Indian Ocean trade when Europeans arrived, see Kenneth R. Hall, "Ports-of-Trade, Maritime Diasporas, and Networks of Trade and Cultural Integration in the Bay of Bengal Region of the Indian Ocean: c. 1300–1500," *Journal of the Economic and Social History of the Orient* 53 (2010): 109–45. *The New Cambridge History of India. II.5. European Commercial Enterprise in Pre-colonial India*, ed. Om Prakash (Cambridge, UK, 1998), discusses all participants in the subcontinent's trade from c. 1500 to c. 1880. Birgit Tremml,

³¹ Lucassen and Unger, "Shipping, Productivity and Economic Growth."

Spain, China, and Japan in Manila, 1571–1644: Local Comparisons and Global Connections (Amsterdam, 2015), and Arturo Giraldez, *The Age of Trade. The Manila Galleons and the Dawn of the Global Economy* (Lanham, MD, 2015), are up-to-date accounts; Richard von Glahn, *The Economic History of China. From Antiquity to the Nineteenth Century* (Cambridge, UK, 2016), contains additional material. Richard B. Allen, *Slave Trading in the Indian Ocean, 1500–1850* (Athens, Ohio, 2015), examines an important if neglected topic.

David Birmingham, *Trade and Empire in the Atlantic, 1400–1600* (London and New York, 2000), is an excellent brief introduction. Christopher Ebert, *Between Empires: Brazilian Sugar in the Early Atlantic Economy, 1550–1630* (Leiden, 2008), examines the organization, financing, operation, and profitability of a large-scale Atlantic trade; Daniel Strum's lavishly illustrated *The Sugar Trade: Brazil, Portugal, and the Netherlands, 1595–1630* (Stanford, CA, 2013), attends more to European aspects. Stanley J. and Barbara H. Stein, *Silver, Trade, and War: Spain and America in the Making of Early Modern Europe* (Baltimore, MD, 2000), scrutinize Spain's Americas commerce. Constantly updated, Voyages: The Trans-Atlantic Slave Trade Database at www.slavevoyages.org/ remains the best source for this fundamental subject. Daviken Studnicki-Gizbert, *A Nation upon the Ocean Sea: Portugal's Atlantic Diaspora and the Crisis of the Spanish Empire, 1492–1640* (Oxford and New York, 2007), investigates the Atlantic aspects of Europe's leading commercial "nation." For detailed studies of transimperial trading networks, see *Beyond Empires: Global, Self-Organizing, Cross-Imperial Networks, 1500–1800*, eds. Cádia Antunes and Amélia Polónia (Leiden, 2016). *Religion and Trade: Cross-cultural Exchanges in World History, 1000–1900*, eds. Francesca Trivellato, Leor Halevi, and Cádia Antunes (Oxford, 2014), focuses on networks organized by religious affiliation. Filipa Ribeiro da Silva, *Dutch and Portuguese in Western Africa: Empires, Merchants and the Atlantic System, 1580–1674* (Leiden, 2011), and Francesca Trivellato, *The Familiarity of Strangers: The Sephardic Diaspora, Livorno, and Cross-Cultural Trade in the Early Modern Period* (New Haven, CT, 2012), examine cross-cultural and cross-imperial exchanges; *Merchant Colonies in the Early Modern Period*, ed. Victor N. Zakharov, Gelina Harlaftis, and Olga Katsiardi-Hering (London, 2012), considers foreign merchant communities that conducted inter-state and inter-imperial trade within Europe.

Pierre Gervais, "Early Modern Merchant Strategies and the Historicization of Market Practices," *Economic Sociology_The European Electronic Newsletter* 15.3 (July 2014), 19–29, is the best introduction to his ground-breaking work on merchant networks and sub-networks. *Shipping and Economic Growth 1350–1850*, ed. Richard Unger (Leiden, 2011), provides an overview and detailed studies of intercontinental and European trends. Jan de Vries and Ad van der Woude, *The First Modern Economy. Success, Failure, and Perseverance of the Dutch Economy, 1500–1815* (1995; Cambridge, UK, 1997), offer updated data, detailed descriptions, and fresh interpretations; see also Jonathan I. Israel, *Dutch Primacy in World Trade, 1585–1740* (Oxford, 1989). Oscar Gelderblom, *Cities of Commerce: The Institutional Foundations of International Trade in the Low Countries, 1250–1650* (Princeton, 2013), emphasizes interurban competition and cooperation. Essays in *The Oxford History of the British Empire, I, The Origins of Empire. British Overseas*

Enterprise to the Close of the Seventeenth Century, ed. Nicolas Canny (Oxford and New York, 1998), examine the development of colonial economies; those in *The Westward Enterprise: English Activities in Ireland, the Atlantic, and America, 1480–1650*, eds. Kenneth Andrews, Nicholas P. Canny and P.E.H. Hair (Detroit, 1979), analyze early English privateering, smuggling, and exploration.

Divergent positions on origins and extent of early modern globalization are found in Kevin O'Rourke and Jeffrey Williamson, “When Did Globalization Begin?” *European Review of Economic History* 6 (2002): 23–50; O'Rourke and Williamson, “After Columbus: Explaining Europe’s Overseas Trade Boom, 1500–1800,” *Journal of Economic History* 62 (2002): 417–56 (market integration); Dennis O. Flynn and Arturo Giráldez, “Path Dependence, Time Lags and the Birth of Globalization: A Critique of O’Rourke and Williamson,” *European Review of Economic History* 8 (2004): 81–108 (trade); Jan de Vries, “The Limits of Globalization in the Early Modern World,” *Economic History Review* 63 (2010): 710–33.

4 The Limits of Agricultural Growth

During the long sixteenth century, discrepant trends marked European agriculture. Though data are not available for all areas, recent studies indicate that more intensive use of land and labor as farmers experimented with crops and methods boosted both productivity per hectare and overall output from the early 1400s to the later 1500s, yet agricultural labor productivity dropped by up to a third. In the decades before 1600, however, the coastal provinces of the nascent Dutch Republic were something of an exception in terms of productivity and innovation, and parts of England showed signs of upturn as well.

Scholars have long explored tenures, farm organization, crop mixtures, cultivation practices, and broader social and political ecologies to understand both the period's extended agrarian advance and decay and north-western Europe's emerging singularity. What were the dynamics of Europe's varied agrarian regimes? How did growth occur, and what thwarted it? Who advocated new ways, and who stood in their path?

Robert Brenner's social-property relations interpretation has prompted a particularly impressive body of research and debate on these topics. According to Brenner, agricultural development and eventually the emergence of agrarian capitalism occurred in societies – prototypically England – in which insecure peasant tenure allowed lords to dispossess subsistence producers, enclose and engross their holdings, then lease the resulting large farms to market-oriented yeomen employing wage-dependent displaced tenants. Apart from the Netherlands, where weak or absent feudalism permitted the emergence of farmer-led agrarian capitalism, the Continent followed different paths. In east Elbian Europe, powerful lords in weak states enserfed formerly free peasantries, whereas Western European peasant communities – usually assisted by state authorities seeking to protect their own ability to impose levies on agricultural producers – blocked landlord initiatives. Though starkly divergent in most respects, both so-called second serfdom and independent small peasant farming ended similarly in stagnation.

Brenner's depiction of a largely subsistence feudal agriculture has been questioned, as has his general emphasis on landlord initiative rather than peasant agency in promoting agrarian change. Recent studies are also revising long-standing interpretations of common-field agriculture, early modern farmers' engagement with markets (including those involving leases and land), the structure and performance of east Elbian manorial regimes, and the formal and informal institutions that shaped the agrarian sector. Increasingly, these analyses argue that the key variables operated at the regional level not only within Europe as a whole but also within individual states.

Drawing on and evaluating these approaches, this chapter examines the contours of the protracted agrarian cycle, the factors that lay behind instances of development, and the forces that shaped and mainly frustrated change. Some general trends arose from the common features of Europe's agrarian societies outlined in Chapter 2. At the same time, disparate topographies, tenurial arrangements, inheritance customs, and communal forms, together with early modern Europe's array of political structures and fiscal pressures, assured that specific countries, regions, even small districts, followed distinctive itineraries. This book cannot fully explore that diversity. But to understand both the broad themes and the significant differences that defined the agrarian long sixteenth century, we need to compare the major European economic zones – the Mediterranean basin, for a long time the center of gravity of Europe's economy and home to its most advanced agriculture; western Europe, predominantly stable even immobile but also boasting an increasingly dynamic northwestern area; and east Elbia, which followed a unique path. Attending to some smaller regions within each zone helps illuminate the logics of both change and stability within agrarian regimes.

Agricultures New and Old

The Mediterranean Basin

Generally hot, dry climate and sizeable poor soil areas presented stiff challenges to farmers in Mediterranean Europe, yet according to a recent estimate Italy and Spain had the most productive agriculture per worker at the end of the Middle Ages.¹ Supporting and stimulated by already notable and increasing levels of urbanization, well-developed commercial

¹ Carlos Álvarez-Nogal, Leandro Prados de la Escosura, and Carlos Santiago-Caballero, "Spanish Agriculture in the Little Divergence," *European Review of Economic History* 20 (2016): 466.

networks and market institutions, and initiatives mounted by landlords and peasants both jointly and on their own, overall output and land productivity rose across most of the sixteenth century. Even in this buoyant period, however, static or – more often – declining per capita and per worker output and rising real prices for agricultural goods betrayed underlying problems. Already before 1600, broad and in some places sharp and severe crisis had struck the Mediterranean agrarian sector. Hard times persisted well into the seventeenth century.

Iberia Sharing fully in the secular European upswing, productive, diversified, and commercialized farming flourished in much of Spain and Portugal from at least the 1520s to the 1560s. Grain, olives, and grapes – Mediterranean husbandry's staples – were grown widely across the peninsula; some Castilian cereal farms achieved yield ratios of 8: or 9:1, among the highest of the age. Most areas had developed market-oriented specializations as well. Wool came from large transhumant flocks pastured on the arid high plains of Castile, saffron from Aragon, cattle from northwestern regions, wine from the Canaries, while in the kingdoms along the Mediterranean coast intensive irrigated agriculture introduced under Muslim rule furnished raw silk, fruits, vegetables, rice, and sugarcane.

Iberia's agrarian expansion depended on markets at home and abroad. The growing throng of Spain's urban dwellers – about 6 percent of 6.8 million people around 1500, nearly 12 percent of 8.5 million a century later – stoked demand for foodstuffs, and many were engaged in vigorous textile industries that used Spanish raw materials like wool and silk. New markets for agricultural products opened up in overseas colonies. Industrial growth elsewhere in Europe likewise invigorated the Spanish countryside. Fine merino wool from Castile was Spain's leading, and fastest-growing, agricultural export; having surpassed English wool in quality, it was in high demand across Europe. Herds grew from an estimated 4 million sheep in the early sixteenth century to more than 6 million at mid-century, exports yet more steeply from about 4.6 million lbs. per year to 10.5–14.4 million lbs. in the 1540s.²

Portugal also urbanized, more dramatically and continuously than Spain, in fact. Precise figures are disputed. But Portuguese cities, home to perhaps a twentieth of the country's population in 1500, probably housed a seventh in 1600, a sixth in 1650 – levels above Italy and in Europe second only to the Netherlands.³ Peasants responded by draining

² Phillips and Phillips, *Spain's Golden Fleece*, 287–88, 302–3.

³ Jan de Vries, *European Urbanization 1500–1800* (Cambridge, Mass., 1984), 30, 36, 39; Costa, Lains, and Miranda, *An Economic History of Portugal*, 53–59, for higher estimates of total population and urbanization.

marshes and clearing forests, and by adopting higher-yield crops, notably maize in northwestern districts. They also expanded olive and grape cultivation for export markets, albeit in modest quantities.

Beginning in the 1550s, however, and gathering force from the 1560s through the 1580s, Iberian agricultural production contracted abruptly and painfully; though its pace slackened thereafter, decline continued through the 1610s, and in some sectors until the 1640s. High Spanish per capita productivity in the 1510s had dropped by a fifth by the 1580s; per capita output fell a remarkable 72 percent across the half century from the 1560s to the 1610s.⁴ Cereals, wine, and olive tree farms suffered the most serious reversals; those raising fruits, legumes, and livestock were less badly affected. Still, sheep numbers declined by about half between the mid-sixteenth and early seventeenth centuries, before stabilizing as sedentary animals compensated for ongoing contraction in transhumant herds. Portuguese cereal yields, always low, apparently stagnated at best, necessitating imports from the Azores and, increasingly, the Baltic to feed the expanding cities.

The magnitude of Spain's agricultural problems has prompted vigorous debate about their causes. Market problems resulting from financial instability and war-induced trade disruption are often cited, with good reason. Interruptions in the Spanish monarchy's debt payments, along with piracy and blockades during wars with France and the Dutch Revolt considerably disturbed shipments to the Low Countries, far and away the leading destination for Spain's clip. Though Italian markets provided some compensation, in the later sixteenth century many European textile industries shifted from merino fleeces to inferior, often local, wools; adding insult to injury, some of the new draperies were imported into Spain. Together, these negative commercial conditions pushed wool exports down to about 8 million lbs. from the 1560s through the early 1580s, then reduced them further to between 4.3 and 6.4 million lbs. across the next half century.

War and changes in European demand were not the sole disruptive forces. Colonial markets languished, too, as Iberian Americans imported sheep and began producing woollens that competed directly with Spanish textiles. At the same time, cheaper, more desired Chinese silks imported on the Manila galleons won over many New World consumers and even some Europeans. Spanish agricultural exports were also harmed as American wine replaced imports from the metropole and American sugar displaced Spanish, even within Spain itself. Still, domestic conditions were equally decisive for Spanish agriculture's deep and abrupt decay.

⁴ Álvarez-Nogal, *et al.*, "Spanish Agriculture in the Little Divergence," 454–65.

Many early modern Spaniards, and numerous later scholars, blamed two institutions: the wheat and barley price maximum or *tasa*, and organized transhumant pastoralism. The *tasa*, designed to prevent profiteering in time of dearth, was charged with impoverishing peasants by making grain production unprofitable. For its part, the powerful Mesta coalition of monarchy, landowners, merchants, and foreign cloth manufacturers was accused of allowing the destruction of cropland and of ruthlessly subordinating arable to pastoral interests, preventing balanced and productive agricultural development.

In light of recent research, both appear minimally if at all culpable. Frequently suspended, riddled with exemptions, and widely evaded, the *tasa* had only marginal effects. Despite some notorious instances when flocks deliberately were permitted to ruin valuable vineyards and olive groves, on the whole sheep caused little damage; many localities welcomed them for the manure they left behind. The Mesta's power also should not be overestimated. Admittedly, in 1501 the Crown ordered that Mesta flocks should henceforth be permitted to graze forever at the original – usually low – rent on any land they had used even once, and in 1633 commanded that all pasture converted to crops since 1590 be put back under grass. Yet these decrees proved ineffectual. Courts increasingly sided with arable farmers in disputes with grazers, and ostensibly far-reaching Mesta privileges did little to protect herders from spiraling pasture rents or exclusion from land reserved for sedentary village flocks. Restoration of pasture in the seventeenth century came about not because of government mandates but because farmers relinquished marginal fields (ironically, grazers then also left them empty, because demand for wool was depressed). In general, Spain's arable and pastoral sectors advanced and languished hand in hand across the long sixteenth century.

Price-fixing and pastoralism did not, then, bear primary responsibility for Spain's agrarian troubles. Much more central were Crown fiscal policies in a time of war-related trade disruptions and changes in export markets, increasing monetary instability, recurrent domestic unrest, declining population and urbanization, and unfavorable climatic conditions. In this unfavorable context, rapid escalation of heavy consumption taxes reduced demand, siphoned resources out of the agrarian sector, altered landholding patterns, impaired common-field and specialized agriculture, and distorted capital investment.

Until the 1560s, Spanish taxes declined in real terms, promoting consumption and agricultural improvement; the Crown's share of American gold and silver imports and massive borrowing financed expansion and defense of the worldwide Habsburg empire. In the following decades, however, this system proved inadequate, so the mounting costs of the

drawn-out Dutch Revolt – along with maritime campaigns against the Turks and involvement in France’s Religious Wars (1562–1598) – led to successive state debt payment suspensions and sharp tax increases. Existing sales imposts (notably the broad-based *alcabala*) mounted at least two and a half times between 1561 and 1590, then jumped a similar amount in the next three decades. But even this fell short of filling the gap, so a new tax on basic foodstuffs, the *millones*, was created in 1590; within a decade, its rate doubled, and it rose rapidly again during the 1620s and 1630s.

Levied at flat rates, these regressive consumption excises sapped popular consumption of foodstuffs while fueling price increases. In addition, *millones* collection was delegated to local authorities, typically well-to-do individuals who quickly devised expedients to shift the burden off their shoulders. In particular – and most harmful to the smallholder and laborer majority – they accelerated the sale of *baldíos* or *tierras baldías*, common wastes where most peasants enjoyed rights of pasturing sheep and draft animals and gathering manure for their arable fields. By the seventeenth century, about 40 percent of *baldíos* had been auctioned off. Some peasants managed to buy and enclose *baldíos* by mortgaging their holdings; others rented some of the now private property. Nevertheless, both groups had to pay for access to fields they had formerly used for free – and just at a time when the tax burden was skyrocketing and demand for agricultural goods contracting. Many *baldío* purchasers, unable to keep up payments, defaulted and lost land. Similarly, many communities that sought to recover commons by acquiring *baldíos* – often from speculators at steep mark-ups – fell massively into debt and often were forced to resell or lease them to aristocratic and clerical landlords. Along with usurpation of wastes and forests, *baldío* sales served both to impoverish many peasants and to concentrate land ownership: in Castile, nobles and ecclesiastical institutions came to control some two-thirds of the countryside.

Redistribution of assets was not ipso facto bad. In the early sixteenth century, some *latifundia* owners along the Guadalquivir River in Andalusia planted vineyards and olive groves on demesnes previously devoted to grain; elsewhere, *baldíos* near cities were converted into productive specialized croplands. Ordinarily, however, landlords evaded direct entrepreneurial involvement in agriculture for rentiership: the Andalusian estate owners eventually parceled out their properties to sharecroppers and leaseholders.

Some peasants continued to innovate, for instance enlarging sedentary grazing as transhumant herding diminished, but most faced growing pressure. Rents multiplied five-fold between 1500 and 1600, becoming relatively heavier in the later part of the century – just when crop yields fell

(as much as half in some cereal districts), baldío land had to be paid for, and domestic and foreign markets contracted. By the 1580s, rent commonly took 30 percent of peasants' harvests. When taxes, tithes, and seigniorial dues were added in, peasants owed half or more of their gross output. To meet current expenses, many were obliged to borrow by means of *censos*. These short-term, high-interest loans (often obtained from landlords), secured by mortgages on their holdings, kept peasants in virtual debt peonage. As a result, most found it difficult to make the ongoing investments needed to maintain productivity, particularly on marginally fertile land brought under cultivation during the expansionary years.

As the long sixteenth century drew to a close, most Spanish peasants were in serious difficulties. Wages of the fifth or more who were landless day laborers – a half or even three-quarters in much of Andalusia – increasingly fell behind the rising cost of living even when jobs were to be found; demesne division and leasing often made their employment opportunities bleaker. Impoverishment, begging, vagabondage, or migration also faced that half of villagers classified as smallholders. Stratagems they had devised to make a living on plots averaging 5 or fewer ha. – keeping livestock on commons, selling garden produce, spinning thread and weaving cloth, wage work on larger farms – became less viable as baldíos were privatized, urban population shrank by a quarter between 1600 and 1650, and the entire Spanish economy slowed down. Even many of the 20–25 percent of villagers whose 5–10 ha. and team of oxen had allowed them to achieve regular marketable surpluses now had to sell crops at a discount before harvest and surrender mortgaged land as they struggled to keep afloat.

Intensifying state and landlord levies, together with shriveling markets, turned Spain from an agricultural frontrunner to a laggard. Portuguese peasants, the bulk of whom achieved growth by extending cultivation rather than intensive forms of farming, likewise faced rising rents and taxes, as well as internecine conflicts as arable encroached on common fields vital to stockholders. The results were declining output per agriculturist, rising rural poverty, emigration, sometimes to cities but often to overseas trading posts and colonies – and increasingly massive imports of foreign grain that profited merchant elites but harmed peasant producers further weakened Portugal's agrarian sector.

There were very few bright spots in this increasingly grim picture. One was the market-oriented predominantly peasant agriculture found in Catalonia. Although Catalan farmers paid substantial tithes and seigniorial dues, their rents were fixed at moderate rates and, by virtue of a 1486 royal decree, they enjoyed enviable security of tenure. More important,

taxes remained stable, in large part because Catalans were exempt from both millones and alcabala. With state and landlord appropriating less of their output compared to their counterparts elsewhere in Spain, Catalan peasants prospered by raising a widening variety of crops – even adopting potatoes from the Americas – for consumers in nearby towns and abroad. Agriculture on the Azores also flourished. Settlers there took up intensive cereal cultivation, initially with continuous rotation and then, as productivity slipped, restored fertility – and yields – by switching to a two-field integrated grain and livestock system featuring lupine as a fodder crop and plentiful manuring that regularly produced a surplus for export.

The Azores and Catalonia were exceptions. A vigorous peasant-based agriculture in the Kingdom of Valencia was badly disrupted when in 1609 the Spanish monarchs expelled (for religious and political reasons) Christianized Muslims or *moriscos* who had been the most productive farmers. Morisco lands were seized and given to their lords, whose debts were also forgiven. Iberia's agricultural decline thus entrenched institutions and practices that complicated future recovery.

Italy The robust commercial agriculture that had distinguished medieval Italy continued to flourish across most of the sixteenth century. Specialties such as Lombard pastel and bulk produce like Sicilian grain were exported internationally, but most Italian agricultural output was consumed within the peninsula itself. Brisk interregional trade supplied foodstuffs for the many expanding towns and cities (one in six Italians was an urban resident in 1600, up from one in seven or eight a century earlier) and raw materials, notably wool, silk, flax, and dyestuffs for Italy's formidable textile industries, which experienced a new burst of prosperity. Strikingly, Dogana sheep numbers, and the amount of wool sold, nearly quadrupled between 1550 and 1612, even as Spanish merino became more common on Italian markets.

During this expansive period, total output rose a third and land productivity a quarter, while output per agriculturist remained stable or at worst declined less than virtually anywhere else in Europe.⁵ Though some new land was brought into cultivation (typically through reclamation), a growing rural population working existing holdings more intensively achieved much of the agricultural growth. Larger, more methodically exploited properties also contributed. Some peasants employed family members, day laborers, and smallholders on good-sized farms assembled

⁵ For more positive calculations, Robert C. Allen, "Economic Structure and Agricultural Productivity in Europe, 1300–1800," *European Review of Economic History* 3 (2000): 17–20; for less, Giovanni Federico and Paolo Malanima, "Progress, Decline, Growth: Product and Productivity in Italian Agriculture, 1000–2000," *Economic History Review* 57 (2004): 453–57.

by buying out less fortunate villagers or subletting noble and ecclesiastical properties. Perpetuating a long-established trend, townspeople, too, acquired peasant holdings. Many of these owners made substantial and costly improvements that boosted productivity and output along with their incomes. In the *Terraferma* (the Republic of Venice's mainland territory), urban patricians and the government they controlled built extensive dams, dikes, drainage canals, roads, and bridges to turn formerly pestiferous marshes into lush fields. One hundred thousand holdings had been created by 1575, each reputedly worth fifty times as much as before reclamation. On a smaller scale, individual purchasers likewise made significant capital investments, combining scattered plots into more efficient consolidated farms, upon which they built new tenant houses and outbuildings. In Central Italy (Tuscany, Umbria, and Le Marche), where sharecropping predominated, tenants were obliged to plant new crops, such as mulberry trees for leaves fed to the worms whose spun threads were vital for Italy's booming silk industry.



Fig. 4.1: Though idealized, this engraving from a late sixteenth-century series accurately depicts some of the mainly female peasant labor involved in raising silkworms. In the background, women pick mulberry leaves, which are delivered to the cultivation rooms where worms are tended. Additional growing racks are visible in the adjacent room.

The gains from the decades of growth were unevenly distributed, however, leaving much of the rural population vulnerable should times turn bad. Day laborers' real wages eroded by about two-thirds between the late fifteenth and late sixteenth centuries and sank further over the next several decades. Tenants with increasingly common short-term adjustable leases faced rents that at least doubled in real terms. Sharecroppers became entangled in webs of debt that few could escape. Then, from the 1580s into the 1650s or even later, conditions turned negative throughout the countryside, spreading distress even to agriculturists who had prospered up to that time. Gross agricultural output stagnated at best; some significant sectors slumped. Dogana herds, for instance, contracted sharply after 1612. Land productivity also deteriorated; wheat yields in the Romagna, an admirable 7–8:1 in 1510–1519, fell to 5:1 by the 1590s. Already in the 1570s, steep levies and dwindling output prevented many peasants from fulfilling their obligations to landlord and state, so rent and tax moratoria had to be granted along the length and breadth of the peninsula. Even so, in the years around 1600 many rural folk lost their holdings or survived only by taking on new debt.

Research into Italian agricultural history lags behind that devoted to industry, trade, and finance, so the causes of agrarian success and distress are not fully understood. But several important factors have been identified. For one thing, Italy's status as Europe's most heavily urbanized and highly industrialized area outside the Low Countries made its agriculture especially reliant on city demand. Thus markets for food and raw materials contracted when town populations, decimated by plague (1629–1631 in the North, 1647–1650 in the South), fell on average 20 percent between 1600 and 1650, a third in the more populous North. Equally negative, in the same decades leading Italian crafts began to founder: to a large extent, for instance, the near-collapse of numerous urban woollen textile industries accounts for much of the decline of Dogana herds.

Though Italy was not ruled by a single monarchy, and lacked Spain's extensive and expensive imperial commitments, its many small states' policies similarly impacted agriculture. Already imposing disproportionately heavy rural taxes and compulsory marketing rules intended to assure city residents sufficient cheap foodstuffs and raw materials, the policies turned more onerous during the general economic slowdown and steep inflation that marked the 1580s and subsequent decades. Town magistrates ordered farmers to sell in urban markets at low fixed prices and restricted exports of agricultural commodities. Although of negligible value in overcoming economic troubles, these steps distorted commodity markets, discouraging peasant production.

Urban capital long helped sustain agricultural improvement, financing expansion of the amount of land under cultivation, reorganization of farmsteads, adoption of new crops, and implementation of new practices. From the later sixteenth century, however, the funding flow slackened. Terraferma reclamation projects, for instance, ceased after 1610. Some funds transmuted into palaces, churches, and art. Conspicuous consumption, as traditional an activity of Italian landowners as of other elites, had also been a feature of the previous growth phase, yet then it did not compete with productive investment. Economic calculations rather than cultural aspirations explain the shift: many tenants' evident inability to meet their obligations – as evidenced by non-payment of rent, tax moratoria, bankruptcies – and the parlous state of demand, particularly for the specialized produce that had driven earlier expansion. Little wonder, then, that Sicilian planters – also faced with growing imports of American sugar – actively disinvested, no longer adequately maintaining the replanting cycle, irrigation systems, and refineries essential to ongoing operation. Even when their responses were less extreme, landowners decreasingly risked new ventures, instead contenting themselves with exploiting the existing agrarian structure.

Concomitantly, landlord impositions bulked ever larger. Beyond generally rising seigniorial levies, some landowners succeeded in reintroducing a form of serfdom, subjecting tenants or *vassi* to lordly justice and monopolies, labor services, and restrictions on the sale of their crops, their physical movement, even their marriage partners. If typically less juridically oppressive, with mezzadria contracts landlords profited directly from produce they received as in-kind rents, and from the high interest rates tenants owed for advances of seed and cash. In a period of falling demand for agricultural goods, unfavorable position in urban markets, and rising taxes, escalating rents, dues, loans, and other levies progressively deprived the peasantry of both means and incentives to maintain, much less improve, their holdings. Further limiting peasant access to resources were contractual prohibitions on tenants', notably sharecoppers', ability to take up non-agricultural employment, and urban regulations reserving craft work to city residents. Together, they limited Italian villagers' participation in rural industry, a source of vital supplementary income for agriculturalists in much of Europe.

The few exceptions to the general picture of decay underscore the ongoing centrality of investment in innovation, whether by peasants or landlords or both, particularly in difficult times. In Lombardy, village entrepreneurs employing day laborers abolished fallow, integrating cereal cultivation and cattle rearing on water meadows, and grew rice, hemp, and flax in irrigated plots. Sicilian farmers adopted commercial crop

rotations suited to the island's seasonally diverse climate that also efficiently utilized both genders' labor: men attended to vineyards in autumn and late spring, olive groves in mid-winter and early spring, while in springtime women fed silkworms on mulberry leaves from trees specifically planted for this purpose and in the early summer spooled silk from the cocoons, then from the late summer cultivated flax, processing it during the winter. In most of Italy, unfortunately, agrarian initiatives came to a halt by the end of the long sixteenth century, throwing the peninsula into a prolonged period of agricultural regression and rural impoverishment.

Western Europe

Multiple climatic and ecological conditions, agrarian pursuits, tenurial structures, farming practices, levels of specialization and commercialization, and types and rates of agricultural change marked western Europe. Though each of the many states boasted areas of specialized, market-oriented, productive agriculture, on the whole the agrarian sector in the northwestern lands – Belgium, the Dutch Republic, and England, along with adjacent portions of northern France and northwestern Germany – was the most dynamic.

France Following the end of the Hundred Years' War (1453), French agriculture embarked upon a century of expansion. Some growth was extensive, as once-deserted holdings were farmed again, swamps drained, and forests felled (a third of France was woodland in 1500, a quarter in the mid-seventeenth century). Intensified cultivation was more significant. In rich grain areas stretching north from the Paris basin through Flanders, cereal production, as measured by the grain tithe, perhaps doubled by the 1540s. Industrial and horticultural crops planted in many regions found favor among foreign and domestic consumers. Vineyards spread around Bordeaux, whose port provided ready access to customers in England and the Low Countries; woad (pastel) grown in southwestern provinces was prized abroad and at home for dyeing woolen cloth blue.

Signs of stagnation, even deterioration, began to appear as early as the 1540s, becoming more prevalent in the next few decades. Historians debate whether the Religious Wars aggravated existing problems or originated new ones, but the countryside experienced serious and prolonged difficulties during the period of conflict. Besides destruction suffered by individual farms, rural communities fell deeply into debt to hire defenders against marauding troops and to repair damage that despite precautions

inevitably occurred. As a result, concurrently with Castilian baldio auctions, many French villages had to sell portions of their common lands. The return of peace in 1598 did bring some respite. Grain output revived smartly for several decades, along with vineyards as northern European wine markets stabilized; sales to woollens manufacturers in Catalonia, Provence, and Italy substantially restored woad exports. Yet the revival was never robust and ceased by 1625–1630. In the next few decades – again a time of religious and social conflict, as well as war with Spain – harvests repeatedly failed and famine stalked the country. Still, total French population continued to rise (at least another million inhabitants were added between 1600 and 1650, an increment of 5 percent), thanks to heightened urbanization, which jumped 20 percent.

French agriculture during the long sixteenth century thus described – albeit with a precocious and distinctive curve and divergent demographic evolution – much the same arc of growth and decline as Mediterranean lands. As shown both by changes in the peasantry, tenurial arrangements, and farm organization, and by the role of state fiscality and landlord levies, the reasons for this different yet familiar agrarian pattern likewise combined the unique and the conventional.

Middling peasants on single-family farms took the lead during the upswing of the late fifteenth to early sixteenth century. Owing to initially low fixed rents, availability of unused land in the aftermath of a century of war, and moderate taxes, they could expand their holdings to 10 ha. or more. They also enjoyed customary access to village woodlands, meadows, and waste at nominal rates. In consequence, a substantial number managed (as their name, *laboureurs* or plowmen, indicates) to purchase horses or oxen, regularly sell in the market, accumulate a modest capital stock, and achieve a moderate level of prosperity.

The era of the Religious Wars delivered a harsh blow to middling peasants, disrupting markets and destroying capital assets just when privatization of common lands sharply reduced access to supplementary arable, pasture, fuel, and fertilizer. In addition, a decades-long effort by landlords to raise rents squeezed peasants hard. Ground rent for farms north of Paris, for instance, equivalent to an eighth of the gross harvest in the first half of the sixteenth century, was a sixth by the 1560s, and a third by the early seventeenth century. In these years, too, a new levy appeared: cash payments each time leases were renewed; once instituted, the fees were repeatedly raised.

The weight of these burdens forced many middling peasants to abandon their holdings, while turning others into sharecppers. Villages polarized. At the top, a stratum of rich laboureurs assembled large farms employing day laborers. They were most common in grain-growing

regions like the Hurepoix south of Paris, where such properties comprised a core of 10–25 ha. owned outright and as many as 100 additional rented ha. Farm labor was abundant: downwardly mobile laboureurs swelled the ranks of the landless and of smallholders and cottagers, long reliant on seasonal wage work to supplement their own plots' meager output. Agricultural labor was also cheap: in the 1570s, the purchasing power of reapers' earnings was just a third its level a century before, and still dropping. Admittedly, farm workers' real wages recovered nearly 50 percent during the early seventeenth-century post-war reconstruction, a time when middling tenants also staged a comeback thanks to rent rebates, cheap loans, and reviving markets. But the respite proved cruelly short-lived; after 1625, the tide of peasant dispossession and slumping earnings rolled back in. Around 1550, middling and small plowmen had preponderated in the villages of the Hurepoix, but by 1660, cottagers and wage earners comprised the great majority.

The emergence of the laboureur elite also owed much to a profound shift in patterns of property ownership. Whereas in the later Middle Ages peasants had effectively owned a large proportion of French land, after about 1550 urban lawyers, merchants, and office-holding robe nobles, together with some members of the traditional sword nobility and high clergy, bought massive amounts of peasant property. The trend toward peasant dispossession had started earlier around big cities, but from the mid-sixteenth century it swept across France, continuing through good years and bad, and encompassing both feudal land and that exempt from seigniorial dues. At Avrainville in the Hurepoix, where in 1546 peasants owned 47 percent of the village's land and Parisians 19 percent, by the 1660s the shares were reversed: city residents now held 57 percent, villagers just 20 percent.

The new owners might amalgamate formerly separate farms into substantial single units, or lease several holdings to a single laboureur family. In either event, peasant households were likely to be displaced. Evidence from la Neuville-Chant-d'Oisel in Normandy is instructive. Between 1413 and 1635, the top 5 percent of villagers tripled the amount of arable land they occupied from 17 percent of the total to nearly 57 percent. From the 1580s to the 1630s, when change was most rapid, this stratum increased its share of tenancies by some 70 percent. In contrast, the middle 50 percent saw its part halved, while the landless and nearly landless class grew to include one-sixth of all residents. More abundant pasture and waste, combined with less acute population pressure, slowed polarization in France's stock-raising central provinces. In the south, however, peasant differentiation followed a trend similar to that observable in Normandy and elsewhere in the north.

Richer laboureurs enjoyed ready access to land, capital, and cheap labor, the factors of production needed for agricultural development. At a time when more and more peasants were hard pressed to achieve bare subsistence, their economic dominance allowed them to control village institutions, which they frequently exploited for their own advantage: they juggled assessments to lower their taxes, and in order to produce more goods for the market, they reserved communal pastures for their livestock and appropriated common arable for their crops. But they also introduced new commercial crops or diffused existing ones more widely: maize and silk in the south and southwest, livestock in Brittany, vineyards throughout Languedoc, Aquitaine, and the western Loire. They, too, were at the forefront of adopting new land-use patterns, more complex rotations, and irrigation.

More like Catalonia's commercialized peasant agriculture than the capital-intensive farming controlled by urban landlords characteristic of northern Italy, market-oriented French agriculture was founded on laboureur initiative. Across the first half of the seventeenth century, however, escalating state levies that disproportionately affected the peasantry, added to rising rents and other landlord charges, seriously complicated agrarian development. Taxes had begun to climb in the second half of the sixteenth century, but the pace accelerated sharply soon after 1600; the real per capita burden quadrupled between the 1560s and the 1630s. Sales taxes such as the impost on salt shot up after 1607, and direct taxes more than doubled just between 1625 and 1634.

In much of the country, land owned by urban bourgeois and nobles was exempt from taxation, and even in provinces with the *taille réelle* (where exemptions belonged to land, not its owners) non-peasant property-holders developed stratagems to lower their payments. As the nobility's and bourgeoisie's share of land grew, and more villagers became impoverished, plowmen bore most of the escalating charges. Unlike peasants, landlords did not pay heavy excise taxes on produce sales in urban markets; unsurprisingly, wholly in-kind rents became all the rage with seventeenth-century landowners. Besides taking needed resources from peasant pockets, the grossly unequal distribution of the tax load induced peasants to sell land while making its purchase especially appealing to non-agriculturists. Even farmers who did not sell shied away from improving their farms, since better stock, drainage systems, or new tools that could raise productivity also inevitably caught the tax collector's eye.

Little of the wealth extracted from French villagers was productively invested in agriculture. Even infrastructural investment, such as road-building, which might inadvertently have helped the agrarian sector by lowering transportation costs and enhancing possibilities

for commercialization, was minimal. The government squandered most of its abundant revenue on military adventures, notably the Thirty Years' War (1618–1648), redistributing much of the remainder to nobles and well-to-do bourgeois in the form of offices, commissions, and outright grants to reward political support. Landlords devoted much of their income to conspicuous consumption and the purchase of additional land. Too few showed much interest in improving their properties, nor felt much pressure to do so, since they could profit from sales of produce and rents that continued to mount well past 1650.

For their part, some laboureurs became *marchands-laboureurs* or *fermiers-receveurs*, operating both independently and as intermediaries between landlords and subsistence peasants, cottagers, and day laborers. Their incomes came less from cultivating the land than from collecting rents and seigniorial dues, tax and tithe farming, and extending mortgages and usurious loans to their more numerous poorer neighbors. They might send sons into commerce or law, or marry them into the lower nobility. Yet many plowmen remained active farmers. When tenants of exempt landlords, they could pay reduced taxes. More important, ongoing urbanization sustained demand, particularly for those agriculturists located in the commercial hinterlands of Paris – which doubled in size in just the half century 1600–1650 – and major ports.

So not all laboureur enterprise was thwarted, but it was hampered and often diverted away from agrarian improvement. At the same time, a throng of smallholders hung on – albeit enduring progressive pauperization and low productivity – thanks to wage labor on laboureur farms, secure tenancies, and a high degree of self-subsistence. Due to this mix of innovation and retardation, French agriculture essentially marked time during the long sixteenth century.

Western Germany-Switzerland The mosaic of economies, societies, and polities that constituted German and Swiss lands west of the Elbe ordained that the region's individual agrarian histories would vary appreciably, especially during a time marked by pronounced demographic growth between 1500 and 1650 followed by rapid contraction by 1650, widespread peasant revolt and brutal repression, initially booming urban manufacture and long-distance trade succeeded by destructive war.

Market-oriented agriculture, found in many districts, embodied heterogeneous forms of organizing production, entailed varied forms of agrarian specialization, and involved different levels of productivity-enhancing investment and change. Urbanized zones along the North Sea coast (and stretching up into Denmark) and in the Rhineland registered greatest progress. Peasants enjoying secure tenures and relatively

low landlord levies worked large farms that alternated several years of wheat cultivation with an equivalent period of sheep or cattle grazing to manure the fields. Immigrants from the Netherlands promoted land reclamation for dairying and cultivation of intensively fertilized industrial and horticultural crops. Other advances that were transforming Dutch agriculture likewise began to take hold: experimentation with superior tools, more careful seed and breeding animal selection, prolongation of the period between fallows to six or eight years.

In fertile, well populated Swiss valleys, grain-growing by peasant tenants of secular and religious landlords predominated. At higher elevations, traversed by increasingly active long-distance routes, subsistence agriculture gave way to pastoralism, mainly cattle breeding and dairying; weak landlordism resulted in *de facto* secure peasant freeholds. Though subject to direct cantonal taxes, consumption excises, and ecclesiastical tithes, agriculturists owed low rents; the overall weight of levies was generally fairly light, leaving significant resources under peasants' control. Aided by village institutions that administered grazing on substantial common winter and summer pastures, they had the security and capital to respond to rising internal and external demand by specializing regionally in dairy products, meat, and fodder crops for export.

In southern and western Germany, peasants with small and medium-sized farmsteads raised grain, tended vineyards, cultivated garden and industrial crops, and engaged in animal husbandry. Buoyed for nearly a century by rising demand, they actively exchanged land, extended and took on loans. The Thirty Years' War, however, devastated many villages. Three-fifths of tenant households of the monastery of Ottobeuren (Swabia) disappeared during the second quarter of the seventeenth century, and grain production dropped even more; property damage, disease, and escalating war taxes (as well as landlords' attempts to collect rent arrears) magnified their distress.⁶ Vineyard owners suffered, too, as northern European preferences changed from wine to beer. Secure tenures protected most from dispossession during hard times, but increasing numbers of smallholders depended on textile work organized by urban merchants to achieve subsistence.

Even the most commercially oriented peasants raised gross output more than productivity. Low 5:1 grain yield ratios were routine. Climbing princely and seigniorial levies exacerbated their difficulties. Admittedly, many sovereigns instituted *Bauernschutz* (peasant protection) policies that prohibited excessive rent increases and expulsions

⁶ Govind P. Sreenivasan, *The Peasants of Ottobeuren, 1487–1726. A Rural Society in Early Modern Europe* (Cambridge, UK, 2004), 285–94.

from tenancies, ratified or even mandated the practice of imitable inheritance, and sometimes safeguarded commons. These steps helped maintain viable farms – not to mention assuring princely taxes and landlords' rents, enabling even petty German states to build up armies, bureaucracies, and courts, and landlords to engage in conspicuous consumption, including spectacular Renaissance castles that soon dotted the countryside. They might also extend loans and charity to villagers, but these steps enhanced paternalistic domination rather than stimulating agricultural development.

Like protective policies, they also did little to counteract growing peasant differentiation. Predating the onset of war and crisis, this process was accelerated by rising state and landlord impositions and population increase across the long sixteenth century. The ranks of cottagers and the landless swelled, and while some tried to eke out a living by seasonal farm or non-agricultural labor or even by cultivating wastes, the fertility of such land was low and bestowed few if any rights to common pastures and manure, guaranteeing constantly diminishing yields. A rural elite also emerged, concentrating land and wealth into its hands, marrying only within its own circle, and politically dominating village communities – which often enabled its members to arrogate unequal shares of communal resources, further bolstering their position. Though some were firmly committed to commercial agriculture – and often sufficiently nimble to switch focus, say to hop-growing as beer gained in popularity – over time a growing number, like their French counterparts, was attracted to money-lending and subletting in response not just to heavier taxes but to escalating pressure in the form of plowing, hauling, and labor services, death duties, manorial monopolies, and yet other feudal obligations.

Together with the survival of a mass of low-productivity smallholders, the trajectories of rural elite and bottom assured that western Germany's agrarian long sixteenth century was very much like France's: begun with promise, but ending with isolated improvements amidst general stasis.

Scandinavia Within an overall context of predominantly peasant-controlled production, wide availability of uncultivated land, and initially very low but rapidly rising population and urbanization levels, dissimilar resource endowment, leading agricultural activities, and patterns of landownership defined three main Scandinavian agrarian zones. Across the long sixteenth century, all experienced – albeit each in its own way – growing social differentiation, increasing state and landlord levies, and the destructive impact of war, often resulting in peasant dependence on non-agricultural work as well as significant emigration.

Thanks to favorable climate, soil, and location, Denmark and southern Sweden (under Danish rule until the mid-seventeenth century) fed their growing domestic populations and exported surplus grain and oxen for meat to the growing Dutch market. Resettlement of land left vacant after the Black Death and subsequent epidemics – Scandinavia suffered some of Europe's most severe demographic losses – and division of existing properties enabled peasants to enlarge total output considerably. The long growth period that persisted to about 1610 also greatly deepened disparities among villagers. An elite drawn both from tenants on noble and Crown estates (which comprised 44 and 50 percent of land respectively) and from the small minority of freeholders profited from increasing demand, whereas many of their fellows lost ground, finding it ever more difficult to achieve subsistence.⁷ Rising rural population likewise helped swell the ranks of smallholders, cottagers, and the landless. Already 20–30 percent of the agrarian population in the second half of the sixteenth century, the number of impoverished peasants jumped again in the years around 1600; most had no choice but to become full- or part-time laborers on the farms of their more fortunate neighbors.⁸

Though enjoying enviable political privileges, tax exemptions, and inalienability of land to anyone save another aristocrat, the tiny Danish nobility – 2,000 individuals, just 0.25 percent of the populace – also benefited differentially from the era of agricultural prosperity. Rising indebtedness to finance capital-intensive cattle breeding and acquisition of additional estates in pursuit of social and political ambitions fueled a land market that created “a numerous noble proletariat” while consolidating land in the hands of the very wealthy. In the late 1580s, the richest 10 percent owned 23 percent of noble property, in 1625, 42 percent, whereas the holdings of the poorest 10 percent dropped from 2.5 percent to 0.5 percent.⁹ Some leading nobles engaged in *Bauernlegen* (incorporating tenant farms into lordly manors). They did not revive demesne production. Neither did they improve their estates. Rather, noble – and Crown – landlords sought to enhance their socio-political power by conspicuous consumption, state-building, or war-making. Peasant tenants retained control of agriculture, but only a shrinking minority could invest. As landlords also failed to do so, output began decreasing

⁷ Knud J. V. Jespersen, “Economic Growth and Trade,” in *The Cambridge History of Scandinavia. Volume II, 1520–1870*, eds. E. I. Kouri and Jens E. Olesen (Cambridge, UK, 2016), 178.

⁸ Eljas Orrman, “Growth and Stagnation of Population and Settlement,” in *Cambridge History of Scandinavia*, eds. Kouri and Olesen, II: 139–40.

⁹ Knud J. V. Jespersen, “Social Consequences,” in *Cambridge History of Scandinavia*, eds. Kouri and Olesen, II: 197–99.

at least a decade before the Thirty Years' War ushered in a severe century-long depression.

In Norway, Danish-ruled until 1661, peasants not only controlled farming but owned the bulk of the land once the indigenous nobility all but died out in Scandinavia's worst late medieval demographic collapse. Peasant predominance did not lead to a flourishing agrarian sector. Despite Danish-style land clearance and farmstead division, most holdings were small and undercapitalized, soils thin and infertile, and the amount of cultivable land inadequate, especially in the face of ongoing gains in population. By the early seventeenth century, Norway depended on imported grain. Still, the country had other rich resources: fishing, mining, and especially felling and sawing timber provided work for peasants whose farms could not fully utilize their labor. From the later sixteenth century, booming Dutch demand for construction and shipbuilding materials brought a measure of prosperity to rural Norway. Good fortune did not shine equally on all. Export-oriented timbering bred socioeconomic polarization between a peasant minority that accumulated capital from its ancillary occupation and the increasingly impoverished majority that barely hung on to farms undermined by soil exhaustion, manure shortages, and agricultural productivity declining from an already depressed level – or that abandoned the land altogether.

In the Kingdom of Sweden, which included Finland, the agrarian sector combined features of both Danish and Norwegian agriculture. Peasants working small properties controlled farming. Deforestation and division of existing farmsteads expanded the number of holdings and the area under cultivation; like the old, the new farms were devoted to traditional grain-growing and cattle husbandry. Dutch demand promoted rural non-agricultural lumbering, textile spinning and weaving, wood crafts, and, most of all, iron and copper mining and processing. Peasant differentiation swelled the ranks of cottagers and the landless, along with a more prosperous stratum producing for rising town populations.

Swedish-Finnish agriculture also had some quite distinctive traits. Finnish immigrants in unpopulated central Sweden forest areas, as well as peasants in eastern and northeastern districts, practiced slash-and-burn (swidden) rye cultivation, particularly after the Crown declared all uninhabited areas its property in the early sixteenth century, then distributed them as freehold or favored Crown tenancies. Initially high yields dropped quickly; several decades had to pass before cultivation could resume. Peasants, who lived on isolated farmsteads or in tiny hamlets, either moved on or cleared fields increasingly far from their habitations. The Sami people, living in the northernmost districts, were nomadic

hunter-gatherers and reindeer herders. Finally, noble landowners, some 500 adult males across the sixteenth century, doubled in number by the mid-seventeenth century. More striking, they now owned about 60 percent of cultivable land as against 20 percent a century earlier, thanks to Crown land sales to finance its Great Power ambitions and its concomitant ennoblement of bourgeois military officers and officials to staff its powerful war machine and state bureaucracy.¹⁰

Crown policies also impacted – negatively – agricultural production and the peasantry. Mass conscription depleted farmsteads of able-bodied men, leaving women, children, and the aged to cultivate the land and tend livestock. Just as the large-scale draft bit, moreover, troops were billeted on the rural populace and taxes soared, falling most heavily – if disparately by region – on grain growers. Unsurprisingly, from the 1570s into the early seventeenth century, many farms were deserted. Often peasants moved to less taxed districts, but steadily more left the countryside altogether, including for destinations abroad, despite government attempts to block emigration. Richer farmers – many enjoying tax exemptions for cavalry service – bought up and amalgamated freehold farms to lease out or, in some cases, turned them into manors that served as springboards for ennoblement. All these forces led not to agricultural innovation and improved productivity, but to failed harvests, growing rural immiseration, and widening social polarization.

Across most of Scandinavia, then, state and landlord policies and levies generally failed to encourage landlords' investment in agriculture while obstructing peasants from accumulating sufficient capital to innovate on their own. As elsewhere, moreover, a combination of wage labor, tenurial security, and a high degree of auto-consumption might allow small-holders to persevere – which perpetuated low productivity agriculture and thwarted consolidation of holdings and more efficient practices. Yet in a few areas, commercial farming and rural industries had taken hold. Whether stagnation or advance would be the region's agrarian future had yet to be decided.

England Scholars long contended that English agriculture underwent several fundamental transformations during the long sixteenth century. Together they constituted a veritable agricultural revolution that ostensibly endowed English farming with a structure and practices that both made it far more productive than its Continental counterparts and set the English economy irrevocably on the path of

¹⁰ Jespersen, "Social Consequences," in *Cambridge History of Scandinavia*, eds. Kouri and Olesen, II: 205.

capitalist development. Tenurial and organizational innovations have received much attention, sketchily by Marx, more fully and influentially by R. H. Tawney and Robert Brenner. In their view, ruthless landlords seeking to maintain incomes in a time of rising prices but fixed rents overrode custom. After evicting peasants from farmstead and village, cordoning off formerly open fields, and severely restricting or abolishing common rights, they formed substantial holdings rented at market rates to tenants employing wage labor. Although a minority of peasants prospered by taking on the new farms, most were dispossessed of their means of production and turned into proletarian cottagers and day laborers who worked on newly formed large farms or in rural industry, or migrated to growing towns, London most of all. Prime example of original accumulation, the reorganization of the English countryside created a new class structure, helped concentrate capital in entrepreneurial hands, and powerfully stimulated the development of factor markets for labor and land, and commodity markets for foodstuffs and raw materials. It thus provided the social relations and material conditions necessary for capitalist farming and, eventually, industrialization.

Other historians highlighted technical innovations. Floating water meadows (in which rerouted streams repeatedly flood grasslands) tripled hay output by preventing winter freezes and provoking early springtime growth. New crops such as carrots, turnips, cabbage, and potatoes, along with artificial (introduced) grasses like clover and sainfoin, provided forage and winter fodder. More selective breeding gave fatter sheep and cattle. Permanent fields, whether arable or grass, were replaced by convertible husbandry (also known as alternate or up-and-down), in which land rotated every few years between brief interludes of arable cultivation and longer periods as pasture, augmenting output of livestock and industrial crops without diminishing grain supplies. Draining fens and marshes yielded new land, while more frequent manuring improved the old. Taken together, these innovations are said to have at least doubled yields per hectare.

That changes occurred is indisputable. But scholarship today deemphasizes their novelty, extent, rapidity, and impact. For one thing, rather than traditional, unproductive, and subsistence-oriented, medieval agriculture in England, as in much of the rest of Europe, is now considered to have had a vibrant commercial sector, stratified village society, active land market, and peasant-led innovation. In the long sixteenth century, moreover, frequently slow and geographically uneven tenurial and organizational change did not necessarily entail agricultural advance, while innovative crops and practices were as likely to be rejected as embraced. If overall farm output expanded, much resulted from expanding land under cultivation and perhaps increased household labor, while impressive gains only brought

yields back to pre-Black Death levels. Though urbanization levels and overall population tripled between 1450 and 1650 – Europe’s largest jump – food prices soared, already minimal daily caloric intake eroded as grain baked into bread replaced beer and meat, and both output per capita and agricultural labor productivity sank.¹¹ This mixed balance sheet did not constitute an agricultural revolution.

Enclosure, regularly summoned to epitomize and explain English agrarian development, best illustrates revised understandings of the scope and consequences of sixteenth-century agrarian change. Enclosure was the process of fencing, hedging, ditching, or otherwise cordoning off hitherto open land, thereby restricting or extinguishing common cultivation or grazing thereupon. It could occur to enable conversion of arable to pasture, as in the early sixteenth century in response to buoyant wool prices, or to facilitate a switch to arable or introduction of convertible husbandry, as increasingly after 1550, when grain prices shot up. No matter what the outcome, however, to be economically viable enclosure generally entailed amalgamating the scattered strips characteristic of medieval peasant farming into a single holding. Enclosure also redefined property and usage rights: private owners and their tenants rather than communal regulations determined how new plots were employed.

Often accompanying enclosure – although also implemented independently – were several other disruptive innovations. They included engrossment, combining two or more farms into one; rack-renting, strictly speaking, levying rent equal to the full annual value of a property, but in common parlance imposing extortionately high rent; boosting entry fines (lump sums owed at the beginning of a lease) to levels that existing tenants could not afford; appropriating or encroaching on village wastes and forests. Sometimes peasants enclosed to try new practices or crops barred from collectively regulated land or to protect their holdings from lords’ excessive use of the right of foldcourse (temporary pasturage of sheep on peasant land). But most enclosures were carried out by landowners to profit from grazing big herds of sheep or from higher rents on large consolidated farms, or by enterprising tenants who assembled sizeable properties worked by paid employees to take advantage of rising prices for farm products and falling real wages for agricultural laborers.

¹¹ For diverse estimates and methods, see Allen, “Economic Structure and Agricultural Productivity in Europe, 1300–1800,” 1–25; Morgan Kelly and Cormac Ó Gráda, “Numerare Est Errare: Agricultural Output and Food Supply in England Before and During the Industrial Revolution,” *Journal of Economic History* 73 (2013): 1132–63; Stephen Broadberry, *et al.*, *British Economic Growth 1270–1870* (Cambridge, UK, 2015), 46–129, 280–94.

Historians have traditionally accepted that enclosures and related steps were both widely disruptive and differentially rewarding. Freeholds, one-fifth to one-quarter of tenancies, were thought to have had little to fear. Boasting de facto ownership in return for a quitrent set in the Middle Ages and by now nominal, freeholders enjoyed virtually absolute security from eviction and could dispose of their land as they wished. Copyholds, the bulk of tenures, were more threatened; because many were held for set terms, rents and entry fines could be raised at renewal time and lease periods shortened, enabling frequent increases that hastened eviction. Hence a determined encloser could cause acute tenurial and social upheaval and radically alter relations between lords and peasants. Still, scholars concluded, despite its brutality, enclosure enhanced agricultural productivity. Lords and substantial tenants alike were allegedly more willing and able to invest in new crops, additional fertilizer, better tools, improved drainage, and superior buildings now that they would reap the rewards of innovation. Cultivation could be tailored to individual farms' specific characteristics. Losses from the easy spread of animal diseases and inability to breed selectively in intermingled herds, careless farming practices on adjacent plots, and time spent travelling among scattered strips all could be reduced. Larger engrossed farms also enjoyed economies of scale in terms of labor and equipment. The high rents that enclosed plots commanded are taken as proof that enclosure recommended itself to both landlords and tenants.

Recent studies suggest, however, that enclosure's extent, consequences, and benefits were circumscribed during the long sixteenth century, that gains achieved in that period were not peculiar to the agriculture practiced on enclosed farms, and that the crucial factors involved and groups most deeply affected were somewhat different than previously proposed. To begin, enclosure activity was quite localized, with two-thirds occurring in the Midlands. With land suitable for both grain and livestock, this increasingly crowded region was uniquely vulnerable to ceaselessly rising demand for food and raw materials emanating from nearby London, whose population jumped from 40,000 in 1500 to 200,000 a century later and reached 400,000 by 1650. Yet in the Midlands, as throughout England, only about 10 percent of cultivable land was enclosed between 1500 and 1650, most in the early seventeenth century; similarly, commons contracted slowly, from just over a third of all land at the turn of the sixteenth century to about a quarter a century and a half later.¹² The later Middle Ages had seen considerably greater

¹² Gregory Clark and Anthony Clark, "Common Rights to Land in England, 1475–1839," *Journal of Economic History* 61 (2001): 1026.

activity – by 1500, nearly a half of enclosure had already taken place – and much more was to occur after 1650. During the sixteenth century, many landlords lacked funds or foresight to undertake enclosure, and others were stymied by leases, particularly copyholds by inheritance, granted to retain tenants after serfdom disappeared but over time become so secure that peasants holding them were virtually freeholders. Then, too, royal courts frequently favored tenants in disputes over manorial custom and curbed entry-fine increases. At the village level, peasants effectively employed rent strikes and various forms of intimidation, or, to block the engrossment and loss of common resources that accompanied fen drainage, destroyed dikes and appealed to sometimes sympathetic juries and officials.¹³

Furthermore, enclosure is no longer viewed as a cataclysm that destroyed an egalitarian, harmonious subsistence-oriented peasant society but as a process that exacerbated divisions based on property and wealth already present within commercializing medieval villages. Fresh scholarship emphasizing the importance of land markets and most peasants' commercial orientation has redefined the modes and motives of agrarian social differentiation, blurred once-crisp distinctions between landlords and tenants, and complicated our understanding of enclosure's role in the development of English agriculture. Members of the substantial yeoman elite – freeholders or copyholders by inheritance, de facto peasant proprietors by virtue of secure long-term renewable leases with fixed rents and fines – most often had the resources to take on enclosed farms, or create them by acquisitions in the long-vigorous land market, and then to invest and maintain their holdings intact by curbing partible inheritance. Nevertheless, even some of them foundered after taking on excessive debt or from adverse conditions in the commodity markets upon which their livelihood depended. And, while enclosure most injured less prosperous peasants, it also created opportunities for some.

Tenants at will and the copyholder subset that held for lives, whose tenancies could most easily be revoked or shortened, and whose rents and entry fines enjoyed least protection, could be hard hit by enclosure. Even if not expelled from their holdings, they often lost access to privatized former common fields and found it difficult to locate land they could afford to lease. Their problems were not, however, due solely to enclosure or insecure tenures; in fact, many landlords proved – at times to their

¹³ Piet van Cruyningen, "Dealing with Drainage: State Regulation of Drainage Projects in the Dutch Republic, France, and England during the Sixteenth and Seventeenth Centuries," *Economic History Review* 68 (2015): 432–36.

ruin – surprisingly slow to convert tenures, shorten terms, or even raise rents to match inflation, and when they made the attempt common law provided tenants some redress. Still, these peasants' predominantly small farms frequently produced insufficient marketable surpluses at a time of rising prices for the many items they had to purchase, while the accelerating competition for land that accompanied population growth drove rents up sharply from the 1550s. Under these circumstances, a growing number gave up their leases to their more affluent fellows, increasing the concentration of peasant landholding.

More obviously precarious were subtenants, a group already present in the fifteenth century that rapidly expanded thereafter as population, rents, and concentration of property holding escalated. Exposed to competitive rental market forces without protections afforded by customary rights, their hold on their parcels was always weak. Yet some villagers with secure holdings took on sub-tenancies to enlarge their farms and profit from booming demand for foodstuffs, and some owners or tenants with substantial holdings did not dedicate them to agricultural improvement but sublet them in smaller parcels and lived from the rents. Finally, enclosure excluded the landless, another throng growing due to demographic increase as much as agrarian change, from surviving common resources save for wastes (just 4 percent of commons) due to their lack of formal property rights. The rising labor demands associated with commercial farming and rural industry did provide employment for some landless (and some marginal smallholders), but all faced eroding agricultural real wages from the mid-fifteenth century, ever more dramatic food price spikes in the later sixteenth century, and finally famine in 1623; only working additional hours (facilitated by the Reformation's abolition of holidays) and rising female and child labor allowed many families to survive. Rather than the key change, in short, enclosure was one among several forces that promoted new social and tenurial relations in the English countryside.

Productivity gains attributable to enclosure have also been reassessed. According to some calculations, yields on enclosed farms rose 10–25 percent for wheat (more for barley, oats, and sheep), and output per unit of labor increased by an equal proportion, though some gains might be due to economies of scale, since enclosed farms apparently were considerably larger on average than open.¹⁴ Greater productivity translated into higher than average rent increases on some enclosed properties, yet much of the premium was due to a shift in relative power

¹⁴ Robert C. Allen, "The Growth of Labor Productivity in Early Modern English Agriculture," *Explorations in Economic History* 25 (1988): 120–24.

that enabled landowners to arrogate a larger share of the expanding surplus. Concomitantly, common-field agriculture is now evaluated more positively. The varied drainage conditions, soil qualities, and exposures prevailing on dispersed parcels within just a single manor or village provided the only available insurance against storm, disease, or other natural catastrophe that might strike any individual plot. Common-field farming also spread capital costs, allowed all involved to benefit from limited resources such as manure and pasture, and could force the lazy to keep up to communal norms. Moreover, successful mixed arable-pastoral ("sheepcorn") farming did not depend on enclosure but was long practiced on open fields. Most important, much more growth occurred on common-field holdings than has usually been recognized. On their own plots, tenants were free to grow what they wanted, how they wanted, provided that they followed the same plowing, sowing, and harvesting schedule as their neighbors; landlords also introduced innovations on common fields. So changes commonly associated with enclosure – such as careful attention to seed quality, harrowing, fertilizing, and livestock breeding – also transpired in some common fields. Improvements were more likely on enclosed farms, in short, but there was no necessary link between them; nor did common-field agriculture inevitably, even typically, denote backwardness. Above all, while both enclosure and changes in open-field farming aided whatever agrarian progress came about across the long sixteenth century, neither led to dramatic, irreversible advances.

Contributions by improving landlords were similarly restricted in scope and force. Parallel to the tendency among tenants, landholding among owners was becoming more concentrated. Largely because of purchases from the Crown of church properties seized during the Reformation, the gentry as a whole probably doubled its share of land between the mid-fifteenth and late seventeenth centuries; at the latter date, gentry owned perhaps half of English cultivated land. Yet despite greatly enhanced resources, only a minority of these – or any other – landlords undertook major capital improvements or even engaged in land reclamation; moreover, improving landlords generally followed their tenants' lead. Entrenched long leases, paternalistic relationships, and ideals of good lordship may have stayed the hand of some landowners; others found their incomes sufficient or, on the contrary, were so hard-pressed that they sold confirmations of customary rents and fines or conversions of copyhold into freehold. Doubtless, too, many knew that attempts to innovate risked provoking costly lawsuits or violence: in 1607, the hard-pressed Midlands erupted into revolt, and draining the eastern fens so disturbed traditional communities that after decades of recalcitrance they openly rebelled in the 1640s during the Civil War. In the event, like their

Continental brethren most English landlords focused on raising rents. They did not set out to establish a new agrarian order but – with marked success – to enhance their revenues in the way they knew best.

Among tenants in whose hands lay most of the initiative for innovation were some smallholders who – no matter what their tenures – specialized in dairying, market gardening, and (before the government banned it in the 1670s to assist colonial planters) tobacco. Yet most had too precarious a livelihood to hazard experimentation and indeed managed to survive only by maximizing cereal cultivation, usually by reducing their livestock herds, which – though an intelligent response to relative price trends – over time depleted the soil. Much more significant were yeomen's and large tenants' accomplishments. Seeking to profit from expanding market opportunities, they pioneered planting legumes; greatly expanded cultivation of specialized foodstuffs and industrial raw materials; built water meadows; and reduced fallow. Their greatest successes closely integrated pastoral and arable husbandry with new fodder crops, which permitted a doubling of livestock per hectare. Besides greatly increasing output of meat, butter and cheese, and wool – not to mention supply of vital draft animals – larger herds allowed intensified manuring that substantially raised grain yields: after a long decline from late thirteenth-century peaks, they picked up from the 1550s and by the early seventeenth century had surpassed medieval levels.

At the end of the long sixteenth century, English agriculture presented a mixed picture. Yields and overall output of both cereals and livestock had risen, enabling and responding to Europe's most pronounced demographic growth. Tenurial reorganization was underway and new crops and farming methods had been introduced. Yet innovations were very slow to catch on. Though carrots, turnips, and clover initially appeared on a few farms around 1600, they did not enter into widespread cultivation for many decades. Similarly, water meadows remained scarce and inefficient before the 1640s, and pioneers frequently abandoned convertible husbandry after a period of experimentation. England's agriculture was only marginally more productive than France's, and in both growth in output owed much to extending the area cropped and grazed. By one influential calculation, in a century of generally declining agricultural labor productivity, England's dropped more than anywhere else in Europe (Graph 7.1).

Change was gradual and regionally disparate; moreover, much of it continued trends already underway in the later Middle Ages. Commercialization was spreading, as it had for several centuries, irrespective of farm size and type of holding. Yet market-oriented agriculture did not necessarily rely on wage labor; small and middling holdings

worked by families remained important throughout England, even in areas where enclosure had proceeded furthest. Peasant differentiation, too, was not a new phenomenon, though certainly landlords' actions had advanced it during this period. Still, the greatest degree of change occurred not where powerful landlords enclosed, evicted, and engrossed to lease at high rents to yeomen forced to innovate to survive, but where weak or indifferent landlords allowed tenants to accumulate holdings in land and lease markets, hire fellow villagers, and farm open and enclosed fields alike. They were not in the majority in the long sixteenth century, however – and neither was the landlord-yeoman alliance. Changes in structure and practices had been initiated that would subsequently make English agriculture Europe's most productive. But as the long sixteenth century ended in dearth and rebellion, agrarian advance remained as uneven and halting as in most of its western European neighbors.

The Low Countries The specialized peasant-directed commercial agriculture that had emerged in several provinces during the later Middle Ages took hold more widely across the Low Countries in the course of the long sixteenth century, albeit with increasingly prominent regional variations. In heavily urbanized Belgium, which boasted medieval Europe's most productive agriculture, coastal west Flanders featured large farms employing wage labor. These expanded grain cultivation as urban demand waxed in the early sixteenth century, shifting to mixed cereals and livestock farming or converting arable to permanent pasture when meat and dairy prices surged after the 1550s. Small, intensively cultivated farms in adjacent inland east Flanders (where by the early 1570s half of peasant households occupied less than 2.5 ha.) and Brabant specialized in horticultural and industrial crops to meet the needs of cities and crafts, while also providing labor for rural industry. Villagers in the Campine grazed cattle on extensive common wastes for Antwerp and the many other cities just to their south. Owing to its orientation to domestic and especially urban markets, however, Belgian agriculture suffered badly from the disruption, destruction, depopulation, and deurbanization that accompanied the Dutch Revolt. Though peace brought a measure of relief from the late 1580s, the loss of industrial and commercial vitality, and in many areas ongoing fragmentation of holdings, caused ongoing difficulties for Belgian peasants.

In the northern provinces that became the Dutch Republic at least twenty distinct agricultural districts have been identified. The paramount

division was between inland and coastal areas. Smallholders cultivating rye on open fields characterized most interior farming. Yields and marketable surpluses were low, many rents were collected in kind, population growth sluggish and urbanization levels reduced, so subsistence rather than commercial agriculture predominated. Lordship was relatively strong: some tenants owed feudal dues well into the eighteenth century. Yet, as throughout the Netherlands, peasants enjoyed strong property rights to the land they worked, access to large communally managed wastes, and protective customs, such as those in Drenthe that restricted land sales to members of the village community. These conventions slowed change during much of the sixteenth century. The Dutch Revolt proved quite damaging, however, as fighting continued far longer in these than in the coastal provinces. Worse, booming imports of cheaper Baltic cereals undermined the competitiveness of inland grain, while continued weak market stimuli reduced incentives toward specialization that was transforming coastal Dutch agriculture. Adopting cattle breeding brought some relief, but on the whole inland farmers limped along thanks to access to common resources and various forms of by-employment rather than agrarian innovation.

Coastal northern Netherlands had also practiced unspecialized low-productivity agriculture in the Middle Ages. Yet the peasantry had not been self-sufficient but increasingly engaged in regional and interregional trade in livestock, dairy products, textile fibers, and peat. From the late fifteenth century, demographic and commercial developments spawned plentiful market opportunities that farmers turned – if often from necessity – to their advantage. Dutch towns quadrupled in size between 1500 and 1650, fed increasingly with imported Baltic grain that drove dearer local cereals from the market. Importing cereals also moderated price hikes of these basic foodstuffs, leaving consumers additional income to spend on other farm items, spurring rural specialization. Friesland turned to extensive pastoralism, Holland ever more heavily to garden and industrial crops, dairying, and fattening cattle and oxen. In contrast to the inland provinces, where by-employment remained essential to peasants' livelihood, farmers in the coastal region focused on agriculture, shedding part-time industrial or craft work. Coastal area farmers did not partition their holdings, so individuals who did not inherit or could not purchase farms became cottagers or landless laborers, already respectively a third and a quarter of country households around 1560. Both found employment in commercial agriculture or migrated. If they did not leave the countryside altogether, often they moved into small towns where (like 6 percent of Dutch townspeople) they might continue to work in the surrounding fields, take on the jobs – in dike construction and

maintenance, building trades, brickworks, transport, peat digging, and yet more – that farmers abandoned, or serve as retailers for an agrarian clientele.

In contrast to Portugal, where increasingly precarious and overburdened peasants found it very difficult to take up other crops as imported cereals flooded in, tenurial security, relatively moderate levies on their surplus, and ready access to capital encouraged coastal Dutch farmers' initiative. Nearly a half of all land (although less of the most fertile) was in agriculturists' hands. Yet even when not owning the land they farmed, they enjoyed not just derisory if any seigniorial fees but customary rights assuring that neither an occupant's death nor an owner's sale of a property would end a family's tenancy. Though rents generally outpaced prices almost to the mid-seventeenth century, leases were normally renewed for generations, terminating only when no relative could be found to succeed. Together with manageable rates of taxation and other charges, such de facto or actually hereditary tenures gave proprietors the security that encouraged investment, notably in drainage works; better buildings and implements; fallowless rotation of flax, turnips, oats, and clover; nitrogen-rich clover on meadows in place of grasses and legumes; dung, night-soil, and other waste matter, much of it carefully gathered from towns; and stock that notably raised the size of both individual animals and average herds. The Revolt's onset in the 1560s brought investment to an abrupt halt and rents down, while taxes shot up. But – again unlike in the eastern areas – it proved a vexatious quarter-century interlude rather than a destructive setback. From about 1590 development resumed, with accelerating investment fostered by sharply rising prices and freshly healthy rents. Lake, marsh, and peat bog reclamation, begun in the 1540s though interrupted by war between 1565 and 1589, in 1595–1640 added a third to North Holland's surface area, probably more in other coastal provinces. Commercial farming was also helped by broader infrastructural development, notably canals that greatly improved and extended market access.

Farmers could raise funds on the Netherlands' growing capital market by mortgaging their secure tenures. But substantial drainage and canal projects required investments far above what peasants could tap: one large reclamation scheme alone cost more than the initial capital of the VOC. Led by merchants, prosperous urbanites increasingly stepped in. Yet like their Belgian counterparts, who in the years before the Revolt financed waste clearance and poldering that added 10–20 percent to the cultivated area of the south, Dutch urban investors who put some of their massive wealth into the countryside showed little interest in seigniorial authority and income – nor even in agriculture. Rather, they viewed land



Fig. 4.2: This rare contemporary view (ca. 1600) of the Grootslag polder north of Amsterdam shows the long narrow pastures and meadows, bisected by canals that served for drainage, transport, and travel, characteristic of the coastal provinces of the Dutch Republic. As the cows and haystacks indicate, the farms specialized in dairy products for cities like Enkhuizen, shown in the distance.

purely as a liquid investment, and an excellent one at that. Hence they often sold reclaimed land to farmers once the work was completed, or rented it on long-term leases that left decisions about farming in tenants' hands.

Throughout Europe, the agricultural commercialization begun in the later Middle Ages advanced during the long sixteenth century. What made the coastal Netherlands agrarian sector unique was peasant proprietors' ability not simply to diffuse widely the best practices pioneered in medieval east Flanders and Brabant but continually to innovate to find more productive crops and methods. Thanks to agricultural specialization and occupational diversification, farm families in these core



Fig. 4.2: (cont.)

provinces of the Dutch Republic attained a standard of living unequalled in rural Europe of the time.

East Elbia

In the fifteenth century, the agriculture of east Elbian Europe resembled that prevailing to the west. Demesne cultivation was waning and even on great estates the peasant family farm had become the basic unit of production. As elsewhere in Europe, most peasants lived in nucleated villages boasting significant administrative autonomy and collective jurisdiction over farming practices and common resources. Serfdom had all but disappeared by the later thirteenth century, so peasants enjoyed personal freedom, secure tenures with rights of sale and inheritance, and dues and rents often fixed at low traditional rates. Payments in kind and cash constituted the bulk of peasant obligations, and satisfying labor dues

required only a few days per year. During the long sixteenth century, however, tenurial structures and conditions, economic and juridical relations between lords and peasants, and villagers' legal position in the region increasingly diverged from those in the west. Lords expanded manorial demesne agriculture, imposed or intensified labor services and other coercive means of extracting peasant surplus, and enhanced seigniorial rights and jurisdictions.

The transformation, dubbed second or neo-serfdom, has usually been judged the resurgence of an outmoded agrarian structure. Unlike medieval feudalism (or its early modern western survivals, which mainly took the form of seigniorial charges), however, revived manorialism was heavily commercialized, with peasant corvées largely directed toward producing agricultural goods for lords to sell; a share of the surplus that individual holdings generated was likewise marketed. Some historians attributed the rise of the new order to external factors – specifically, growing western demand for grain while population was low and land plentiful in east Elbian Europe – others to circumstances within east Elbia, notably heightened noble power vis-à-vis states and peasant communities in a context of weak urbanization and declining landlord incomes. But explanations generally agreed that neo-serfdom encouraged peasant exploitation rather than agricultural investment and innovation, resulting in agrarian and eventually general economic decline across the region.

Several decades of detailed studies have modified much of the interpretation of what is now often referred to as demesne lordship. Replacing previous binary causal accounts, scholars now emphasize links between changing domestic conditions and commercial production on all types of holdings, whether for home or foreign consumption. Exports to markets abroad grew steadily across the period: annual Polish rye exports rose steadily from 6,000 tons around 1460 to 200,000 tons in 1618, and Gdańsk (Danzig) came to supply nearly 80 percent of Amsterdam's rye imports. Impressive as they were, however, even at their height these figures represented just 5 percent of Poland's total harvest of bread grains, and just a quarter of those marketed. Three-fourths of Polish cereals brought to market (just 20 percent of overall production) were sold domestically; most were consumed by the farmers themselves (60 percent) or saved for seed (20 percent).¹⁵ Besides being far exceeded by auto-consumption and internal demand, cereal exports were also limited

¹⁵ Piotr Guzowski, "The Influence of Exports on Polish Royal Demesne Farms in the Second Half of the Sixteenth Century," *Agricultural History Review* 59 (2011): 326–27.

to the minority of large estates in areas in Poland and eastern Germany with good connections to the port of Gdańsk. Moreover, grain for export was cultivated not by corvées but by wage labor.

Again, while West European purchases of eastern livestock, wine, and a few industrial crops expanded, on demesnes these goods were also typically produced by wage labor. Lower Austrian lords, for instance, preferred to pay skilled workers to ensure careful tending of demesne vineyards. Exported produce was also likely to come not from demesnes but from tenants' in-kind rents, or from the surplus that remained to occupants of substantial full holdings (farms of 20–40 ha.) after they paid rents and other levies. Nor were demesnes cultivated by labor services necessarily oriented to export: in relatively thickly populated and urbanized Bohemia, Moravia, Lower Silesia, and Little Poland, manorial grain was directed to village, town, and city markets.

The new agrarian system did manifest growing noble authority, but this reflected variable demographic and market trends along with motile balances of power. Increased noble dominion also did not necessarily come at princes' expense; frequently, it was the outcome of negotiation with them. Sovereigns might ally with landlords to increase constraints on peasants, as in Brandenburg, or allow them to intensify labor services and other restrictions in exchange for grants of taxes by noble-dominated Estates (parliaments), as in Lower Austria. Moreover, no more than their counterparts in the west were eastern peasants simply victims of change. Many participated actively in capital, labor, land, and product markets. Most enjoyed secure tenures with at least de facto rights of transfer and sale if they paid requisite fees; and, as lords found, they were hard to expel. Besides appealing to custom against alterations in landlord levies, they took legal action in village, seigniorial, and state courts, and they frequently rebelled. At least some could afford to hire substitutes to perform their corvée requirements, while others had household labor and draught teams sufficient to fulfill lords' demands as well as farm their own holdings.

Typically, low rents compared with western Europe were a corollary of labor services; overcoming declining real rents, in fact, was one reason why landlords had recourse to corvées. Tenants also negotiated with landlords: when agricultural prices were low, they might exchange cash rents for labor services, but they also might do so when prices were high in order to keep more of the proceeds from produce they marketed. Then, too, village communities retained a surprising degree of autonomy and control of valuable common resources. In contrast to what was once thought, demesnes expanded much less by expropriating peasant holdings than by absorbing deserted properties or buying small estates from

minor nobles. And instead of unbroken servile manorialism, demesne agriculture shared the east Elbian countryside with estates based on cash or in-kind rents as well as non-manorial districts of small peasant holdings.

Rather than relying exclusively on peasant exploitation, some analyses conclude, lordship adjusted to varying market conditions. Seigniors alternated between directly exploiting demesnes and leasing them out; encouraged related activities such as milling, tanning, butchering, cheese-making; invested in new practices, for example introducing dairy-based convertible husbandry in Schleswig-Holstein. In place of the previous emphasis on East-West dualism defined respectively by backward, wretched feudal serf and advancing, innovative free peasant agricultures, in short, recent scholarship posits a range of tenurial structures, social property relations, peasant legal statuses, and rural occupations, all with a strong market orientation – a “little divergence” that varied by place, period, and duration, rather than a stark opposition.

Nevertheless, crucial and substantial dissimilarities existed. In contrast to western and southern Europe, in east Elbia demesne size and output grew both absolutely and relatively, labor services increased in weight and encompassed additional activities, restraints on peasants’ deployment of labor, disposal of holdings, marriage, and yet more intensified. While proportions varied greatly from place to place, seigniorial demesnes comprised 25–50 percent of all land. Definitions of serfdom differ as much as its specific manifestations, but all agree that tenurial subjection, the lack of legal protections for peasants against lords’ non-economic surplus extraction (compulsory labor most of all) was widespread across the region, and some areas – most thickly in northeastern Germany – featured much more restrictive personal bondage. Overall, an estimated 30 percent of families were enserfed at least to the extent of owing labor services.¹⁶ Along with corvées, required service at minimal pay for up to five years by adolescents and mandatory pre-emptive sales of produce at below-market prices were common, and on the rise: a few days of corvée a year around 1500 had likely become three days per week a century later. Though at times peasants commuted work into cash payments and purchased licenses and exemptions from other levies, satisfying them diverted resources that otherwise could have been used for consumption or investment. Evasion or flight imposed unproductive costs of their own; rebellions were usually crushed in blood and ended in yet higher

¹⁶ Paolo Malanima, “Serfdom in Eastern Europe after the Revision,” in *Schiavitù e servaggio nell’economia europea sec. XI–XVIII / Serfdom and Slavery in the European Economy 11th–18th Centuries*, ed. Simonetta Cavaciocchi (Florence, 2014), 680.

impositions. Even when lordly prerogatives were held in abeyance, the possibility of enforcement inevitably compromised peasant autonomy.¹⁷

Obligatory labor might be remunerated, but usually at low rates that lagged behind inflation; peasants seldom received cash, moreover, as lords applied their earnings to offset dues, taxes, or other charges owed. While under some circumstances peasants preferred corvées, the general dislike they evoked can be gauged by the general trend of commuting them to cash payments. In addition, even when labor services were initially negotiated between lords and peasants, once they were introduced increases proved difficult to resist much less reverse. Peasants enjoyed at least usufruct over the half to three-fourths of east Elbian land they held, but far from full property rights, and if rents stagnated, fines and dues owed on entry, death, inheritance, and other occasions constantly rose. While some lords encouraged peasant non-agricultural enterprises, their permission was limited to small-scale activities they could tax. They retained monopolies over businesses like brewing, fish farming, iron founding, and trading that they could lease out or license, oblige peasants to patronize, or staff with compulsory labor. And although Poland and Bohemia were noted for such occupations, they reached barely half the level of the contemporary Netherlands or England.

When bargaining, in short, lords held the upper hand over peasants – and as their position strengthened across the long sixteenth century they could more often impose their preferred measures unilaterally or with state assistance. Princely power weakened relatively in many places, as incessant wars and interneccine family struggles made sovereigns more dependent on the landowning classes for monetary grants, military assistance, and political backing. In addition, the Reformation allowed many aristocrats to expropriate church lands while giving them mastery over political Estates once churchmen no longer sat alongside them. Even where princes remained stronger, they were willing to exchange greater seigniorial authority for financial and other forms of support. Sovereigns sought to shape and profit from demesne lordship, not prevent its development.

Finally, east Elbian agriculture was inefficient. Even where not dominant, manorial agriculture structured land use and crop mix while distorting deployment of the factors of production and operation of markets. Weak incentives and few resources for innovation led the region's

¹⁷ Cf. Sheilagh Ogilvie, "Choice and Constraints in the Pre-Industrial Countryside," www.econsoc.hist.cam.ac.uk/docs/CWPESH%20number%201%20March%202012.pdf [last accessed 23 May 2019].

agriculturists – apart from a few geographically limited exceptions – to respond to favorable trends in extensive ways, enlarging the area under cultivation or being grazed, while landlords maintained or raised their incomes by higher levies and obligations, heightening extraction of peasant surplus. With traditional two- and three-field rotations the norm, cereal monoculture widespread, and investment in new crops, fertilizers, and techniques negligible, productivity could not be sustained, much less improved. Average grain yields, estimated as a low 5:1 to begin with, may have fallen to 4:1 or even 3:1 by the early seventeenth century.

Revived manorialism did participate in the growing commercialization of the period, and while it did not match the impressive productivity attained in advanced parts of the west, its results were no worse than those recorded in some regions of Iberia, southern Italy, and Scandinavia. Village differentiation increased, but likely less than in many market-oriented districts in the west, and the stratum of full holders prospered from buoyant grain prices. Growing out of specific economic and political circumstances of east Elbian societies, demesne lordship became firmly enracinated across the long sixteenth century. Its strengths and shortcomings would be severely tested in the less bullish conditions that followed.

Growth and Development

Trends already widely apparent during the later Middle Ages – in some places even earlier – affected more areas and involved more people during the long sixteenth century: intensified agrarian market orientation and specialization; more pronounced social and economic differentiation among both peasants and landlords; and more concentrated land ownership. The agriculture of the period also displayed some distinctive characteristics. More land was put under the plow or stocked with animals; output of every type of produce swelled; ever more rents, dues, and labor relations were monetized; tenures reshaped. Divergences appeared between western and east Elbian Europe, and – as with trade – north-western agriculture became most dynamic. Still, though unevenly distributed and nowhere dominant, advancing areas could be found in most parts of Europe, enlarging the ranks of farmers and landlords with access to resources and incentives that promoted qualitative rather than simply quantitative growth.

By the end of the period, however, growth of any type had mainly sputtered out. Development proved disappointingly circumscribed in reach and result; in some places, indeed, most notably but not only east of the Elbe, change had been regressive. Increased output had principally

been achieved by extensive measures, a wholly rational response to decades of rising demand and prices; land available to clear, drain, or resettle; and burgeoning crowds of landpoor and landless laborers whose clamor for work sent their real wages down or led them to agree to high rents and fees in return for access to tenures. But with few and minimal exceptions, labor productivity had fallen, often steeply (Graph 7.1). Extensive growth – more rather than better inputs – was the rule even on large commercial farms – whether latifundia, demesnes, or tenant holdings – using wage labor: there proved to be no necessary link between producing for market and hiring labor and adopting productivity-enhancing measures. In fact, such initiatives were introduced – or not – on common fields, on medium-sized holdings, and on large enclosed properties; they were as likely to be taken up on farms where wage labor was supplemental to that of the household as on those where it was essential; and peasants introduced them with or without landlord backing.

Other factors taken to be significantly correlated with agrarian development likewise turn out not to have sufficed on their own. Secure tenures characterized developing areas, yet even though both regions enjoyed equal tenurial security, agriculture in the coastal Netherlands outperformed that in inland provinces. Again, though commercialization could galvanize growth, its stimuli could be complicated or even reversed by rent exploitation, demographic shifts, unfavorable price oscillations, inadequate infrastructure, and restrictions imposed by political authorities on produce, labor, land, and credit markets, not to mention rising taxes. Nor was specialization a panacea. It might lead to efficient, consolidated properties yielding rising incomes and growing demand for an expanding array of agricultural and non-agricultural goods and services. But it was as likely to end in parcelization of holdings into tiny, undercapitalized if intensively worked farms with low labor productivity, where even reliance on makeshifts could not exempt peasants from penurious livelihoods generating little additional consumption. Each strategy was an attempt to deal with specific configurations of conditions; most often, these advantaged landlords and political authorities who could profit without risking investment in production, and even elites who embraced change were likely subsequently to abandon it. This left agriculture largely under farmers' control – but also progressively starved of resources.

As we have seen, there were regions in many parts of Europe, and a major part of one state, where division of holdings was restrained, resources pumped in – or at least not pumped out – and a degree of development did occur. They were exceptional in those regards, but they did not escape village differentiation, rising landlord and state levies,

typically even some wartime disruption. Moreover, none relied on significant technological advances nor on dramatic landlord-imposed dis-possession and restructuring. Nor, despite the appearance of maize and tobacco in a few areas, did key innovations arrive from overseas. Rather, such regions were noteworthy because in them agriculturists retained the wherewithal and incentives to implement ongoing improvements. Freed from excessive levies and obstacles, they exploited more generally, systematically, and consistently strategies and material resources – many long applied on a small scale – available within the European agrarian sector: crop mixtures, rotation and fallow systems, better tools, seeds, and stock, and by repeated practice and adaptation over time incrementally raised their effectiveness.

If these changes did not suffice to raise agrarian labor productivity, they did promote the emergence of a stratum of farmers largely and often entirely focused on commercial agriculture. Occupational structures were also reconfigured in advancing areas, where agriculture came to employ an unusually low proportion of the population for the time, other jobs an uncommonly high share.¹⁸ Whether these anomalous agrarian regimes provided a template for European agriculture in the long eighteenth century is examined in Chapter 7; at present, we need to consider the fortunes of sixteenth-century industry.

Suggested Reading

General works listed after Chapters 1 and 2 analyze many issues discussed in this chapter. Tom Scott, “The Agrarian West,” in *The Oxford Handbook of Early Modern European History 1350–1750. Volume I: Peoples and Place*, ed. Hamish Scott (Oxford, 2015), 398–427, is the best overview. See also *Property Rights, Land Markets and Economic Growth in the European Countryside (Thirteenth–Twentieth Centuries)*, eds. Gérard Béaur, Philipp Schofield, Jean-Michel Chevet, and Maria-Teresa Pérez-Picazo (Turnhout, 2013), for cautionary essays about effects of private property rights and land markets on Continental agriculture. *Town and Countryside from the Late Middle Ages to the 19th Centuries: Supply and Demand of Food*, eds. Piet Van Cruyningen and Erik Thoen (Turnhout, 2012), discusses operation and integration of food markets. *Beyond Lords and Peasants: Rural Elites and Economic Differentiation in Pre-modern Europe*, eds. Frederic Aparisi and Vicent Royo (Valencia, 2014), focuses on Belgium, England, and Spain; *The Management of Common Land in North West Europe, c.*

¹⁸ Estimates are rough, incomplete, and except for the Netherlands only available at the national level. For indications, see Allen, “The Growth of Labor Productivity in Early Modern English Agriculture,” 11; de Vries and van der Woude, *The First Modern Economy*, 233; Bas van Bavel, “The Transition in the Low Countries: Wage Labour as an Indicator of the Rise of Capitalism in the Countryside, 1300–1700,” *Past and Present*, Supplement 2 (2007): 299–300.

1500–1850, eds. Martina De Moor, Leigh Shaw-Taylor, and Paul Warde (Turnhout, 2002), on lands bordering the North Sea. *Rural History in the North Sea Area. An Overview of Recent Research Middle Ages–Twentieth century*, eds. Erik Thoen and Leen Van Molle (Turnhout, 2006), surveys agricultural, peasant, and rural history in England, France, Germany, and the Low Countries, with excellent bibliographies.

The Castilian Crisis of the Seventeenth Century: New Perspectives on the Economic and Social History of Seventeenth-century Spain, ed. I. A. A. Thompson and Bartolomé Yun Casalilla (Cambridge, 1994), includes long sixteenth-century material, as does Carlos Álvarez-Nogal, Leandro Prados de la Escosura, and Carlos Santiago-Caballero, “Spanish Agriculture in the Little Divergence,” *European Review of Economic History* 20 (2016): 452–77. Costa, Lains, and Miranda, *An Economic History of Portugal*, draws on recent scholarship. For Italy, see Giovanni Federico and Paolo Malanima, “Progress, Decline, Growth: Product and Productivity in Italian Agriculture, 1000–2000,” *Economic History Review* 57 (2004): 437–64, and the insightful Maurice Aymard, “From Feudalism to Capitalism in Italy. The Case That Doesn’t Fit,” *Review* 6 (1982): 131–208.

French agricultural history boasts a distinguished tradition of regional studies; *Histoire de la France rurale* 2, eds. Hugues Neveux *et al.* (Paris, 1975), provides a synthesis needing updating. In English, see Philip Hoffman, *Growth in a Traditional Society. The French Countryside, 1450–1815* (Princeton, NJ, 1996). German scholars, too, often write regional studies; see Tom Scott, *Town, Country, and Regions in Reformation Germany* (Leiden, 2005), especially Chapter 7, for a fine overview; Govind P. Sreenivasan, *The Peasants of Ottobeuren, 1487–1726. A Rural Society in Early Modern Europe* (Cambridge, UK, 2004), for a stimulating monograph. Essays in *The Cambridge History of Scandinavia. Volume II, 1520–1870*, eds. E. I. Kouri and Jens E. Olesen (Cambridge, UK, 2016), present up-to-date surveys.

The Agrarian History of England and Wales. IV. 1500–1640, ed. Joan Thirsk (Cambridge, UK, 1967), remains the best inclusive account; a longer overview is Mark Overton, *Agricultural Revolution in England. The Transformation of the Agrarian Economy 1500–1850* (Cambridge, UK, 1996). Broadberry *et al.*, *British Economic Growth 1270–1870*, present and analyze multiple quantitative indicators. For debates over enclosure, consult *Landlords and Tenants in Britain, 1440–1660: Tawney’s Agrarian Problem Revisited*, ed. Jane Whittle (Woodbridge, UK, 2013); Jane Whittle, *The Development of Agrarian Capitalism: Land and Labour in Norfolk 1440–1580* (Oxford, 2000); and A.T. Brown, *Rural Society and Economic Change in County Durham: Recession and Recovery, c. 1400–1640* (Woodbridge, UK, 2015). For the Netherlands, see *Peasants into Farmers? The Transformation of Rural Economy and Society in the Low Countries (Middle Ages–19th Century) in Light of the Brenner Debate*, eds. P.C.M. Hoppenbrouwers and Jan Luiten van Zanden (Turnhout, 2001), and de Vries and van der Woude, *The First Modern Economy*, especially 195–210.

For brief surveys that discuss traditional and recent scholarship on east Elbian agriculture, see Edgar Melton, “The Agrarian East,” in *The Oxford Handbook of Early Modern European History 1350–1750. Vol. I*, 428–54; Markus Cerman,

Villagers and Lords in Eastern Europe, 1300–1800 (Basingstoke, UK, 2012). Essays in *Schiavità e servaggio nell'economia europea secc. XI–XVIII / Serfdom and Slavery in the European Economy 11th–18th Centuries*, ed. Simonetta Cavaciocchi (Florence, 2014), and in “Demesne Lordship and Rural Society in Early Modern East Central and Eastern Europe, c. 1500–c. 1800,” *Agricultural History Review* 59 (2011): 239–327, introduce detailed studies now underway.

5 Industrial Tradition and Innovation

Trends and Causes

As befit principally agrarian economies, industrial trends largely paralleled agricultural across the long sixteenth century: substantial growth in output from the mid- or late fifteenth century to at least the 1560s, followed by stagnation and (from about 1600) decline that might persist to the 1650s. As in agriculture, too, similarities and differences marked the histories of individual regions, trades, and specialties, yet if every area had flourishing as well as depressed industries, industrial primacy was shifting from the Mediterranean to the North Sea area. Analogous to the dominant role of known practices and techniques in promoting agricultural advance, so – despite several noteworthy inventions – most industrial growth was achieved by product innovation manufactured with existing technology. Initiatives already apparent in the later Middle Ages put artisanal workplaces and labor relations under increasing pressure, but across Europe generally they remained limited in scale and scope, were not necessarily more dynamic or productive than their traditional counterparts, and did not dominate or define the industrial sector.

No aggregate figures exist to provide a comprehensive overview of industrial production, much less by state, area, trade, or enterprise. But data on textiles, the premier industry across Europe, give a sense of developments. Annual output of Florentine woollens rose from 10,000–12,000 pieces in the 1430s to 30,000 or more in the 1560s–1570s, then dwindled to 14,000 pieces in the 1590s and 6,000 in the 1630s. In Castile, Segovia's clothmakers thought themselves fortunate to turn out 3,000 cloths in a good year before 1550, yet by 1580 their yearly norm was almost 13,000 – before ebbing back to 3,000 pieces after 1635. An initially more dismal but ultimately much happier tale played out in Leiden, the Dutch Republic's woollens capital. There, output shriveled from 29,000 pieces in 1521 to fewer than 1,100 in 1573, but promptly mended once the turmoil of the Dutch Revolt was past: 26,600 cloths in 1584 became 102,000 in 1624, peaking at 144,700 pieces in 1664. A few

fortunate – and unusual – centers experienced consistent long-term growth. Annual coal shipments from Northumberland and Durham counties (England) were about 45,000 tons in 1508–1511, in excess of 500,000 in 1655–1660.

Numerous industrial centers and regions were reborn after languishing during the late medieval crisis – or, like Leiden, even later. Crafts also emerged in heretofore non-industrialized locations. A small farming village with a few part-time weavers in the fifteenth century, Hondschoote in west Flanders counted 10,000 inhabitants by the 1560s and was one of Europe's leading textile centers. Previously insignificant trades bloomed: Falun (Sweden), of little note before 1570, was by 1650 pre-eminent in European copper mining. Not to be outdone, numerous prospering industrial centers opened wholly new industries. To its renowned silks, high quality woollens, leatherwork, and glassware, Venice added printing and sugar refining. Even in northwestern Europe, however, not all sites or industries benefited even during the expansive phase. As woollens output jumped ten-fold in rural Yorkshire between the 1460s and 1590s, York city's production dwindled; in Holland, Gouda brewed 290,000 kegs of beer a year in the 1480s, just 47,000 in 1571.

Agriculture was not the only influence on industry. Trade and colonization opened new overseas markets, though in the long sixteenth century the effects of intercontinental trade were mixed. In Asia, as we have seen, European goods evoked little – indeed, diminishing – interest; Asian manufacturers profited more as their products were sent to Europe. Iberian possessions in the Americas were more important export markets, particularly in the early generations before colonial manufacturing got underway and a taste for Asian luxury goods was fueled by the establishment of the Manila galleon route in 1565. The main European beneficiaries were the makers of cheap woollens and linens, especially in the southern Netherlands and western France, whose cloth dressed expanding New World slave populations. In addition, a few European manufacturers used American raw materials: sugar refiners, leather crafts, and some dyers.

But overseas markets and materials were of minor significance: the main sixteenth-century determinants of Europe's industrial fortunes lay within Europe itself: its demographic movements, urbanization trends, employment structures, income distributions, levies such as rents and taxes, and government and corporate policies. None of these, however, had unambiguously positive or negative repercussions on industry. Population grew from 61–64 million in 1500 to 78–84 million a century later, then stalled everywhere until the 1650s, save in the northwestern area. A rising proportion of those more numerous Europeans lived in

cities of 10,000 or more – less than 6 percent at the beginning of that century and a half, more than 8 percent at the end – with northwestern lands again in the lead. Demographic changes affected not just demand for manufactures but availability of workers; in the mainly labor-intensive crafts and industries of the time, continually expanding non-agricultural populations helped keep the labor supply plentiful, conducing to wages, and thus prices of manufactures, that generally lagged behind the mounting cost of food; in turn, this could further sustain demand – at least among those Europeans with rising incomes.

Those so advantaged embraced farmers benefiting from higher prices for agricultural goods and from intensifying agrarian commercialization and specialization – which also led them to shed much non-agricultural production in favor of purchasing manufactures – landlords who collected mounting rents including marketable in-kind payments, and many urban property-owners, merchants, shippers, manufacturers, and artisans. Yet as in the countryside, recent research suggests, incomes were polarizing and wealth becoming concentrated as real wages fell. Though household incomes may have been shored up by more family members taking on paid employment or working longer hours, the diminished industrial activity noted in many places even before 1600 – while food prices continued to mount – would have made such strategies increasingly untenable, with negative consequences for sales of manufactures.

Other factors had equally complex effects on industrial development. State-building stimulated select industries, most notably those associated with war like shipbuilding and metallurgy. To cite just one example, France hastened to develop its own iron industry when Habsburg monarchs – with whom France fought repeatedly across the long sixteenth century – came to dominate arsenals in Germany, Liège, and Milan that boasted Europe's most advanced technology. State-building and war-making were expensive, however, so from about 1600, taxes rose widely and often steeply, at once cutting into popular demand for manufactures and reinforcing elite consumption as governments redistributed some of their increasing revenues to financiers, tax-farmers, officeholders, and others in the upper levels of society. Warfare also disrupted and destroyed industries, particularly the many rural production sites that had become significant in many parts of Europe.

Local authorities likewise might be helpful or harmful. They could attract new trades and artisans, encourage existing crafts with financial incentives, seek to integrate rural manufacturing with urban (if to the advantage of city producers, merchants, and finances). Or they could try to block innovation, hinder migration, protect established industries against any and all competition. After disease and a slowing stream of French Huguenot exiles once the

Edict of Nantes granted toleration in 1598 resulted in a shrinking labor pool, driving up wages and prices, the Genevan government opposed shifting production into the countryside, introducing new methods, or attracting newcomers from surrounding Catholic territories. Before long, the city's renascent textile crafts collapsed.

Guilds, too, could obstruct technical or organization change, the use of cheaper rural or non-corporate labor, or migrants who enjoyed special privileges. Yet on many occasions they accepted new procedures and products that appealed to consumers, proved willing to incorporate irregular labor, and welcomed newcomers equipped with valued knowledge or training. Guild members were producers who needed to sell the goods they fashioned, so the state of and access to factor and commodity markets strongly influenced their reactions, as did shifting constellations of interests and power among masters and merchants. There was no simple correlation, therefore, between industrial development and the presence or absence, strength or weakness, of trade corporations.

Migration, too, led to disparate outcomes. Movement of individuals and groups had long been critical for the diffusion of labor, techniques, and information that spawned new trades or revived somnolent ones. In this Age of Reformation religious persecution displaced thousands of workers, along with sizable amounts of capital. Calvinists fleeing repression in France and Italy galvanized nearly moribund woollens and silk crafts in Geneva for several decades. Their co-religionists from the southern Netherlands brought light drapery and other trades ranging from diamond cutting to oil pressing to England, the Dutch Republic, and western Germany. Yet migration also had costs. Departure of labor, skills, and capital was an important, if not sole, factor behind the poor performance of some significant industries in places left behind. Moreover, immigrants were no panacea. Often they moved on quickly when better opportunities presented themselves, as some German cities found when Calvinist textile makers who had arrived in the 1570s left in the 1590s for the greener pastures of the booming Dutch Republic. On other occasions, groups of immigrants benefiting from inducements kept exclusive control over the industries they established rather than training local artisans in new methods.

The appearance of new commodities often broadened and deepened demand. Many were inexpensive items destined for less affluent consumers. Knitted stockings, ribbon and lace, buttons, starch, soap, vinegar brewed from beer, knives and tools, pots and ovens, and many more goods, formerly made only for local custom, now entered channels of national or even international trade. Printing was the best known and most widely adopted new industry. Despite pockets of resistance – the scribes' guild delayed printing's introduction into Paris for twenty years –



Fig. 5.1: Although printing establishments were, like most craft shops, mainly small, they gave birth to new specialized occupations. Following manuscript pages posted above them, three compositors arrange text, while the man standing in the center back prepares paper for the printer to his left. In the foreground, a boy neatly stacks freshly printed sheets for the proofreader in the left center. As this late sixteenth-century engraving reveals, men all but monopolized the new technology.

more than 380 working presses had sprung up by 1480, increasing to 1,000 (in nearly 250 towns) by 1500. Between 1453 and 1500, all the presses of Europe together turned out some 40,000 editions (known as *incunabula*). But from 1501 to 1600, the same quantity was produced in Lyon and Paris alone.

Other late medieval inventions or adaptations from ship design to spinning wheels were likewise more broadly diffused across Europe. Some new technologies and upgraded versions of existing ones were also introduced: finishing tools and techniques improved woollens calendaring and pressing; Lee's stocking frame, modified across the early seventeenth century after its 1589 appearance, enhanced quality and in some cases reduced laborers per machine from two to one; Dutch ribbon looms permitted simultaneous manufacture of multiple ribbons; flywheels eliminated interruptions for winding, raising spinners' productivity. But if some innovations caught on

quickly, like specialized wheels devised for specific fibers, many encountered wide resistance due to cost or concerns about quality and (among public authorities) unemployment, slowing acceptance.

As in the past, however, most industries sought new customers by developing novel products based on existing technology, a strategy of which *changéants* – woollens given the texture of silk – were a prime and hugely successful example. At Lille (French Flanders), output rocketed from 2,000 cloths a year in the early 1540s to 175,000 in 1619. Like government policies, guild regulations, and migrant mobility, innovations produced losers as well as winners. Scribes were not alone in either their fears about or the reality of their future; traditional heavy woollens producers disappeared as light drapery gained ground. Neither did adopting innovation inevitably spell success, as witness the fate of the highly capitalized and technologically modern central European silver mines that succumbed to American competitors.

Though exceptions abounded, on the whole factors promoting industrial expansion outweighed those retarding it into the 1560s throughout Europe – and in many places later. By 1600, and continuing for many decades thereafter, the reverse generally held true. Some bright spots shone amid the prevailing gloom. Most were in lands bordering the North Sea. Numerous textile crafts in Belgium and northern France prolonged recovery beyond 1620; some even surpassed previous records as (*vide* Lille) progressing replaced regressing manufactures. English industries also did well. The Dutch Republic wrote the most striking success story of all. During its Golden Age, which stretched from the later 1580s to at least the 1670s, the recently prostrate Republic became the greatest industrial power in Europe.

The long sixteenth century issued, then, in sharper differentiation among Europe's regions. Some became less industrialized than before; others more. In particular, northwestern Europe took on a more preponderant and dynamic role. Both in extent and in pace, the shift was as yet modest. But hand in hand with changes shaping the agrarian sector and increasingly evident in commerce and finance, it was positioning the northwestern region to emerge as the European economy's core. To understand this process in its advances and hesitations, we need to survey the interplay of forces constructing Europe's new industrial geography.

Redrawing the Industrial Map

Mediterranean Europe

Singular chronologies, causes, and contours marked the industrial histories of southern Europe during the long sixteenth century, but most tracked

general European patterns. On the whole, Iberian manufacturers experienced the most severe reverses, yet northern and central Italy, long among Europe's top industrial regions, were also falling behind the leaders emerging around the North Sea.

Italy Reviving earlier than most of Europe, and lasting for more than a century and a half, Italian industries registered impressive growth that perpetuated the peninsula's previous preeminence. Vibrant commercial, financial, and agricultural sectors, demographic expansion, and continued high levels of urbanization heightened domestic demand for manufactures; Italian merchants and bankers helped peninsular industries tap expanding markets throughout Europe and the Ottoman Empire. Some new techniques bolstered the appeal of Italian goods. Hydraulic silk throwing and reeling mills pioneered in Bologna significantly improved quality while appreciably reducing costs; new glazing methods gave Italian ceramics a more attractive and durable finish. Considerable government, ecclesiastical, and private building and reconstruction likewise stimulated Italian trades, especially luxury and artistic crafts. The industrial sector also adapted to changing conditions. If American imports made silver mining unprofitable, iron and copper output and knife, sword, scissors, and other metal goods manufacturing increased; Lombard and Tuscan woollens production successfully shifted from expensive to medium-priced varieties.

For all that, by the late sixteenth century the Italian industrial sector not only shared in the downturn prevailing across Europe but fell out of the front rank it had long occupied. Besides this relative decline, which affected Italian industry as a whole, numerous trades – especially those in larger cities – lost ground in absolute terms. Florentine woollens output peaked in the early 1570s, then dropped by nearly two-thirds over the next three decades; by the 1660s the industry was nearly extinct. Milan's textiles prospered longer, but from 1605 to 1625 the number of silk looms dropped from 3,000 to 600, and the 70 enterprises that turned out 15,000 woollens in 1620 had by 1640 dwindled to just 15, making 3,000 cloths. Even at Venice, which had supplanted Florence as the foremost producer of fine woollens output that had jumped from barely 2,000 pieces a year before 1520 to nearly 29,000 in 1602 tailed off thereafter to an annual average of fewer than 10,000 cloths in the 1650s. Similar histories could be related about many other towns and trades.

Slumping domestic demand was partly to blame. Rising taxes, heavier rents, dues, and other levies on the peasantry, high food prices, and the ebbing of their former commercial and financial supremacy left Italians fewer resources to devote to manufactures. Not only poorer, their

numbers became significantly fewer. By 1650, after several decades of severe and repeated plague epidemics, Italian population (and, in most places, urbanization) had dropped well below 1600 levels. Equally important, given the export orientation of Italy's leading industries, was diminishing foreign demand. Dutch, English, and French producers made serious inroads into markets long dominated by Italians, notably winning most of the lucrative Levant woollens trade, and even penetrating the Italian home market. Papal-controlled mines had for several centuries been Europe's chief supplier of alum, essential for fixing dyes to cloth. But they lost that position once new mines opened near Liège (Belgium), and in Yorkshire (England), Bohemia, Silesia, and Slovakia. Protective tariffs cut off access to the French market; war badly disrupted German lands; military-diplomatic conflicts and weaker naval protection in pirate-infested waters that drove insurance and transport costs above those of competitors reduced once-copious sales in the Ottoman Empire to a trickle. Refocusing exports toward Iberia's still open markets – a strategy facilitated by Spanish political hegemony in Italy, a legacy of sixteenth-century wars – failed to make much difference as Spain's own increasingly severe economic problems curtailed demand.

Italian producers did not passively accept decline. Many urban enterprises concentrated on expensive goods, seeking to turn to their advantage the growing concentration of wealth throughout Europe, Italy's still-abundant merchant capital and well-developed commercial networks, and the standards and skills for which the peninsula's goods were renowned. Instances of thriving luxury trades are not hard to find – expensive textiles, superb metalwork, handsome furniture, fine art. Even where the luxury sector flourished, however, it often did not compensate for decaying industries. In Florence, the silk trades boomed; nevertheless, combined silk and woollens output in the mid-seventeenth century was a third lower than in the 1560s. Moreover, many industries specializing in the high end of the market did not prosper; save at Florence, silk weaving employment dropped half or more between 1620 and the end of the century, and the long-famous velvet, brocade and damask industry at Catanzaro in the Kingdom of Naples died out. With producers across Europe vying for the custom of what was, after all, a small group, Italian artisans often found themselves hampered abroad by high taxes and protectionist regulations. Foreign artisans also became adept at fabricating less expensive yet good-looking imitations.

Another common strategy to stem industrial decay was to decrease costs by shifting production to the countryside. Ruralization did not necessarily spell success: it failed, for example, to stem the decline of fine Genoese silkmaking. More fortunate were trades producing for the

lower end of the market, including coarse fustians, woollens, linens, less expensive silks, iron implements and firearms, paper. Upland northern Italy was at the forefront of the movement. Urban elites in this region proved willing to invest capital in rural industry, and a large underemployed labor force needed to earn the subsistence that small infertile farms could not alone provide.

Elsewhere in Italy, rural industrialization encountered obstacles. Urban-based governments deemed the countryside a source of cheap foodstuffs and raw materials for city crafts and sought to protect politically and socially influential guild masters from lower cost competitors. Most of those with capital invested where returns were more assured: trade, land, various types of credit, or conspicuous consumption. The structures that characterized much of Italian agriculture also effectively limited ruralization. Both by stipulation and by adjusting farm size to family size, mezzadria contracts and many leases obliged peasant households to devote themselves wholly to agrarian activities to the exclusion of waged by-employment.

So if Italy boasted some vigorous and innovative areas and industries – if its decline was less severe and less sweeping than historians previously believed – by the end of the long sixteenth century a combination of internal constraints and external competition dethroned it from its former supremacy.

Iberia Although beginning from a much more modest level than Italy, Spanish and Portuguese industry expanded alongside agriculture from the later fifteenth century through the 1570s. The Americas contributed to a degree. Colonists initially imported Iberian manufactures (which sometimes enjoyed monopolies in colonial markets); seaborne trade with the New World – along with the defense requirements of worldwide empires – busied Iberian shipbuilders, sailcloth, rope, and cordage makers; artisans in the metropoles processed American raw materials such as hides. Old World markets and materials were of much greater consequence. Using domestic wool, flax, and raw silk, textile manufacturing expanded in numerous urban and rural locations, exporting to North Africa and the Levant, though directing most output to internal consumers. Several Spanish industries adopted new technologies. Water-powered forges and tilt hammers quickened Catalan and Basque ironmaking; the vast Almadén (Castile) mercury mine instituted the most advanced German methods, tripling output to meet surging demand from American silver mines. Some integrated regional divisions of labor emerged, incorporating industry and agriculture, city and countryside. Around Córdoba, villagers living south of the Guadalquivir River

grew foodstuffs sold throughout the area; residents of a mountainous zone to the north herded sheep, spun wool, and wove cloth for urban and export customers; Córdoba artisans finished rural cloth and manufactured goods for sale to local peasants; urban merchants provided capital, commercial services, and additional supplies to all three.

Like commerce and agriculture, however, industry did not avoid the sharp downturn that engulfed Iberia from the 1570s. Woollens output faltered, then plummeted as the seventeenth century progressed. Shipbuilding slackened, Basque iron output slid from 300,000 quintals in 1545 to just 100,000 in 1658, and after 1645 the amount of mercury mined at Almadén sank back to early sixteenth-century levels. Iberian decline was regionally disparate – striking inland areas with marked severity – and part of a larger trend. But why was it of greater magnitude than in most other parts of Europe?¹

Historians often point to demographic contraction. Already falling in the 1570s and 1580s, Spain's population dropped by a seventh between 1600 and 1650, that of towns by more than a quarter. Both were among the sharpest decreases in Europe. Still, the timing suggests that population decline, and especially deurbanization, were results as much as causes of industrial decay. Government policies also come in for blame, notably for turning a deaf ear to mid-sixteenth century pleas by cloth manufacturers to reserve half of Castilian wool for the kingdom's industry. Yet the charge seems unwarranted, since having had first option on only a third of the clip since 1462 had not stood in the way of the industry's growth. Steps taken in 1548 to combat high prices were, however, clearly detrimental. Tariffs on manufactures were lowered to encourage imports, and then Castilian producers lost access to European markets for nearly a decade when the government forbade exports of woollens, silks, and leather, save to the American colonies. Thereafter, repeated devaluations, revaluations, and minting of copper coins that stoked inflation added to industry's woes.

But Iberia's industrial problems had deeper causes, as evidenced by the loss of markets abroad. The same problems within the Ottoman Empire that disturbed Italian exports to the Levant affected Spain's. Elsewhere, new entrants outcompeted its producers. Once Spain's leading industrial export, textiles fared badly among Mediterranean consumers, and foreign fabrics made inroads in Iberia as well. In the Americas, colonial artisans supplied more and more wares; goods from the Low Countries, France, and increasingly Asia dominated imports.

¹ Carlos Álvarez-Nogal and Leandro Prados de la Escosura, "The Rise and Fall of Spain (1270–1850)," *Economic History Review* 66 (2013): 21–25.

Waning competitiveness was rooted first of all in circumstances that drove Iberian production costs above those of rivals. Due to the influx of American bullion, inflation struck Spain earlier than the rest of Europe. Concomitantly, wages – though as elsewhere falling in real terms – remained higher than in other lands. As the sixteenth century went on, higher Spanish goods prices also reflected soaring taxes, particularly the kingdom-wide levies known as alcabala, assessed nearly every time an article changed hands during manufacture, and millones, which boosted the cost of food, helping push up wages. Numerous local imposts on crafts also raised costs. And taxes remained high as the economy deteriorated, exacerbating and perpetuating difficulties. In the earlier sixteenth century, resources had been expended on roads and other infrastructure that brought foodstuffs and other goods to rapidly growing inland cities. But such investments apparently tailed off. Increasingly, too, all Iberian producers failed to keep up technologically with their rivals. Shipbuilders neglected to develop new designs or modernize procedures, and their suppliers proved unable to meet quality standards; Lisbon's royal shipyards, for example, had to switch from domestic to French sailcloth. Spanish foundrymen took twice as long to fabricate goods as their competitors and used much more charcoal, while the silk industry clung to manual operations as Italians adopted hydraulic machines.

An economic environment characterized by adverse state policies, disrupted foreign markets, and excessive costs of production also encouraged the redeployment of capital out of industry. Much flowed into land purchases; other into usury, Crown annuities and loans, municipal office, and conspicuous consumption, notably noble titles and seigniorial jurisdictions. Some manufacturers withdrew from production to try their hands at commerce. Taking advantage of skills and contacts accumulated over the years, many went into raw wool exporting and cloth importing, which of course only drove another nail into the coffin of Spanish textile crafts.

Not everyone abandoned industry. Some sought salvation in rigid adherence to regulations, but this preserved only a dwindling number of niche producers. In contrast, Valencia switched from expensive heavy silks in the early sixteenth century to cheaper satins by 1600, then again to much lighter taffetas by the 1630s, but while this slowed decline, Valencia had become a minor center by 1650. What best survived were cheap, low quality products made by villagers or townspeople employed outside guilds in putting-out systems. Aiming at the vast domestic peasant and urban mass market made sense at a time of growing economic inequality. It maintained a woollens industry in many parts of the peninsula, linen crafts in Portuguese littoral districts, and even specialties like ceramics,

leather, and glass here and there. But with very low value added, thin profit margins, and minimal if any investment, it was a recipe for hanging on, not for growth or development, even before a combination of agrarian and demographic reversals put even these crafts in a parlous state. Impoverishment and indebtedness curtailed the purchasing power of peasants and urban residents alike – and their numbers were falling. Local circumstances might not permit even a small measure of success. Around Córdoba, for instance, privatizing *baldíos* caused the disappearance of small sheep herds that had supplied inexpensive wool to local weavers. As they vanished, wool prices rose, Córdoba's crafts languished, city merchants metamorphosed from putting-out entrepreneurs into rentiers, and the interrelated regional economy crumbled.

By the end of the long sixteenth century, Iberian industry was on the defensive. Those crafts that remained were small-scale and heavily oriented to domestic consumers, usually the least prosperous, who lived in the region of production. Very few Spanish manufactures were sold in foreign markets; on the contrary, a large proportion of the peninsula's industrial raw materials were exported for processing abroad, and they often returned as finished goods that undersold Iberian wares.

East Elbia

Reassessments of the levels of commercialization, wage labor, and seigniorial obligations in east Elbia's agrarian sector have also resulted in a more positive conclusion about the place of rural crafts in the region's economy, achieved most often by combining manufacturing with demesne lordship agriculture. At the same time, however, potential industrial output and consumption were checked by lordship's restraints on the mobility of labor and capital, negligible urbanization (less than 2 percent of the population), generally lower agricultural productivity, and significant household production for auto-consumption.

East Elbia strongly resembled Iberia in some crucial respects: industrial raw materials – notably minerals, hemp, and flax – were leading exports; affluent demand relied largely on imports; and many of the region's own manufactures were consumed locally. The area was considerably less industrialized than Spain, to be sure, not to mention most other parts of Europe. In the later Middle Ages, however, industry had emerged throughout east Elbia, typically in upland districts endowed with flax, ores, and other raw materials, wood and water for energy, and peasant populations that welcomed non-agricultural work to supplement incomes from small holdings. Extractive industries were particularly common. In the past, associations of artisans had operated most mining and

metallurgy enterprises, leasing land and equipment from landowners. But in the long sixteenth century, demesne lords assumed an increasingly active role, opening new mines, glassworks, and iron foundries on their estates or taking over those previously leased out to free masters. In the iron industry, technological change encouraged the trend, because blast furnaces and continuous production required capital for equipment and labor beyond the reach of most artisans.

In lordly enterprises, as in their late medieval predecessors, most skilled workers were free wage-earners, although now they owed money and in-kind payments to their employers. However, many auxiliary tasks – including cutting wood for fuel and hauling raw materials – and even less skilled manufacturing jobs were assigned to serfs as unpaid corvées. Serfs might practice their own trades, such as village beer brewing using manorial grain or ironmaking with local ores and fuel. Yet these crafts' profitability – sometimes just viability – was hampered by labor services their proprietors continued to owe, license fees and taxes that lords levied, and other restrictions and charges intrinsic to demesne lordship. In the event, rural enterprises did not necessarily increase net industrial activity: many grew at the expense of urban producers, whose access to raw materials and consumers was complicated by manorial monopolies and prohibitions.

Some of the industries miscarried. After initial booms, Polish and Slovakian ironmaking, as well as Alpine copper and silver mining, dwindled after 1550 in the face of more efficient western European and American producers. But a surprising number of extractive and fabricating trades were long successful. Poland and Silesia mined eight times as much lead in 1650 as in 1500, while scythes, sickles, and knives posted steady increases for Bohemian and Austrian ironmongers. Initially, they exported to western Europe, but from the mid-sixteenth century the competition became too keen, so they re-directed their goods to nearby Scandinavia, the Ottoman Empire, and to markets within east Elbia.

Textile industries also took hold. Polish and Prussian sailcloth was sent to western Europe, along with linens from Silesia, Moravia, and Bohemia. Like metal wares, however, the bulk of textile output was sold in the region of production or further east, in Lithuania, Ukraine, and Russia. As the populations of all these lands became poorer in the seventeenth century, east Elbian cloth displaced now unaffordable western textiles. According to one estimate, west European fabrics, concentrated at the upper end of the market, filled only 20–30 percent of east Elbian textile consumption by 1650. Like its agriculture, then, east Elbia's industry specialized in goods exploiting cheap (at times unpaid) labor and local raw materials, factors of production in which it enjoyed a comparative

advantage. But as the expansion of demesne lordship introduced multiple distortions that ramified throughout commodity and factor markets, the region's possibilities for industrial expansion were cramped.

Western Europe

Western European industrial areas were the most dynamic, but their experiences during the long sixteenth century were far from uniform. As Scandinavian lands boasted little industry, affluent consumers depended on imports, the peasant masses on household production and auto-consumption. Some coastal Norwegian farmers operated rudimentary sawmills, but the Dutch Republic's shipyards and shops further processed the lumber. The early seventeenth-century Danish king Christian IV set up a few manufacturing companies, which quickly founded for lack of raw materials, capital, and skills. Swedish Crown initiatives were more successful: using techniques brought by mainly German immigrant artisans, they occupied the proportion of the kingdom's iron exported in bar form between the 1540s and 1640s and at the latter date had encouraged the development of small-scale manufacturing. Still, even then most Swedish iron and copper was sent raw or semi-processed to northwestern Europe where stages of production adding the most value were carried out. Long more industrialized, western Germany, France, and Belgium housed thriving trades and regions; overall, however, their industries were in a holding pattern. In contrast, after beginning from a position of relative backwardness English industry sustained steady growth, while the Dutch Republic recovered from severe initial difficulties to emerge as the industrial flagship of the age.

Western Germany and Switzerland Before about 1500, manufacturing in many western German lands and Swiss cantons was in a precarious condition, but thereafter it underwent broad, if poorly documented, expansion. Manifold textile crafts formed the most widely dispersed and probably biggest industrial sector overall, but some of the mining and metal trades that dominated mountainous areas in Germany were substantial: the Upper Palatinate, for instance, alone produced as much iron as all of France. Some output was exported: woollens to the eastern Baltic and Scandinavia, linens to Spain whence much went to the Americas, barchents to the Mediterranean and, in smaller quantities, to western Europe, silks to elite clients across the continent. But German and Swiss consumers – both within the producing states and nearby – bought most manufactures. Prosperity in the countryside, where as much as 95 percent of the population lived, thus strongly stimulated industrial

growth. So did the many governments that protected markets by decreeing regional monopolies, guaranteeing raw materials supplies, sanctioning boycotts of competitors. In Hesse, for example, these policies aided the rise of large stove, pipe, and glassware manufactures. Wider adoption of new methods was crucial for the important mining and metal trades; growing international and intercontinental trade spurred silver mining.

Despite all this, western German and Swiss industry did not sustain growth. Like their counterparts further east, many mining districts went into a prolonged slump around 1550. Alpine copper production, which fell off by two-thirds between 1526–1550 and 1576–1600, decreased another 60 percent by 1626–1650. The Upper Palatinate, which as late as 1609 boasted 182 forges with an output of 9,500 tons of iron, saw two-thirds of the forges close by 1618 and production drop by three-quarters. At the 1665 low point, 29 forges furnished less than 950 tons of iron. Textile trades prospered longer, in many places thanks to an influx of Protestant refugees with skills and capital. But recession became general throughout Swiss industry from the 1570s, German after 1600. The Thirty Years' War, fought mainly on German soil, greatly exacerbated and drew out its industry's difficulties. Trade was disrupted, plant and equipment destroyed, population decimated: in 1650 German numbers were back at their 1500 level, and if Switzerland was spared most warfare, broader economic crisis combined with peasant revolts and renewed religious conflicts stopped demographic growth. Yet decay predated the outbreak of hostilities; it was rooted in both the state of markets and the conditions of manufacture.

To begin, consumption of German and Swiss industrial goods simultaneously declined at home and abroad. Mounting burdens on the small-holder majority cut into domestic demand; the languishing state of the peasantry further east obliged it to forgo German and Swiss wares for local ones; Mediterranean and Spanish American markets shriveled. The area's crafts also lost their competitive edge due to rivals' greater success in cutting production and marketing costs, and, at home, to heavier tax burdens, changing government priorities, resource depletion, and rigid production structures. Not all of these conditions obtained in every instance. But they prevailed widely enough to cripple industry. German silver mines, undersold by New World producers using coerced Indian and African labor, did not make major investments that might have maintained significant operations. Increasingly indebted states could no longer afford to aid local industry and had to raise taxes; the wood gobbled up by fuel-intensive glass and metals crafts became scarcer and more expensive. Guilds dominating urban industries sought to protect masters' jobs and incomes in a time of fierce inflation and dwindling sales by reasserting regulations while rejecting cost-cutting innovation.

German and Swiss industries were not entirely disarmed in the face of these problems. Some entrepreneurs tried to reduce their outlays for labor and materials. In new urban crafts – most notably the light woollens established in Rhineland cities by Calvinists fleeing Belgium – they introduced products entailing fewer and simpler steps and indigenous wools. Elsewhere, processes requiring less skill and capital migrated into the countryside to employ members of the growing proportion of farm households unable to maintain themselves solely by agriculture, or took on urban workers outside guild structures. While dyeing and bleaching remained in cities, for instance, barchent weaving moved into rural districts, some of them east of the Elbe. By 1648, this transfer left Augsburg with only 500 barchent weavers, as against 3,000 in 1612. Cologne, too, became a center for putting out linen, barchent, and woollen textile work, as rural industries, already long established, expanded. St-Gallen linens, one of the stalwarts of Swiss industry, began to employ rural laborers together with its traditionally urban workforce.

Implementation of cost-cutting strategies proved a long, slow process that was often stymied. The pervasive destruction and insecurity occasioned by the repeated passage of marauding troops during the Thirty Years' War eroded the allure of village production, often causing German trades to move back into towns. Guilds remained politically potent in many cities and some rural districts, and – as in Italy – territorial governments were often anxious to support what they believed a proper division of labor between agricultural countrysides and artisanal and commercial towns. In a time of intra-Christian conflict, Geneva was not the only municipality to thwart change for reasons of religious uniformity as well as corporate privilege. In industry as in agriculture, traditional ways continued to dominate in German and Swiss lands. Innovations made their appearance, but on so limited a scale that they could not prevent widespread decline.

France From the end of the Hundred Years War to the 1560s, output grew impressively in both existing and new French industries, paralleling the kingdom's agricultural trends. Textiles reaffirmed and extended their primacy, as artisans catered to every taste and pocketbook. Inexpensive woollens came from Normandy, Picardy, Champagne, and Languedoc; Paris and Orléans became tapestry centers of the first rank; Tours and Lyon wove top-notch silks; fine as well as common linens poured from looms in northern and western provinces. Although never matching textiles in importance, mining and metallurgy thrived in many upland areas, papermaking flourished in several districts, and Lyon and Paris took their places among Europe's foremost printing centers.

In industry as in agriculture, too, the Religious Wars ushered in a long period of torpor followed by contraction. Robust resurgence during the first third of the seventeenth century did not last. Even the metal trades, which at first benefited from France's entry into the Thirty Years' War – outlays on artillery, for instance, jumped from 600,000 livres in 1629 to 4 million in 1639 – suffered sharp reverses thereafter. By 1650, iron output was back to 1500 levels.

Export and domestic markets, luxury and mundane goods, contributed to initial French industrial expansion. The silk trades diversified into brocades and damasks woven on *grand-tire* looms adopted from Italy, often besting Italian and Spanish producers in their homelands and elsewhere in Europe. Cheap French light drapery was sold in Iberia, Italy, North Africa, and the Levant, a large proportion of French linens in Spain and its American empire. Demand within France – by far Europe's largest market – burgeoned, first of all by virtue of rapid population growth from 1500 to 1550. Because barely 4 percent of French people lived in cities of more than 10,000 residents at the latter date (just half the urbanization level in the rest of western Europe), rural consumption was crucial – and, up to the 1550s, thrived thanks to agriculture's healthy state and an easing tax burden.

As the sixteenth century progressed, however, both foreign and internal demand slackened. Luxury goods did best for longest, as guild training and regulations, along with government support, helped them win and hold the custom of those Europeans who had gained from the general concentration of wealth. More ordinary manufactures fared less well. Their major export markets were in the Mediterranean – and these economies, we have seen, were atrophying well before the sixteenth century ended. Trade in industrial products with the rising economies of England and the Dutch Republic was much more modest: France chiefly shipped them primary products like wine and salt.

On the home market, items of middling quality and price made by urban artisans and increasingly protected by tariff and exclusionary barriers secured a niche among the upper peasantry and moderately prosperous townspeople. But as a whole, domestic demand contracted. Unlike much of Europe, France did not experience a demographic slump. Nonetheless, the country's population came to a standstill for many decades before inching up by 1650, as more pronounced urbanization only partly offset rural stagnation. More importantly, much of the populace became poorer. Taxes mounted exponentially: royal revenues went up fifteen-fold in nominal terms between 1575 and 1635, eight-fold in terms of grain prices. Concurrently, rents, dues, and food prices also climbed, real wages tumbled, and many peasant holdings shrank.

As throughout Europe, these circumstances forced many rural people to seek additional income from industrial employment, and neither serfdom nor, in most provinces, sharecropping stood in their way. Entrepreneurs transferred preparatory and weaving stages of both coarse and middling quality cloth fabrication into the countryside. This trend was strongly marked in linen manufacture, where peasants could use flax raised on their own holdings, but it also occurred in woollens trades. At the end of the long sixteenth century, however, rural production remained embryonic. Like agriculture once again, industry in France showed promise of change that was as yet little realized. Guilds may have had something to do with this retardation, though despite them some merchants were able to organize rural putting-out systems and hire “unfree” urban laborers (beyond guild jurisdiction). The state of the markets was a bigger problem: what French industry needed was revival of consumption internally and abroad, where new markets had to be opened and existing ones deepened. Both developments were slow in coming, and in the meantime Dutch and English competitors began making inroads – even with domestic French consumers.

Belgium Belgian industries performed poorly during much of the fifteenth century, their problems compounded, in the 1470s–1490s, by political disruption, military destruction, and monetary disorder attendant upon the disintegration of the Burgundian state of which they formed the industrial heartland. From about 1500, however, conditions brightened markedly. Textiles regained their health and premier position: around 1560, half of all exports through Antwerp, far and away the leading port, consisted of fabrics produced in the Netherlands. Traditional heavy drapery, which had long brought renown to Flanders and Brabant, accounted for a constantly shrinking share of output; it was supplanted by lighter woollens, linens, and mixed fabrics produced in town and village alike. Sales at Eeklo, the chief linen market of Flanders, surged from 6,000 pieces in 1509 to nearly 64,000 in 1565; and at Bruges, the weaving of fustians, unknown before 1492, soared to more than 30,000 pieces a year at mid-century. Using techniques that had yet to be mastered across the Channel, Antwerp emerged as the leading center for finishing English woollens: these alone accounted for a fifth of exports from the port in 1560.

Important as cloth remained, Belgium’s industrial revival was broadly based. Eastern provinces, with a proud mining and metallurgical history, saw these industries expand rapidly. In the Ardennes Mountains, ninety blast furnaces and iron foundries about 1500 became 220 in 1565. Around Liège, returns from the coal-mining tax grew thirty-fold over

the first half of the sixteenth century. Finally, towns both encouraged long-established luxury and artistic crafts like tapestry weaving, sculpting, and painting and welcomed a wide variety of new trades including printing, glass-blowing, diamond cutting, sugar refining, and silkmaking.

Of primordial importance to Belgian industrial growth was reviving foreign demand, upon which the area's trades had long depended heavily. This orientation was greatly strengthened by Antwerp's emergence as northwestern Europe's commercial and financial metropole, a development that quickened industry throughout a broad hinterland linked by excellent riverine and overland transport. From the end of the fifteenth century, when the Habsburgs succeeded the dukes of Burgundy as rulers of the Netherlands, industries enjoyed easier access to Iberian and American markets. By also developing close and profitable links with England, France, Italy, and the Baltic region, Antwerp tapped the broadly spreading demand for manufactures while avoiding undue reliance on any single area.

Seconded by Europe's highest level of urbanization and demographic growth, and by richly productive agriculture, exports buoyed Belgian industries until the 1560s. In that decade, however, foreign trade was disrupted by commercial conflicts with England, by disturbances in the Baltic, and by Amsterdam's growth at the expense of Antwerp. Important markets in the Mediterranean entered on the long-term deterioration that also harmed Italian and Spanish industries, and the French Wars of Religion wrought years of havoc. At home, the Dutch Revolt, most radical and violent precisely in Belgian industrial centers, badly dislocated manufacturing. From the later 1560s until the mid-1580s, cities, towns, and villages repeatedly rebelled or were besieged; some were physically destroyed. After their victory – achieved slowly across the 1580s – the Habsburgs sought to reimpose Catholicism on the rebel areas they had reconquered. Refusing to reconvert, many artisans emigrated, and in their new homes abroad they implanted or reinvigorated industries – cloth and metals most of all – that competed with those they had left behind. Domestic consumption, already menaced by declining agricultural productivity, likewise slid in the aftermath of the Revolt, thanks to widespread deurbanization, joblessness, and some of Europe's steepest price rises. In these dark decades, output of many textile crafts tumbled three-fourths or more practically overnight; Antwerp's finishing trades withered as English cloth decamped to Amsterdam and Hamburg; Liège coal tonnage plummeted and Ardennes forges shut down.

Some industries never revived. Others hung on as shadows of their former greatness. As against 200 cloth finishing shops in 1580, just forty were in business in Antwerp in the seventeenth century; the 4,000 silk

weaving employees of 1585 had become 1,500 in 1650. Yet numerous trades recovered briskly once fighting ceased. Urban luxury crafts wooed customers away from Italian goods while also broadening their clientele into the middling ranks of society. They did so in part by developing new products. They also introduced specialized task work and a pronounced division of labor that, by allowing the employment of less skilled and therefore less expensive labor, trimmed production costs and lowered prices. As a result of these efforts, the number of embroidery masters at Antwerp doubled between 1603 and 1616 while the ranks of master diamond-cutters quintupled. The famed Plantin press won the exclusive right to supply Spain and its colonies with breviaries and missals dear to the counter-Reformation Catholic Church. The making of majolica, jewelry, expensive furniture, tapestry, fine glassware, and mirrors also blossomed again in Antwerp and Brussels, fine linen in Ghent.

The iron industry likewise sought to cut costs while focusing on specific market segments. In the Ardennes, production concentrated around Habay, where in the first half of the seventeenth century twenty new furnaces and forges joined the fifteen or so already in existence. Other sites were abandoned, reducing the cost of transporting materials while increasing efficiency because the stages of production (smelting, casting, founding) could be more closely integrated. Habay iron masters specialized in cast iron for the Liège region, which relinquished smelting for the fabrication of arms, hardware, and nails for the Dutch Republic's ship-building and construction trades.

Just as they had been central to earlier growth (and decline), textiles stood at the center of the revival. The resumption of regular trade with Iberia and the Americas once Habsburg rule returned was of consequence, as these markets alone took a third of light woollens around 1600, but the other two-thirds went to Germany, Italy, France, and England. Domestic demand, fueled by urban and especially rural demographic recovery, probably played a weightier role than before. Cheap fabric manufacture – as witnessed by, for example, an eight-fold increase between 1590 and 1648 of rurally woven linen sold at Oudenaarde (east Flanders) – also picked up in villages and small towns as ongoing parcelization of holdings forced ever more peasants to seek additional employment. In contrast to politically fragmented Italy and Germany, in Belgium restored Habsburg rule ensured that neither cities nor guilds could stand in the way of the trend; nor did tenurial conditions restrict the mobility of rural labor. Urban producers, while focusing on standardized middle-market cloth, likewise cut costs by relying on less skilled, lower wage workers, often artisans from failing industries. Once-mighty guilds, their power considerably diluted after the failure of corporate-led regimes

during the Revolt, presented little opposition to entrepreneurial efforts even in towns. Outside their ken altogether were the thousands of urban women and children who, organized by merchants with international connections, took up the heretofore minor craft of lacemaking, enabling their hard-pressed families to survive; other women labored under similar conditions in embroidery, ribbon and trimmings making, and allied clothing trades.

Although probably superior to what was achieved in western Germany and France – not to mention the Mediterranean or east Elbia – the success of Belgian industry should not be exaggerated. By the end of the long sixteenth century, overall industrial output may have climbed back to its 1560s level but did not surpass it. Their abiding reliance on export markets made these provinces' manufactures peculiarly vulnerable both to Europe's general economic malaise and to more specific shocks like the Peace of Münster (1648) – which opened Spain and its colonies to licit competition from goods made in Holland, England, and France – and to protectionist tariffs abroad. In addition, the internal market, though rooted in a high degree of urbanization and a strongly commercialized agriculture, was not only small but limited by the marginal condition of much of the peasantry. Still, their focus on consumers abroad and the availability of cheap labor at home stimulated producers to reduce costs, adopt fresh products, and find new markets. Belgium thus confronted both keen challenges and promising prospects. In particular, it faced developing competition from England and the Dutch Republic.

England At the beginning of the long sixteenth century, English manufacturing ranked well below Europe's leaders. Apart from unfinished and undyed woollens, products of its only notable industry, England's major exports were raw materials such as wool, hides, tin, and lead. Imports satisfied much domestic demand for manufactures. By the end of the period, most of this had changed. Not only had resource exports tailed off – after many centuries, wool shipments to the Continent had virtually ceased by the 1570s – but strong manufacturing growth had made some industries dependent on imported raw materials. Though domestic iron output quintupled between the 1550s and 1650s, for example, it satisfied only half of demand, requiring the import of Swedish iron bars; English cloth production rose so much that raw wool was also sourced from Spain. Largely because of import substitution – which frequently depended on skills, technology, and capital from abroad – foreign manufactures no longer dominated English home markets. Thanks to investments by Antwerp merchants, for instance, the products of English glassworks displaced Continental window panes by

the 1590s, bottles by the later 1620s, and drinking glasses and mirrors during the next decade. Continental techniques also inspired England's first viable water-powered paper mill, opened in the late sixteenth century; by 1650, forty were in operation. Increases in aggregate output outpaced demographic growth, so per-capita advance was likely achieved through productivity gains, a clear reversal from the late-medieval trend.²

Despite impressive increases in iron and coal production, textiles remained both England's leading industry and the only one that sent much output to foreign markets: as in the sixteenth century so in the 1640s textiles comprised 80 percent or more of exports. But that industry was significantly altered. For one thing, its volume was far greater. Per capita cloth output doubled or tripled and (corrected for inflation) sales abroad rose about fifteen-fold in value between the later fifteenth century and the 1640s. Moreover, different types of textiles were woven and they were sent to different markets. Up to the 1550s, nearly all English cloth exports comprised traditional broadcloth and kersey, a lighter and cheaper version, finished in Antwerp and re-exported to northern and east Elbian Europe. But this arrangement was unsettled by commercial and political disputes even before the Dutch Revolt, which essentially destroyed it. Admittedly, commercial and finishing operations were transferred to Amsterdam and Hamburg, and kersey sparked a brief revival shortly after 1600. But the long-term trend of such old drapery exports was unmistakably downward as fashions changed, the Thirty Years' War disrupted traditional markets, and Dutch, Prussian, and Silesian fabrics put up stiff competition.

Kerseys did, however, help to inaugurate new markets in the Mediterranean, which other producers rushed to fill with the textiles destined to regenerate the English industry: bays, says, serges, perpetuanas, and other light and new drapery, as well as mixed fabrics like fustians. Eventually, two-thirds of these cloths were sold in Spain (whence some went to American colonies even before these markets were legally opened in 1648), the rest elsewhere throughout the Mediterranean and, in small quantities, to Africa. In value, lighter woollens exports rose nearly 75 percent between 1604/1614 and 1640; by the latter date, exports of new varieties of textiles may already have rivaled the old.

Foreign markets did not account for all of English industrial growth. Although poorly documented, domestic consumption was important: perhaps, as some historians have it, paramount. This is not surprising. English population rose rapidly and practically without interruption all across the long sixteenth century, the pace accelerating after about 1580.

² Broadberry, *et al.*, *British Economic Growth 1270–1870*, 178–82.

The urbanization level nearly tripled, led by London. A medium-sized city of 40,000 residents in 1500, it was a great metropolis of 400,000 by 1650 – second in Europe only to Paris's 430,000 inhabitants.

Most of the swelling population heightened industrial demand by virtue of numbers, as male real wages fell by half, female yet more; higher labor force participation rates and longer post-Reformation work years may have eased the drop in living standards but could not halt continuing wealth polarization. But some groups enjoyed buoyant real incomes. Prominent among them were the substantial commercial farmers and landowners who undertook the so-called “Great Rebuilding” that endowed rural England with myriad new and improved country homes, farmhouses, and barns, and furnished them in an up-to-date manner; merchants and entrepreneurs were similarly active in cities and towns. Increasingly, too, such people wanted to dress fashionably, dine on pewter or ceramics, rest their weary heads on pillows and their bodies on sheets, and in general acquire more and better goods. Increasingly affluent, commercial, and crowded with specialized artisans, London was singularly influential, adopting, adapting, inventing, and disseminating novel goods, information, and tastes. According to some scholars, a consumer society was starting to emerge in England by the mid-seventeenth century. The appearance of modestly priced manufactures (listed in post-mortem inventories) suggests as well the appearance of a mass market, though its breadth and depth are as yet little understood.

Prosperous English men and women supported the manufacture of luxuries from silks to crystal to coaches. Undeterred by high wages, high rents, and regulation, most such trades were clustered in London, close to the bulk of their customers. But even in London, most industrial workers made more ordinary goods. In the aggregate, crafts such as clothing, leather goods, beer, bricks, tiles, and metalwares destined for domestic consumers were most important; cloth finishing provided the most jobs for much of the period. It too worked mainly for the internal market, because England lacked sufficient skilled artisans to finish cloth to the satisfaction of Continental buyers. In 1614, Alderman Cokayne of London joined with others to foster the industry (and line their own pockets) by persuading the Crown to forbid exports of undressed cloth. But Dutch importers retaliated by refusing to take cloth processed in England, so the scheme collapsed just three years later.

Many London industries operated outside corporate structures, cutting costs by disregarding some rules and employing poorly paid, often female, labor. To reduce expenses further, others moved to the outskirts, where a continually renewed population of displaced rural folk lived just beyond the reach of municipal guilds and government. Some industries

migrated to even more distant areas where the cost of living was lower and guilds had long since been greatly weakened or vanished. By 1600, shoemakers were abandoning London for Northampton, silk throwers relocating to north Essex, hosiers leaving for Nottinghamshire. Independent of these movements, diverse industries sprouted or expanded in many parts of England outside the capital. A minority found towns congenial. Some of these, like fine broadcloth at Worcester, sought with some success (due largely to lower wages) to duplicate earlier trades with their carefully trained and regulated artisans. But most, like new drapery at Norwich and Colchester, Sheffield's cutlery, or the small metal trades of Birmingham and Wolverhampton, were governed by considerably looser structures. In any event, the great majority of English provincial towns remained centers of commerce and services rather than manufacturing; their main industrial tasks were to organize rural production and to trade its raw materials and finished goods.

If numerous towns retained textile crafts, English cloth-making and related clothing trades seem already to have been predominantly rural during the fifteenth and early sixteenth centuries – the heyday of old drapery – and remained so when new drapery took center stage. Spinning, weaving, and fulling were found in villages across England, and some country textile districts became heavily industrialized: in the Forest of Arden, 33 percent of households engaged in cloth production in 1530–1569, 60 percent in 1570–1609. The availability of water to power more productive fulling mills may have played a role in the founding of rural clothmaking. Its subsequent growth, however, depended on the presence of a large, expanding, and little-regulated labor force of land-poor and landless in need of additional work. Like their less numerous fellows who migrated to metropolitan areas, those who remained in the countryside supplied abundant cheap labor for the simplified (and thus requiring less skill) processes that came to prevail. Stocking-knitting alone was said to employ 100,000 mainly farm women in the early seventeenth century.

Government enactments that helped keep down the price of raw materials enabled English industry to reduce costs further. Wool exports were progressively forbidden, and colonial policies virtually forced Ireland's commercial agricultural sector to specialize in raw wool for English producers while blocking the development of an indigenous Irish woollen cloth industry. Before the mid-sixteenth century, England's close integration into Antwerp's orbit helped lower transactions costs, and thereafter England's developing transport, commercial, and financial sectors began to have similar effects. Technological advances, in contrast, were of little significance. In fact, where new methods were available, they met

a good deal of resistance. This might emanate from guilds, which for instance actively hampered the diffusion of knitting frames (invented by William Lee in 1589) before the mid-seventeenth century. Equally important, new techniques were not necessarily cost-effective, even in more capital-intensive trades. Charcoal-fired blast-furnaces raised their capacity from a ton or less before 1600 to two or occasionally three in 1650, but required a substantial initial investment and periodic costly relining, so many iron masters continued using bloomeries.

The preferred – if traditional – way of pruning costs was to develop a new but related product made in fewer and simpler steps. Manufacturing a Yorkshire broadcloth “dozen” of twenty-one square yards employed fifteen people for a week, for example, whereas making and dyeing an eighteen square-yard kersey needed just eight or nine workers for the same amount of time, a productivity gain of 40–60 percent, even apart from savings on raw materials and on wages for less skilled labor. Switching from charcoal to coal, as brewers, glassmakers, and salt boilers did, was another way to keep costs down by substitution rather than innovation. Trades like iron smelting that continued to use wood benefited, too, for they faced less competition and therefore less rapidly escalating prices for this scarce resource, particularly as urban home heating – by far the largest single consumer of fuel – also adopted coal.

The pursuit of lower costs was not, of course, confined to England. But ruralization may have proceeded further there; the country was blessed with abundant coal deposits cheaply accessible to the main population and industrial centers; and government policies promoted or at least did not inhibit cost reduction. After a long period of stability, from about 1600 England’s occupational structure altered in ways that swelled both supply of and domestic demand for industrial goods. By about 1650, agricultural employment had declined from two-thirds to three-fifths of the labor force, industry risen from one-fifth to a quarter, and services (notably trade and transport) advanced from a seventh to a sixth.³ England became, too, one of the most dynamic producers of cloth for export. In international markets, however, English manufactures faced vigorous contenders. The Dutch Republic presented a particularly strong challenge: it not only had a wider variety of industries than England but relied to a much greater extent on labor-saving innovation.

³ Patrick Wallis, Justin Colson, David Chilosi, “Puncturing the Malthus Delusion: Structural Change in the British Economy before the Industrial Revolution, 1500–1800,” *LSE Economic History Working Papers* 240/2016, 19–22. Other estimates place agriculture’s share lower, industry’s higher.

The Dutch Republic In the fifteenth and well into the sixteenth century, the more populous, prosperous, and industrialized southern provinces overshadowed the northern Netherlands. Trades that prospered in the north, like brickmaking and lumber sawing, salt processing, net and sailcloth weaving, herring packing and shipbuilding, serviced the growing domestic maritime and agrarian sectors. In contrast, export-oriented industries, most prominently fine woollens and beer, shrank in the face of Belgian and English competition, changing consumer tastes, and accelerating domestic unrest. Between the 1470s and 1570s, vats brewed fell over 25 percent, while cloth made in Holland (far and away the leading textile province) collapsed from 50,000 pieces to a few thousand.⁴ Thus the dramatic growth in industrial output and impressive diversification that marked the Dutch Golden Age were all the more remarkable because they came on the heels of prolonged domestic industrial decline and just when in most of Europe industries were stalling or slipping.

Beginning in the 1580s, and continuing for nearly a century, industries old and new, urban and rural, export and domestically oriented, expanded memorably. Some places prospered by specializing in discrete crafts or products. Among them were rural districts like the Veluwe (Gelderland), where papermaking grew continuously for more than a century after modest beginnings around 1610. Others were towns. The woollens industry at Leiden, as noted above, was spectacularly reborn. Besides weaving large amounts of fine linens, Haarlem emerged as the bleaching capital of the Continent. By 1628, it processed up to 100,000 mostly imported pieces as against 20,000 mainly local linens in 1586. Yet even when a specific good dominated, like fine ceramics at Delft or pipes in Gouda, no center achieved a monopoly or relied on a single item. Like other pottery towns, Delft also manufactured quotidian ware; though foremost, Leiden was just one of sundry woollens towns, and its industry made multiple distinctive fabrics; Haarlem, Delft, and Leiden all maintained major beer breweries, while Gouda, former brewing center, became known for tapestries.

More varied industrial profiles emerged elsewhere. As it turned into the country's commercial and financial metropole, Amsterdam also developed silk weaving and dyeing, diamond cutting, printing, glass blowing, leather working, and food processing, sugar refining above all. The Zaanstreek, a flat, watery district just north of Amsterdam, became the most modern industrial zone in the Republic – probably in all of Europe. As against virtually none before 1600, by 1630 the region boasted 128

⁴ De Vries and van der Woude, *First Modern Economy*, 275–79.

industrial windmills; three-quarters sawed lumber or pressed oil, the rest milled grain, made paper, or beat hemp. Whereas a handful of small shipyards repaired fishing boats around 1600, in 1670 some sixty big yards made new ships, some of which hunted whales for the blubber-boiling industry that likewise grew up in the Zaan.

Swelling domestic demand had something to do with the extraordinary turnaround. The rate of Dutch demographic advance between 1500 and 1650 exceeded all but the English. The Republic also urbanized rapidly. The proportion of its people living in communities of 10,000 or more, one-sixth in 1500, had reached nearly one-third in 1650, far and away the highest in Europe: four times above England, and half greater than Belgium, long in the lead. Dutch townspeople were increasingly prosperous as well as increasingly numerous. Their ranks included not only merchants, financiers, and entrepreneurs but also artisans and workers. Prices rose in the Dutch Republic, as throughout Europe, and for much of the sixteenth century real wages similarly declined. But from the 1580s, thanks to productive agriculture, burgeoning imports of cheap Baltic grain, and a booming industrial sector that absorbed most surplus farm labor, Dutch real wages diverged from European trends. They jumped some 50 percent between 1580 and 1620 then, despite a subsequent dip, remained Europe's pacesetter for more than a century.⁵ Although the Delft baker who bought a painting from Johannes Vermeer was likely untypical, plenty of his fellows did acquire prints and small paintings, ceramics, furniture, all sorts of cloth, beer, and many other manufactures. The commercialized and increasingly affluent farm population likewise consumed a broad range of manufactures. And to encourage domestic consumers to buy Dutch goods, at times authorities imposed import tariffs on foreign manufactures.

The growing population included numerous immigrants, many from Belgian manufacturing centers. Their arrival in the 1580s and 1590s brought critical skills, capital, and knowledge about crafts little or not at all practiced in the north. Immigrants were responsible for the adoption of new drapery that resuscitated Leiden's woollens manufacture, and for introducing novel industries like linen weaving in Haarlem. Local governments often sought to attract newcomers with incentives like tax exemptions, free worksites, and bonuses. Not all such attempts worked: famously, Delft repeatedly failed to revive its textile industry in this way. But enough prospered to indicate that public assistance contributed to Dutch industrial expansion.

⁵ Jan de Vries, "Dutch Economic Growth in Comparative-historical Perspective, 1500–2000," *De economist* 148 (2000): 453–54.

The critical factor explaining Dutch industrial success, however, was close links with the country's increasingly dominant international trade and associated financial services. As merchants opened new trade routes, reduced shipping rates with improved, cheaply operated boats, superb commercial information, and readily available capital, and developed far-reaching networks, manufacturers enjoyed privileged and progressively less expensive access to markets throughout Europe and beyond, avoiding the dependence on one or a few markets that proved the Achilles heel of many of their rivals. By virtue of the Republic's far-flung and superbly informed commercial networks, moreover, Dutch producers could stay closely attuned to evolving fashions – and respond quickly and profitably. Thus Leiden alone eventually offered its fabrics in at least 180 combinations of materials, patterns, finishes, and prices.

Dutch industries did not simply add new markets; they also widened their customer base. In so doing, they often pursued strategies similar to those attempted elsewhere, but gave each a specifically Dutch inflection. For one, they took up or refreshed the production of high-quality items from cut diamonds to silks. Like their Belgian counterparts and competitors, many Dutch manufactures of this type were offered at prices that put them within reach of upper middling strata. But whereas Belgian producers achieved this result by simplifying production, technical advances were also incorporated in the Republic. When in the 1630s, Leiden again offered its once-signature *lakens*, for instance, they were a lighter, more quickly woven woollen that also had a smooth texture, made possible by innovations in the finishing process.

Again, the Dutch were hardly unique in attempting to develop new industries and market niches. But the Republic's superior commercial and transportation system gave it an edge in supplying the specialized trades known as "traffics" (*trafieken*) that grew up in or near ports to process imported raw materials, largely for re-export. Salt refining at Dordrecht, mechanized timber sawing in the Zaan, and sugar refining in Amsterdam were the most prominent in the long sixteenth century. Similarly, Holland became a major producer of copperware after its merchants got control of Swedish copper output in 1614. Many traffics (not to mention established industries like beer brewing, brickmaking, and linen bleaching) were energy-intensive, yet fuel costs, too, were kept low thanks to Europe's most highly developed network of internal water routes, which efficiently delivered cheap peat from eastern provinces to manufacturing centers in the west. Coal was not the only eagerly dug fuel of the day.

Like their rivals, the Dutch also implemented practices to reduce labor costs whenever possible. In Leiden's light woollens industry, entrepreneurs divided and simplified processes so they could be performed by less

skilled, less well-paid workers, including women and children; Haarlem called on peasant women flax spinners living as far away as Belgium and western Germany. But possibilities for extensive ruralization, the preferred approach throughout Europe, were limited in the Dutch Republic. This was not so much because of opposition mounted by guilds or municipal governments. Instead, the reasons lay within the agrarian sector. As we have seen, specialized agriculture quite fully employed the farm population's labor in the populous western provinces where most industries were located, smallholders and cottagers worked in agriculturally oriented rural crafts, and surplus population left the countryside.

In this context, Dutch industry pursued a distinctive strategy to economize on labor: repeated recourse to new or updated technology. This, too, was not original to the Dutch, as we have observed, but they pursued it more widely, more insistently, and on a larger scale than their predecessors and competitors, and continuously modified machines through tinkering and small but cumulative technical and organizational improvements. Textile crafts were at the forefront. With a so-called "Dutch" loom, invented in 1604, a single worker could weave up to twenty-four ribbons at a time. Already by 1610 entrepreneurs had introduced forty-five of these looms in Leiden. More dramatic, the use of wind-powered fulling mills trimmed the workforce to just a fraction of its medieval total and reduced the once-powerful fullers' guild to impotence. Increasingly large windmills also replaced human and animal – and often smaller water and wind – power in many other industries from papermaking to rice husking. This approach was only viable, however, because Dutch entrepreneurs were able to mobilize large amounts of inexpensive capital to purchase the costly equipment needed. Originally established to amass funds for trading ventures, partnerships (*rederijen*) involving investors large and small, even artisans and farmers, were quickly adapted for industrial purposes. The funds thereby assembled mechanized significant segments of Dutch production.

The shipyards of the Zaanstreek, which used techniques developed and diffused among many competing and complementary producers within a physically limited area, epitomize Dutch innovation. Large operations fitted out with cranes and other expensive equipment, the yards built ships quickly and cheaply. One turned out twenty vessels in twenty-two months; another finished a ship in just five weeks. In 1669, a ship costing £1,300 in England was priced at £800 along the Zaan. Extensive division of labor, employment of subcontractors specializing in a single item such as masts or blocks, and the proximity of auxiliary trades such as sailmaking, ropewalks, and anchor smithies furthered cost-cutting efficiency. With sawmills adjacent, shipyards could carry limited inventories of lumber (their major raw materials cost) and make do with smaller and

thus cheaper sites. Most yards enjoyed economies of scale by focusing on the high-volume production of a few types of ship, notably the *fluit* (flute). Constructed of fir or pine cut in windmills rather than expensive hand-sawn oak, and more simply rigged than other merchant boats, flutes cut manufacturing costs per ton by 40 percent. In addition, these long, shallow-hulled, flat-bottomed vessels were very economical to operate. Flutes required just half as many crew members as conventional ships transporting the same size load and carried no heavy, bulky weapons that displaced cargo. Predictably, they proved enormously popular with ship-owners and merchants across Europe.

The apex of prosperity for Dutch industry came in the third quarter of the seventeenth century, though some crafts continued to thrive well beyond 1700. In its heyday, the Dutch economy – featuring rising output, GDP, and labor productivity, together with high wages and Europe’s only occupational structure where agriculture employed less than half of workers (in fact, 40 percent in the 1660s) – was the exception in a time of stagnation and decay within predominantly agrarian economies. It was an



Fig. 5.2: Central to rising Dutch economic prowess, the “Holland merchant ships commonly known as *vlieten*” (in English “flutes”) epitomized the ability of the Republic’s industry to mass-produce goods thanks to economies of scale, well developed divisions of labor, and inanimate sources of energy. More economical to operate as well as to acquire, flutes became the maritime workhorse not just of Dutch European trade but of shipping across the Continent.

impressive achievement even within a northwestern region assuming European economic leadership. But potential problems should not be ignored: a limited domestic market with growing impoverishment and wealth polarization, innovation that was beginning to stall, heavy dependence on international trade at a time when other states were both learning Dutch technology and initiating protective measures against Dutch shipping and goods. These challenges only grew over the long eighteenth century.

Accounting for Industrial Advance

Specific combinations of factors determined the fortunes of individual European industries, areas, and countries during the long sixteenth century. Many influences – degree of urbanization, government policies, guild interventions, wage and price levels, presence or absence of raw materials – did not consistently correlate with either progressing or lagging manufacturing. Critical for growth – whether for industries like light woollens, regions like northern Italy, or lands like England and the Dutch Republic – were four interrelated elements: a commercial sector that could secure valuable market segments at home and abroad; industries capable of satisfying by product or process innovations (or both) targeted markets; productive agriculture that released labor to full- or part-time industrial work while stimulating domestic demand for manufactures; and supportive or at least not obstructive government policies.

The industrial economies of England and the Dutch Republic shared these traits but were not identical. Though some English textiles were exported, their main market was at home, and while luxury trades clustered in London, manufactures employing rural workers to turn out standardized goods were increasingly numerous. For their part, Dutch industries relied much more on an urban workforce and on labor- and energy-saving technology, and by directing a large part of their output abroad they overcame the limits imposed by small – if broadly affluent – internal demand. Yet for all their success in taking industrial leadership, Dutch and English artisans and entrepreneurs were not alone in seeking productive arrangements that would best allow them to capitalize on good times and adjust with least distress to bad. Across Europe, existing production arrangements were questioned and, in some instances, materially remodeled.

Artisans, Merchants, Verlegers

During the long sixteenth century, production units replicating in size and technology the small handicraft businesses that had long predominated remained the norm across Europe. Some big workplaces were

established in specific favorable circumstances, but few survived for long. Yet if neither the sophistication nor the scale of production altered much, autonomous producers lost ground. What forces promoted this development? What were its manifestations and consequences? What problems did artisans confront and how did they react to them?

Artisans under Pressure

In a few industries, technological innovations appeared that cost more to install and operate than artisans – even associations of artisans – could afford. In the iron industry, for instance, blast furnaces, tilt hammers, wire-drawing machines, and stamping, rolling, and slitting mills drove up fixed capital requirements. Besides the equipment and buildings, expensive in their own right, water impoundment, storage, and delivery facilities were needed. In addition, pig iron turned out by blast furnaces could not be forged until refined further in a new intermediate stage.

Materials, not equipment, constituted producers' major expense in most trades, however. Whereas, in 1583, an Antwerp silk weaver paid twelve guilders for a loom (and amortized that sum over the many years of the loom's useful life), every six weeks he or she had to lay out twenty-four guilders for the two pounds of thread required to make a piece of cloth. Access to affordable raw or semi-processed materials was therefore a constant artisan preoccupation. The disappearance of local supplies could spell the beginning of artisan dependence on merchants who controlled access to materials from more distant sources. In the Dutch Republic, merchants who imported unprocessed salt from France, Portugal, and Spain gained dominance over the refining industry once exploitation of local salt marshes was halted for fear that dikes would be undermined.

Admittedly, we have seen in Chapter 2 that even an artisan relying on imported raw materials could retain autonomy in a *Kaufsystem* so long as they were freely available for purchase on the market at a reasonable price. But should supplies be engrossed, producers' independence could quickly be destroyed. Merchants were not the only threat in this regard. In early seventeenth-century Antwerp, a wealthy master bought up all imported English tin and forced most other pewterers to become his outworkers.

Credit undergirded production but created additional vulnerabilities. The lag of industrial prices behind those of raw materials and foodstuffs, coupled with rising taxes, made repaying creditors difficult for many producers. Periodic downturns, when food prices shot up and demand for manufactures fell off, drove them further into debt or even

bankruptcy, from which they might only emerge by agreeing to sell their products exclusively to merchants or fellow artisans who extended them loans. Frequent enough during periods of growth, such crises became deeper and lasted longer after about 1570, as did war-related disruptions of raw materials supplies and markets.

Artisans' autonomy was imperiled, too, by restrictions on their access to markets resulting from changing trade patterns and structures as well as conscious policy. During the long sixteenth century, a situation like this often resulted from the concentration of export trade in a few great entrepôts, which facilitated the creation of oligopolies and oligopsonies. The disappearance of regional markets where Flemish weavers had previously bought flax and sold linen left them at the mercy of big-city middlemen, who quickly turned them into domestic workers. Formerly independent producers in southern Wiltshire (England), who had bought yarn from spinners or local brokers and sold their cloth to merchants in nearby Salisbury, likewise became subject to London merchants who monopolized both wool supplies and woollens exports.

With good reason, finally, urban artisans feared the growth of industries in the countryside. The spread of village crafts could reduce supplies of raw materials, driving up prices. Rural locations also generally enjoyed lower living costs and wages, and often used fewer or simplified processes, thus undercutting urban products not just on price but on quality, endangering the reputation of an area's wares in distant markets. These preoccupations became a major concern during downturns, when entrepreneurs who in periods of prosperity found urban locations advantageous for controlling standards, monitoring labor, and easing coordination of production focused first and foremost on cutting costs.

In such an environment, many artisans – and elites that championed them for their own political and social objectives – understandably looked to institutions and rules for relief. The proliferation of guilds and restrictions noted in many parts of sixteenth-century Europe may have represented attempts – if often futile ones – to stop any reordering. This was not the only response. Backed by municipal authorities concerned about undertakings deemed socially disruptive and ethically reprehensible (and who hoped to maintain employment levels and tax receipts while minimizing poor relief expenditures), some corporate trades recognized the impossibility of standing still but also sought to manage change for the benefit of autonomous masters. Typically, they negotiated restrictions on shop size, output, amalgamation or integration of production stages, raw materials marketing, and in some instances putting-out and non-guild labor. Such enactments might deter would-be artisan entrepreneurs

(though many violated them), but merchants could still gain from selling finished products, where the bulk of profits were earned, without having to tie up capital in plant and equipment that might lie idle.

Frequently, however, change was permitted, even encouraged, irrespective of artisan sentiment – which itself was commonly divided. Larger producers sought to increase output by adding apprentices and journeymen, combine stages of production, and engage non-corporate workers; smaller producers, lacking the funds for such expenditures, rightly feared that developments would come at their expense. The struggle was not, however, merely among artisans. Noble sheep owners in Hesse won permission to export wool by promising increased tax revenues for a hard-pressed state; only a year later, weavers, who had long enjoyed a near-monopoly on local wool at favorable prices, could no longer afford enough to remain in business on their own and had to go to work for merchants putting out imported wool. And aside from all explicit permission, individuals chafing at constraints imposed on their activities kept violating the rules. Some schemes were ingenious: forming companies in which each partner took charge of one stage of production to evade prohibitions against combining trades. Others were obvious: having work done in villages beyond the jurisdiction of urban corporations. But whether clever or plodding, whether exploiting the rules of the game or in opposition to them, entrepreneurs increasingly seized the initiative.

Industrial Strategies

Putting-out and Subcontracting Attempts to reorganize production dated back far into the Middle Ages and in the long sixteenth century went forward during periods of both growth – already by 1520, for example, enterprises owned and managed by urban traders had replaced almost all the syndicates of working miners in the coal basin around Liège – and retrenchment. Putting-out was widely preferred due to its low startup or entry costs and marked flexibility. An entrepreneur could initiate and expand production with a minimal outlay for plant and equipment, virtually all of which was employees' responsibility; when demand slackened, simply reducing orders or not distributing raw materials cut output quickly without immobilizing capital.

An expanding labor supply heightened the appeal of putting-out to entrepreneurs. The growing throng of landless and landpoor peasants were an important component. But a population suitable for domestic employment was also swelling in suburbs and towns. It comprised immigrants from villages; journeymen excluded from mastership; single women and widows; artisans' wives and children seeking extra income

during decades of relentless inflation; formerly autonomous artisans forced to the wall; and artisans unable to amass working capital to set up on their own.

Putting-out networks appeared in many trades. In some Belgian villages, nearly every family made nails using cast iron rods that merchants supplied. Still, putting-out was most firmly rooted in the textile industries – particularly preparatory and weaving stages – because the same attributes that could bolster small producers also made these trades attractive to entrepreneurs. Manufacture was already or could readily be divided into separate processes learned by family training or in other ways outside formal apprenticeship; for the most part required little capital investment in equipment and thus was available to people with modest resources; and had traditionally been assigned to artisan family members (children carded, women spun, men wove).

In both arrangements, entrepreneurs could avoid the risks involved in fixed capital investment in plant and equipment, so Verlagssystems shaded into subcontracting, though they differed in some respects. Organizers of putting-out networks generally distributed raw materials to non-guild laborers who performed simple operations requiring modest levels of skill and produced items of lesser quality; subcontractors typically hired skilled, often corporately organized workers to make goods of a higher standard. At Antwerp, many sculptors, painters, engravers, and other artists in the Guild of St. Luke worked for merchants on contract; highly skilled Lombard metalworkers devised ornate suits of armor in their own small shops. Yet despite belonging to guilds that jealously protected trade privileges and secrets, they were not (or no longer) autonomous producers but outworkers filling orders for merchant-manufacturers selling on dispersed, specialized markets.

Because of their superior access to capital and markets, not to mention frequent domination of municipal governments and guilds, early modern merchants – like their medieval predecessors – were especially well positioned to become putting-out entrepreneurs. Many scholars therefore refer generically to Verleger as merchant manufacturers. The characterization is often accurate. Just before 1600, for example, the merchant guild of Calw in southwestern Germany secured a monopoly on dyeing and exporting light woollens and fustians manufactured in and around the city; within a few years, fifteen entrepreneurs employed 500–600 domestic weavers, obliged to sell their cloth to them, together with urban dyers and other textile artisans in both town and country.

Artisans also became putting-out entrepreneurs, often engaging as well in commerce and finance, where the largest profits were to be made. Sometimes fullers, shearer-pressers, dyers, and other finishers, who

performed the most capital-intensive clothmaking operations, assembled the resources to take control of poorer artisans in their craft or other stages of textile production; at Geneva, some even became creditors to small-scale merchant-entrepreneurs. Artisans also hired their fellows. In 1610, two Antwerp silk weavers with fifteen looms (the legal limit) in their workplaces employed another 170 in putting-out arrangements. Some artisan entrepreneurs could afford to buy raw materials, extend credit during manufacturing, and market the finished products. Others developed a system intermediate between putting-out and subcontracting: undertaking to provide merchants with goods, they hired other artisans to do the actual work in their own shops while organizing and supervising the production process themselves. Guilds were often powerless to stop such arrangements, and many did not try, because their wealthier members – who in some industrial cities also boasted political power – took the lead.⁶

A Verlagssystem could be very large. Segovia merchants contracted with 200–300 people; Silesian linen entrepreneurs are said to have employed several thousand. Substantial capital could be involved as well. Some big German merchant houses had up to one million florins invested in domestic linen production. Yet most were much smaller, because coordinating and supervising large numbers of people dispersed among many separate workplaces raised costs and reduced efficiency: scale could, that is, generate diseconomies rather than savings. A partnership formed in mid-sixteenth-century Florence by several members of the Medici family to manufacture woollen cloth at a time when the trade was booming dealt with only ten to fifteen outworkers at a time, the majority of whom lived in the city.

Occasionally, putters-out owned means of production that they rented to domestic workers. Frames for knitting ribbons or stockings, for example, were beyond the reach of some artisans who operated them. Equipment rentals amplified outworkers' dependence on the Verleger, a subordination already initiated by advances of raw materials and cash. Nevertheless, putting-out entrepreneurs remained outside the process of production, buying the output of labor – the finished items they contracted for – rather than the labor itself. At times, however, other arrangements were deployed.

⁶ Hugo Soly, “The Political Economy of European Craft Guilds: Power Relations and Economic Strategies of Merchants and Master Artisans in the Medieval and Early Modern Textile Industries,” *International Review of Social History* 53 Supplement (2008): 45–71.

Centralized Production Problems intrinsic to Verlagssystems and subcontracting encouraged some entrepreneurs to enter the sphere of production. In particular, they sought tighter supervision of the workforce in order to enhance coordination of labor-intensive production processes, assure better quality, or diminish opportunities for fraud. These goals did not mandate any increase in size. Nor did technology, since the same equipment was used in centralized as in dispersed shops. So in the main the workplaces established were modest, with a half dozen or so workers. Nevertheless, a few textile entrepreneurs ventured larger shops when their trades were booming and restrictions absent. In the early sixteenth century, William Stumpe set up woollen looms in the buildings of Malmesbury Abbey (England) that he had recently acquired; the extent of his legendary undertaking is in fact unknown, but it permitted him to buy vast landed properties, marry into the local gentry, and enter the governing oligarchy of the county. A few years later, four Antwerp cloth finishers had shops with between twenty and twenty-seven workers apiece, and some ribbonmakers assembled several dozen looms in one location. Oral accounts and contemporary literary works celebrate other proto-factories, though archaeological and documentary corroboration is sketchy and ambiguous.⁷

Numerous city governments also established big workshops in existing hospices and newly founded workhouses to compel paupers and criminals to earn their keep and unlearn the alleged profligacy and laziness which, it was believed, gave rise to their condition. Most of these shops specialized in textile trades such as wool spinning, silk reeling, and dyestuff preparation that demanded little training, skill, or strength; used simple technology and were inexpensive to set up; had a ready market; had typically existed outside the corporate structure; and had traditionally employed large numbers of women, children, and the aged, all groups that loomed large among the poor. Rather than to teach specific industrial skills, workhouses were built to inculcate diligence, order, and routine. From all evidence they failed; they also proved neither economically viable nor replicable models of industrial organization.

No matter how sizable they were, big shops – like their smaller counterparts – usually focused on just one stage of production. Rarely is there evidence of big workplaces that combined trades. Still, one textile shop in Segovia performed every task from preparing raw wool to shearing woven cloth; by 1574, more than 100 people worked there, along with additional

⁷ Christine Jackson, “Boom-Time Freaks or Heroic Industrial Pioneers? Clothing Entrepreneurs in Sixteenth- and Early Seventeenth Century Berkshire,” *Textile History* 39 (2008): 145–71.

spinners living up to fifteen leagues away.⁸ Amsterdam, too, had centralized shops in which dozens of women and children performed several stages of silk production, often using mechanical equipment. But these proto-factories were exceptional. In the main, they focused on costly fabrics for which better quality control and speedier turnover of the substantial working capital were central entrepreneurial concerns. Even so, domestic outworkers wove most Amsterdam silk, and even in Segovia the great majority of cloth was made by scores of petty producers focusing on their separate crafts. Moreover, big cloth shops were only found during prosperous times and were dismantled when markets contracted; the Segovia establishment had disappeared by the end of the sixteenth century, along with its English counterparts.

The most successful and longest lived big textile shops were not in Europe but in Iberian America. Spanish colonists founded *obrajes* in New Spain (Mexico), the upland Andes, and Jesuit estates in Paraguay and northern Río de la Plata (Argentina) to supply woollen and cotton fabrics to indigenous and immigrant consumers who could not afford imported European or Asian fabrics. With 50–100 or on occasion even more workers, these integrated businesses performed every stage of manufacturing, from raw material processing through weaving, fulling, and dyeing. Frequently, they used wool and cotton from the *haciendas* of their merchant-entrepreneur or clerical owners, sometimes spun domestically in putting-out arrangements, but other stages were carried out in centralized shops under the supervision of Spanish or *mestizo* managers. Obraje equipment was imported from Europe but their coerced male and female labor force comprised both Amerindians owing encomienda (labor tribute) service and increasingly, as Spanish officials restricted indigenous exploitation, enslaved Africans. Protectionist imperial policies and poor internal transport that raised the price of competing imported cloth above what their predominantly low-income customers could pay helped *obrajes* survive, and together with their cheap labor force gave them no incentive to innovate technologically or organizationally. Changes in policy and fashion, better infrastructure, and, from the eighteenth century, the massive arrival of cheaper imports finally led to their demise, not transformation.

Centralized workplaces had always been the norm in European mining, peat-digging, salt boiling, and other types of resource extraction; in milling and other trades powered by wind and water, which could only be transmitted over very short distances; in metallurgy, soapmaking,

⁸ Ángel García Sanz, *Desarrollo y crisis del Antiguo Régimen en Castilla la Vieja: economía y sociedad en tierras de Segovia de 1500 a 1814* (Madrid, 1977), 213–18.

tanning, glassmaking, beer brewing, and other industries in which several raw materials were brought together for processing; in installations like sugar refineries and blast furnaces that required large capital investments in equipment; and in construction, shipbuilding, and other assembling work. Centralization also stamped new trades such as printing that integrated several tasks.

As in the Middle Ages, many of these workplaces remained small and achieved low productivity. But in virtually all these industries, entrepreneurs attuned to the market attempted to raise output by investing in expensive equipment. Highly capitalized businesses did not necessarily have large labor forces. At Antwerp, while a blast furnace costing 3,000 guilders occupied ten or twelve artisans, breweries (6,000 guilders without implements) employed at most seven or eight men and two or three women, and just twenty to thirty people labored at a sugar refinery renowned for its size and worth 11,800 guilders. Even Christophe Plantin's printing office, Europe's largest and valued at 18,600 guilders in 1565, employed a maximum of fifty-six artisans, though usually the total was a dozen or so fewer. But in all these shops, ratios of capital to labor were high by the standards of the day. Fixed capital per worker in Antwerp tanning, for instance, was at least ten times as much as in silk weaving (which itself used expensive equipment compared to other weaving trades), and was perhaps twenty times as high in the big sugar refinery. Moreover, additional large sums were constantly needed to maintain machines built substantially of wood, leather, hemp, and other materials requiring frequent replacement.

At times, however, new technology made industrial plants both more capital intensive and bigger employers of labor than in the past. Producing salt by boiling brine drawn from springs used special coal-burning furnaces, massive but quickly worn out iron pans, watercourses, and numerous buildings, all of them quite expensive. Because the new equipment effected substantial economies of scale, saltworks with fifty, one hundred, or even more workers began to appear. Mines grew even larger wherever the medieval pattern of multiple small, shallow, little-capitalized mines disseminated across a wide area yielded to the concentrated working of one big pit with the aid of imposing fixed investment, much of it in related crafts like founding and smelting. In 1581, the copper mine at Neusohl (*Banská Bystrica*) in Bohemia, which installed such modern equipment as gravitational draining pumps, employed 607 people: 233 pickmen; 359 carpenters, ore haulers, and related helpers; fifteen clerks and administrators. Even larger was Spain's Almadén mercury mine, run by the Fuggers, renowned German merchants and financiers, under a very lucrative concession. In the early seventeenth century,

it employed up to 450 pitmen, 300 more in the drainage countermine, 270 in cartage, and 150 in ovens and associated works.

In structurally concentrated trades, as in textiles, great workplaces were largely a phenomenon of periods when demand was swelling. Even then, however, such units remained exceptional because demand was neither big nor constant enough to justify continuous large-scale production, or because output was intended for specific and transient purposes. This explains the fate of the large, vertically integrated building enterprise set up in the late 1540s by Gilbert van Schoonbeke, a rich self-made Antwerp entrepreneur. It had fifteen brick-kilns, along with storage buildings and sixty houses for the 400–500 workers who operated the kilns; several chalk-burning ovens; and several hundred hectares of fen with five dormitories for the one hundred or more workers who dug peat to fuel the kilns and ovens. But once the new ramparts around Antwerp were completed – the *raison d'être* of the enterprise and one that yielded Schoonbeke a gross profit of 30–50 percent – the business was disbanded.⁹

Municipal workhouses opened during and persisted across boom and bust, even though they quickly proved industrial white elephants. Provided with inferior materials and incompetent supervisors, the cheap but essentially coerced labor of youthful, aged, infirm, or unwilling tenants in institutions from Amsterdam's *rasphuis* (a workhouse that specialized in scraped – rasped – brazilwood, a red or purple dyestuff) to York's hosiery knitting school turned out low-quality but expensive goods that few consumers would buy. At best, like the poor sick women and children who reeled silk in Geneva's *Hôpital Général*, workhouses served as auxiliary suppliers for manufacturers. But they survived because they obeyed not an economic but a welfare, fiscal, or correctional logic: busying otherwise idle hands, relieving – if only marginally – municipal welfare budgets, or, most often, imprisoning populations from prostitutes to beggars.

Such anomalies aside, from Segovia to Wiltshire, large-scale units of production collapsed or were abandoned in the later sixteenth and seventeenth centuries as entrepreneurs sought maximum flexibility to cope with increasingly uncertain markets. Only in those industries – the greatest cluster of which was located in the Dutch Republic – where big workplaces were a function of productivity-enhancing technological innovation could they find an economic justification. Elsewhere, concentration diminished as entrepreneurs redeployed their investments. Who

⁹ Hugo Soly, *Urbanisme en kapitalisme te Antwerpen in de 16de eeuw: De stedebouwkundige en industriële ondernemingen van Gilbert van Schoonbeke* (Brussels, 1977).

were the individuals making these decisions? How did they structure and manage the businesses in which they chose to invest?

Entrepreneurs, Finance, and Organization Industrial entrepreneurs came from many social strata, including artisans and peasants, but whether in town or country, in Verlagssystem or centralized workshop, merchants predominated in all lines of business. Unsurprisingly, big international traders were the largest source of funds for export-oriented manufactories, not just Dutch trafieken but textiles throughout Europe. On capital-intensive rural projects they often cooperated with wealthy landlords. Big peat-digging undertakings in fenland areas of the northeastern Netherlands, which employed hundreds of wage laborers, were jointly financed by merchants and nobles who invested tens of thousands of guilders in canals, bridges, locks, and other equipment needed to prepare the land and to transport the peat to industries and households in Holland. On their own, landowners throughout Europe – including monasteries – had long made loans to small miners who dug on their property; now they started to finance expensive big mines as well. A few also possessed industrial mills and were active in the metal trades, for besides capital (often raised by mortgaging their land) they controlled critical resources, notably water and timber. Demesne lords in east Elbia might start industrial activities on their estates, textiles most of all; in areas with sizeable woodlands some founded energy-intensive industries like brickyards and glass-works, though these apparently remained small businesses producing for local customers using simple, even outdated technology.¹⁰

Governments concerned to assure secure supplies of materials for weapons and enhance revenues might help finance or even owned outright mines and foundries; most often, however, their key role was to assist undertakings by offering incentives ranging from monopolies to monetary grants, or by overriding guild objections. Master-entrepreneurs seem mainly to have subcontracted or employed additional workers in their own workshops that specialized in one stage of production. But at least in parts of England, a few weavers and finishers assembled funds from inheritance, marriage, gifts from former employers, or borrowing, and gradually developed substantial centralized workplaces that integrated most cloth-making operations in one building or a single complex, though spinning typically remained a task for female outworkers.

¹⁰ Carsten Porskrog Rasmussen, “Innovative Feudalism. The Development of Dairy Farming and Koppelwirtschaft on Manors in Schleswig-Holstein in the Seventeenth and Eighteenth centuries,” *Agricultural History Review* 58 (2010), 180.

Large putting-out systems might be assembled by a single person, although the Medici company cited above indicates that several people might band together to form even modest networks. Nobles, sovereigns, and ecclesiastical institutions typically kept sole possession of enterprises established on their estates. Syndicates or partnerships usually owned centralized manufactures. Whether Zaan windmills or Bohemian mines, such properties were divided into eighths, sixteenths, thirty-seconds, or even smaller parts; an individual might, however, own more than one share. To spread risk yet also control sizable output, entrepreneurs often bought shares in many large enterprises or owned outright numerous small ones.

As in the past, many owners of centralized workplaces were simply investors who leased plant and equipment to individuals or associations of artisans in return for cash payments and, usually, a percentage of output. But some, sensing opportunities for greater profit, got involved in operating their properties. Evidence from ironmaking in French-speaking (Walloon) Belgium shows that even in a single industry entrepreneurs implemented several approaches. At times, a collective of masters owned a forge, each master having the right to use it for a fixed number of days per month. Merchants who bought up masters' holdings often continued this practice, but now they employed the previous artisan-owners for money wages to produce goods during their assigned periods. Merchant-owned slitting mills, rolling mills, and cannon works, however, were exploited by means of putting-out: raw materials were distributed to journeymen and other artisans paid by the piece or by weight but working on their own or in small groups. Finally, several leading entrepreneurs (men who owned up to five forges and five furnaces apiece) took on a yet more active executive role, engaging skilled artisans as salaried managers and foremen who assembled and supervised a labor force of wage earners.

In the central German glass industry, it was masters who became entrepreneurs. During sixteenth-century expansion, coal replaced wood for fuel and expensive glass-cutting machines were installed. Works became larger, employing twenty to thirty artisans as against ten before, and operated all year round rather than halting in winter. As in the Walloon iron industry, associations of masters had formerly owned or leased glassworks; each master had used the facility for just a few weeks, so each could only employ a few journeymen, who for their part could count on eventually attaining mastership. But the bigger, more heavily capitalized works belonged to just one or a very few masters. They ceased laboring to become full-time supervisors of wage-earning journeyman, who now rarely entered the masters' ranks. As the market contracted in the seventeenth century, however, few masters had sufficient resources to

operate their own glass-works, so although the new technology and scale remained, ownership became increasingly dispersed once again. Their use of the works reduced, each small part-owner had to work alongside a few journeymen. Handicraft production was reborn, albeit in a technologically modified context.

Entrepreneurial Initiatives

During the long sixteenth century, European industries were an amalgam of traditional and innovative goods, techniques, and structures superimposed on a mosaic of advancing and lagging trades, districts, states, and regions. All these interacted with equally complex developments in the commercial and agrarian sectors – not to mention demographic movements, religious upheavals, state-building processes, and military conflicts – creating multiple new opportunities, as well as risks, in increasingly specialized and competitive markets.

Northwestern Europe, especially the Dutch Republic and England, proved best able to take advantage of this dynamic configuration of forces. They also advanced furthest in reorganizing industry. Of course, all across the long sixteenth century, many Europeans continued to labor autonomously. Most were city dwellers fortunate enough to enjoy the security afforded by skills, guilds, and/or political authorities. Yet peasant families with direct access to raw materials also took up craft work when farm tasks were light – or times bad – making clay pots, wooden utensils, cheap cloth, footwear, and other simple goods that they sold in nearby markets; at times, they organized rural associations that secured local monopolies.

Still, in town and country alike entrepreneurial initiatives gained ground. Most prominent were putting-out and subcontracting, which melded centralized direction and dispersed production. At a time when demand was particularly volatile and largely a function of forces that lay outside the control of individuals or businesses, and when in most trades circulating capital for wages and raw materials were the chief components of production costs, putting-out and subcontracting appealed to entrepreneurs seeking enhanced flexibility and profitability.

Output could quickly be adjusted simply by augmenting or reducing the flow of raw materials, orders, and credit, so putting-out and subcontracting improved responsiveness to shifts in demand. Both cut labor costs by employing workers who lacked corporate or other protections. Obliging employees to provide their own implements and facilities, they not only offloaded fixed capital costs onto labor but forced it to bear much of the brunt of market fluctuations. Most generally, putting-out and subcontracting arrangements allowed entrepreneurs to make the most

of lucrative commercial and financial operations – selling raw materials and finished goods, and extending credit – while minimizing their costs and risks of production.

Some entrepreneurs did invest in plant and equipment. The record of such enterprises was mixed at best. When based on concentrations of workers using existing methods, they usually proved ephemeral unless propped up for non-economic reasons. Those rooted in productivity-enhancing technological change had the greatest chances of success. Even they, however, could prove vulnerable to market disturbances that increasingly wracked the European economies as the long sixteenth century drew to a close. Given those challenges and generally falling real wages, it is little wonder that labor- rather than capital-intensive methods – the multiplication of existing production units and practices, not risky innovation – retained their appeal so dominantly. Only the Dutch, who increasingly commanded key market segments, introduced productivity enhancements widely; even so, numerous Dutch industries followed the same path of extensive production as their competitors abroad.

A combination of commercial, agricultural, and industrial innovation made the Republic Europe's most dynamic economy over most of the seventeenth century. Thereafter, however, European economic leadership passed out of Dutch hands, while at the end of the period the underlying structure of the European economy began to be transformed. What happened and why is the subject of the remaining chapters.

Suggested Reading

Overviews of national and regional economies and of industry and work organization cited at the end of Chapter 2 often contain valuable material on the long sixteenth century. More focused studies include *The Rise and Decline of Urban Industries in Italy and in the Low Countries: Late Middle Ages–Early Modern Times*, ed. Herman Van der Wee (Leuven, 1988); *Innovation and Creativity in Medieval and Early Modern European Cities*, eds. Karel Davids and Bert De Munck (Farnham, UK, 2014); Michael Zell, *Industry in the Countryside. Wealden Society in the Sixteenth Century* (Cambridge, UK, 1994); *The New Draperies in the Low Countries and England, 1300–1800*, ed. Negley Harte (Oxford, 1997); John Hatcher, *The History of the British Coal Industry. Vol. I. Before 1700: Towards the Age of Coal* (Oxford, 1993); Richard W. Unger, “The Technology and Teaching of Shipbuilding 1300–1800,” in *Technology, Skills and the Pre-Modern Economy in the East and the West*, eds. Maarten Prak and Jan Luiten van Zanden (Leiden, 2013), 161–204; Carla Rahn Phillips, *Six Galleons for the King of Spain. Imperial Defense in the Early Seventeenth Century* (Baltimore, 1986). Joan Thirsk, *Economic Policy and Projects. The Development of a Consumer Society in Early Modern England* (Oxford, 1978), treats newly developed industries; essays in

Consumption and the World of Goods, ed. John Brewer and Roy Porter (London, 1993), look at consumers who bought their goods.

Many works noted above and after Chapter 2 also investigate the closely related topics of organizational changes, guilds, artisan life, and technological innovation. See also Richard J. Salvucci, *Textiles and Capitalism in Mexico: An Economic History of the obrajes, 1539–1840* (Princeton, 1987); *Guilds, Markets and Work Regulations in Italy, 16th-19th Centuries*, eds. Alberto Guenzi, Paola Massa, and Angelo Moioli (Aldershot, UK, 1998); *Craft Guilds in the Early Modern Low Countries. Work, Power, and Representation*, eds. Maarten Prak, et al. (Aldershot, UK, 2006); *International Review of Social History* 53 Supplement (2008); José Antolín Nieto Sánchez and Juan Carlos Zofio Llorente, “The Return of the Guilds: A View from Early Modern Madrid,” *Journal of Social History* 50 (2016): 247–72; *Learning on the Shop Floor. Historical Perspectives on Apprenticeship*, eds. Bert De Munck, Steven L. Kaplan, and Hugo Soly (New York and Oxford, 2007); *The Artisan and the European Town, 1500–1900*, ed. Geoffrey Crossick (Aldershot, UK, 1997); James Farr, *Artisans in Europe, 1300–1914* (Cambridge, UK, 2000); Carlo Belfanti, “Guilds, Patents, and the Circulation of Technical Knowledge: Northern Italy during the Early Modern Age,” *Technology and Culture* 45 (2004): 569–89; Carlo Belfanti, “Between Mercantilism and Market: Privileges for Invention in Early Modern Europe,” *Journal of Institutional Economics* 2 (2006): 319–38; Liliane Hilaire-Pérez and Catherine Verna, “Dissemination of Technical Knowledge in the Middle Ages and the Early Modern Era: New Approaches and Methodological Issues,” *Technology and Culture* 47 (2006): 536–65; Karel Davids, *The Rise and Decline of Dutch Technological Leadership. Technology, Economy and Culture in the Netherlands, 1350–1800*, 2 vols. (Leiden, 2008); Joel Mokyr, *The Lever of Riches. Technological Creativity and Economic Progress* (New York, 1990).

Part III

Introduction: From Seventeenth-century Crisis to Long Eighteenth Century

Economic difficulties marked the end of the long sixteenth century. Farm output shrank. Pastoral raw materials production contracted: the kingdom of Naples' wool production halved between 1612 and 1686, while from 1612–1620 to 1662–1670 Spanish Mesta wool exports sagged 40 percent. Yields diminished, most sharply in east Elbia; cultivated areas decreased more widely: half in Koscian county Poland, a fifth in northern Italy. Agricultural prices, land values, and (in some places) rents and tithes, stagnated or fell. Industrial production faltered, and many enterprises failed. World trade grew just 0.66 percent per year in constant prices, as against 1.26 percent annually in both the sixteenth and eighteenth centuries;¹ intra-European commerce was sluggish at best. “Price revolution” turned into deflation; population growth halted and at times reversed. Though most conspicuous between about 1620 and 1670, hard times in some areas began earlier and persisted later, in a few cases into the early 1700s.

Historians have proposed disparate interpretations of what has been named the “crisis of the seventeenth century.” For some, it betokened a normal downturn, following expansion begun in 1450/1470, in a two-stage economic cycle; in Wallerstein’s world-systems variant, a “Phase B” of contraction and consolidation within a capitalist world-economy constructed during the long sixteenth century “Phase A.” To others, the difficulties evinced a classic pre-industrial Malthusian crisis: demographic growth had increasingly – and inevitably – outpaced agricultural output, leading to acute subsistence problems and their harsh resolution, notably positive checks (famine beginning in the 1590s, repeated bouts of epidemic disease across the first half of the seventeenth century, recurrent hostilities into the early eighteenth century) that depressed economic activity until equilibrium was restored between population and resources. Monetarists blame the era’s economic woes on a dwindling money supply rooted in declining Andean silver production after its 1600 peak, and on monetary instability in Europe

¹ Kevin H. O’Rourke and Jeffrey G. Williamson, “After Columbus: Explaining Europe’s Overseas Trade Boom, 1500–1800,” *Journal of Economic History* 62 (2002): 421.

due to widespread clipping of gold and silver specie, minting of despised copper coinage, and numerous currency devaluations.

Other scholars emphasize factors beyond the strictly economic. Repeated conflicts unfolding across Europe and its colonies from the Thirty Years' War (1618–1648) to the War of the Spanish Succession (1701–1714) caused a great deal of damage. Troops commandeered supplies, compelled payment of ransoms and other levies, burned and pillaged. Manpower shortages, disorganized domestic markets, and interrupted access to foreign consumers added to heavy losses from ruined crops, slaughtered livestock, demolished shops and equipment. As soldiers spread epidemic disease well beyond war-ravaged zones, brutal mortality crises recurred. Financing enormous outlays for men and matériel by stiff, usually regressive taxation and massive borrowing cut into demand and investment. Historians of climate point to a century of extreme weather starting in the 1610s: severe drought, excessively wet summers, bitterly cold winters resulting from reduced sunspot activity and volcanic eruptions that diminished the amount of solar energy reaching the earth, as well as accelerated El Niño-Southern Oscillation cycles. This "Little Ice Age" shortened growing seasons, helped cut crop yields, prompted changes in land use, affected death rates, and, it is argued, these harms ramified throughout the economy.

All these explanations have been challenged on conceptual and empirical grounds, and for giving only partial accounts of seventeenth-century economic conditions. While correlations between climate and some types of economic distress are accepted, the causal relations between them remain unclear, and institutional adaptations often mitigated the impact of unfavorable climatic developments. Rather than attesting to a Malthusian crisis of production, recent studies indicate, demographic reverses either were occasioned by visitations of disease essentially independent of the state of agriculture and of the economy more generally, or stemmed from rather than gave rise to economic problems. Despite some glaring exceptions, moreover, population loss was milder and more regionally specific, and recovery much swifter, than in the later Middle Ages, in part because seventeenth-century epidemics tended to be highly localized, unlike the fourteenth-century plague, which touched nearly every corner of Europe. Whereas at least a century passed before broad demographic growth recommenced after the Black Death, the 5 percent of Europe's population lost between 1600 and 1650 was more than replaced by 1700. More striking, urbanization continued to rise across most of Europe, not just in northwestern lands where it accompanied population growth but even in Germany and France, which experienced overall demographic decline. Italy and Spain, however, stood out for

suffering both declining population in the first half of the seventeenth century and secular de-urbanization.

Adverse conditions often had offsetting benefits. Though preparing for, fighting, and paying debts consequent upon war were costly, military spending profited armaments and shipbuilding industries, regions that depended on them, and both existing and newly founded ports. The greatly enlarged armed forces of the time gave jobs to crowds of men, most of them from poorer strata of the population, and by absorbing under- or unemployed labor enhanced aggregate demand. For numerous Europeans, indeed, the seventeenth century was not an era of difficulties. If landowners faced falling rents (of up to 50 percent in parts of Spain and Italy), lower rates helped their tenants. Though depressed commodity prices pushed down commercial farmers' incomes, laborers enjoyed a respite after the long sixteenth century, when real wages had been cut in half as food prices rose twice as fast as pay. Now, thanks to both moderating prices and tighter labor markets, real wages stabilized or, in especially favored places, increased. And for the Dutch, the seventeenth century was their "Golden Age," when the Republic's dominance of foreign trade and finance, together with efficient agriculture and industry, assured it economic hegemony while fostering cultural efflorescence.

The complexity of seventeenth-century economic experience was central to Eric Hobsbawm's influential 1954 essay arguing that the period encompassed both collapse of an outmoded socioeconomic formation and birth of a new one. This dialectic of decline and advance, "economic retrogression" and radical transformation, constituted "the last phase of the general transition from a feudal to a capitalist economy." Expansion during the long sixteenth century, while impressive, had perpetuated much of the old order that distorted investment, curbed demand, and ultimately halted growth, leading to what Hobsbawm termed "the 'general crisis' of the European economy during the seventeenth century." Yet the economic distress and associated social and political disruption of that crisis also created opportunities for a "fundamental . . . solution," a possibility realized most completely in England, where political revolutions (1642–1660 and 1688–1689) removed crucial obstacles to requisite structural change. The seventeenth-century crisis thus marked a decisive turning point for capitalism's development. "Considerable concentration of economic power" and large-scale growth in home and colonial markets generated a "forced draught," allowing a capitalist economy to develop "without substantial checks" from the early eighteenth century on.²

² Eric J. Hobsbawm, "The Crisis of the Seventeenth Century," in *Crisis in Europe 1560–1660*, ed. Trevor Aston (London, 1965), 6, 5, 31, 44.

An intervention into then-heated Marxist debates about the rise of capitalism, Hobsbawm's paper stimulated discussion and scholarship for several decades. But as interest in grand theories of economic and social change waned, historians discounted the significance of the seventeenth-century crisis, or neglected its transformative aspects to focus on the era's undeniable setbacks. Lately, however, Jan de Vries has advanced a revised version of Hobsbawm's thesis. De Vries' account identifies 1600–1650 as central. Economic difficulties were especially severe in those decades; atypical demographic, urbanization, and income trends distinguished northwestern from the rest of Europe; and unique commercial, industrial, and political developments created preconditions for growth that would propel first the Dutch Republic and then England into economic leadership. Intercontinental trade organized and financed by merchants in booming Atlantic port cities introduced new consumer products; mainly rural proto-industries provided households with the wherewithal to purchase these increasingly cheap "incentive goods" and popularly priced domestic manufactures; and institutional innovations promoted investment over the rent-taking that remained characteristic in other European societies.

Numerous aspects of seventeenth-century European economic history remain matters of debate. But it was undeniably a period of adjustment as well as retrenchment, of new initiatives as well as regression. These developments intensified differentiation within as well as across regions. During the subsequent "long eighteenth century" between the later 1600s and the early 1800s, notable advances occurred. Not all groups, sectors, or areas gained equally, however; some suffered serious reversals. Initially modest, population gains accelerated after 1700; by 1800, Europe's numbers were nearly two-thirds greater than in 1650 (see Appendix A). The general pattern, however, obscured significant differences. East Elbian population grew 27 percent between 1700 and 1750 (nearly double the rate of the rest of Europe), and northwestern states a record 45 percent in 1750–1800, while Central and (particularly) Mediterranean Europe increasingly lagged behind the overall rate of increase. There were a third more French people in 1800 than in 1650 – but more than twice as many Germans; the Dutch Republic was barely a tenth more populous, neighboring Belgium two-thirds larger, and Irish numbers had jumped 233 percent. Urbanization climbed, but much more slowly than in the past (a gain of just 20 percent, 1650–1800, as against 48 percent between 1500 and 1650) and with even more significant disparities (see Appendix B). The British Isles stood apart: England and Wales rose from 8.8 percent urbanized to 20.3 percent, while Scotland soared from 3.5 to 17.3 percent. Much of the rest of the Europe either urbanized slowly, marked time, or deurbanized, the declines especially notable in Belgium and the Dutch Republic.

The countryside experienced more positive and more general – if still uneven – growth; again, however, not everyone benefited. Particularly during the first half of the eighteenth century, land productivity recovered: by 1750, northwestern European yields stood as much as 50 percent above their low points and the rest of the Continent also registered substantial, albeit lesser, gains. Land returned to cultivation, and clearing and reclamation resumed: in the southwestern German Breisgau, for example, hectares under the plow grew 74 percent from 1699 and 1798. Agricultural production and trade rebounded smartly. In the Pays de Caux (Normandy), from 1713 to 1790 cereal output advanced 60 percent and livestock herds expanded more than 50 percent. Between 1686 and 1806, Dogana sheep numbers tripled from their low point in the previous period. Spanish Mesta exports doubled between 1692 and 1730, then doubled again by 1780. Agricultural commodity prices, already rising in southern and east Elbian Europe in the 1730s, quickened their upward pace during the second half of the century; by the 1790s, they were double, even triple their crisis nadir. Land became a lucrative investment once again: leases on pastures in the Auvergne (France) went up nearly three times; land prices and rents in northern Germany tripled between 1740–1760 and 1801–1805. These developments aided landowners and commercial farmers, but increasingly squeezed tenants and consumers.

Real wages had already begun to increase in the Low Countries and England in the seventeenth century; improvement became widespread by 1700 – only to reverse nearly everywhere from 1750 as inflation heated up. Industry also experienced broad growth, particularly in the countryside, yet some trades did not participate for long, or at all. Concomitantly, and with gathering force in the decades prior to 1800, technical and organizational innovations began to change the face of industry. Commercial developments within Europe and across the globe were central to all these phenomena.

Suggested Reading

Hobsbawm's original essay was reprinted and updated in *Crisis in Europe 1560–1660*, ed. Trevor Aston (London, 1965). The debate it sparked can be sampled in *The General Crisis of the Seventeenth Century*, eds. Geoffrey Parker and Lesley M. Smith, 2nd ed. (London, 1997), and in works listed after Chapter 1. Jan de Vries, "The Economic Crisis of the Seventeenth Century after Fifty Years," *Journal of Interdisciplinary History* 40 (2009): 151–94, reconsiders and reinterprets Hobsbawm while surveying scholarship on the seventeenth-century crisis. Immanuel Wallerstein succinctly outlines his position in *The Modern World-System II: Mercantilism and the Consolidation of the European World-Economy*,

1600–1750, new ed. (Berkeley, 2011), 24–29. Gregory Clark, *A Farewell to Alms: A Short Economic History of the World* (Princeton, 2007), provides a Malthusian explanation. Geoffrey Parker, *Global Crisis: War, Climate Change and Catastrophe in the Seventeenth Century* (New Haven, 2013), presents far-reaching claims for the impact of the “Little Ice Age” on events around the world. For the most consequent conflict’s impact, see *The Thirty Years’ War*, ed. Geoffrey Parker, rev. ed. (London, 1987). Guido Alfani, “Plague in Seventeenth-century Europe and the Decline of Italy: An Epidemiological Hypothesis,” *European Review of Economic History* 17 (2013): 408–30, examines the dissimilar incidence and effects of disease on European economies.

6 Commerce, Capital, Consumption

Seventeenth-century troubles spared no form of commerce, though intercontinental trade was least afflicted and for the shortest time. Already in the 1640s Asian routes began to recover, Atlantic a decade later. By about 1700 revival was general, including within Europe. Established products were central to renascent trade. Many, however, now came from new areas: the Caribbean replaced Brazil as premier sugar supplier, while Brazil became the world's preeminent source of gold; Scotland, Ireland, and Silesia turned into important linens exporters. Novel items (such as potatoes, maize, tomatoes, and cotton textiles) were introduced or metamorphosed from curiosity to commonplace. Concomitantly, long-distance and intra-European commerce became more integrated, altering trade patterns and goods exchanged among Europeans; though Iberian-Italian traffic intensified, merchants from northwestern lands increasingly took charge of Mediterranean commerce. Mercantile relationships also altered: once Portugal's main trading partner, France took fewer Lusitanian re-exports as direct French exchanges with the Americas and East Indies burgeoned, so Portugal turned increasingly to England.

To boot, the ranks of the major protagonists were shuffled. Iberian global commercial dominance in the long sixteenth century was destroyed during the crisis. Leadership passed first to the Dutch, but as the eighteenth century advanced Britain and France faced off commercially as well as militarily worldwide. French commerce grew more rapidly. A recent estimate calculates that French imports rose an average of 2.92 percent per year between 1716 and 1787, exports and re-exports 2.16 percent, as against 1.98 percent and 1.29 percent respectively for England between 1722–1724 and 1784–1786. As a result, France's foreign trade, perhaps half Britain's in value in the early eighteenth century, exceeded it in the 1780s.¹ Per capita, however, British foreign trade was well in the lead; moreover, Britain's prospering free settler colonial

¹ Guillaume Daudin, *Commerce et prospérité. France au XVIII^e siècle*, 2nd ed. (Paris, 2011), 227–28.

populations were much larger and more rapidly growing than France's, and manufactures – notably textiles and metal goods – comprised an increasingly large proportion of British exports: 13 percent of the total in 1700, rising to 24 percent in 1780, and then to 40 percent in 1801.

This chapter investigates these developments in wholesale and retail sites, goods, and practices across the leading regions of European commercial engagement in an age when contending imperial powers enacted mercantilist policies. It examines the composition and orientation of imports, exports, and re-exports; the influence of formal and informal institutions, laws, and norms; trade, shipping, and marketing innovations; consumer preferences; illicit as well as licit trade. Finally, it explores the ways that commerce contributed to economic change.

Intercontinental Trade: Transformations and Divergences

Much of the structure put in place during the long sixteenth century, and most of the merchandise exchanged in Europe's intercontinental commerce, persisted thereafter. European long-distance trade continued to focus on Asia and the Atlantic. But relations within and between the two arenas were reorganized as traffic recovered and new entrants heightened competition among individual merchants, companies, and states. Exacerbated by mercantilist measures, commercial rivalries stoked armed conflicts that became global in scale in the 1740s and particularly in the Seven Years' War (which in fact stretched from 1754 to 1763), recasting commodity trading patterns, sourcing strategies, and commercial power.

The intensifying centrality of American silver for the acquisition of Asian goods to be distributed throughout the Atlantic epitomizes how intertwined Europe's global commercial relations remained during the long eighteenth century. Nevertheless, the major intercontinental trading areas differed in critical respects. Atlantic traffic was, Jan de Vries has demonstrated, "both more volatile and more dynamic" than Asian, characterized by larger yearly and decadal fluctuations, twice as high a rate of overall growth (some 2.2 percent annually as against 1.1 percent per year for Asian commerce across the early modern era), and import volumes "at least" three times greater.² The institutional landscapes of Europe's Asian and Atlantic trades were dissimilar as well.

Throughout the early modern period, chartered companies conducted most Europe-Asia commerce, though private merchants took on a larger

² De Vries, "Connecting Europe and Asia," 93.

role as the eighteenth century went on. In the Atlantic trading world, in contrast, private merchant networks were always paramount. To be sure, as Chapter 3 pointed out, some chartered companies helped establish viable commodity-producing colonies during the long sixteenth century. But interlopers soon made a mockery of their monopoly grants and all sooner or later failed. Additional companies won charters in the late seventeenth century, again with monopolies, notably for African slaving: the French West Indies Company (1664), English Royal African Company (RAC, 1673), and the Second Dutch West India Company (1674). Private merchants' and planters' immediate and vociferous complaints about high prices and inadequate supplies shortly ended the French (1672) and English (1689, 1698) slaving monopolies. Even so, neither merchants nor policymakers wholly abandoned the company model. Several short-lived French companies were formed to settle and exploit the Louisiana territory (1712–1720); the RAC survived until 1750 as a gold and ivory trading venture and administrator of West African slaving posts; the Dutch company kept its monopoly until 1734; and subsequently new Portuguese and Spanish companies received privileges for slaving and developing areas in their American colonies. Most successful was the Hudson's Bay Company, chartered in 1670 and still in operation. But even it found that French fur traders perennially infringed its monopoly until the 1763 demise of New France, and fellow British colonials thereafter. The fact remained: chartered companies made little sense in an environment where entry barriers were easy and cheap to breach, colonial residents and merchants eager to trade, smugglers ubiquitous, and thus restrictive or exclusive commercial claims impossible to enforce.

Distinctive politico-commercial economies also obtained in the eastern and western hemispheres. In Asia, European populations were long restricted to small numbers of merchants and company administrators, and for most of the period the companies were not imperial but primarily commercial entities that purchased rather than directly produced export goods. In part, Europe's trade with Africa followed the same template. But that commerce was increasingly subsumed into a much different Atlantic system pioneered (as outlined in Chapter 3) on islands off the African coast and then transferred and greatly expanded throughout the Americas. In that system, state-directed if not uniformly state-conducted empire-building established large-scale settlement colonies. Most of these colonies were founded in places initially inhabited by substantial indigenous populations. Oriented toward production of agricultural and mineral commodities for export, the colonies relied on coerced labor, notably encomienda/repartimiento, indentured servitude, and chattel

slavery. Denizens were at first conscripted into laboring for settlers. But in time survivors of brutal work and decimating disease were supplemented if not supplanted by massive and linked voluntary and compulsory European and especially African transoceanic migrants, together with smaller but still significant numbers of forcibly relocated Amerindians, some from distant regions. Atlantic economies were assigned specific roles in the global exchanges that Europe created, directed, and sustained. Asia provided a mix of primary products and manufactures (along with appreciable contingents of slaves, albeit not on Africa's scale) in return for bullion and (secondarily) European manufactures. In return for European and re-exported Asian manufactures, in contrast, the Americas were essentially restricted to exporting primary products and Africa to enslaved labor and (secondarily) primary products. So while Europe's Asian and Atlantic trades were inextricably interconnected, their significant dissimilarities warrant separate examination.

Asian Commerce: Companies and Changing Commodities

Europe's commerce with and within Asia encountered some rough seas during the seventeenth century. Before the 1650s, Southeastern Asia trade was generally depressed; between the 1640s and early 1680s, the rise and consolidation of the Qing (Manchu) dynasty in China brought turmoil and, from 1659 to 1683, a partially successful ban on foreign trade; Japan progressively restricted contacts with European merchants, metals exports, and raw silk imports. Though not without difficulties and interruptions, on the whole the eighteenth century was calmer and a time of growth. By the 1780s, return tonnage, already resurgent from the 1640s, stood at more than seven times its 1630s level. Average ship size had risen 40 percent, additional participants had entered, imports of some new commodities flourished. Asia had become particularly important for imports into the Dutch Republic (in the early 1770s accounting for 14 percent of the total, exceeding the Americas and Africa, which together provided 11 percent) and into Britain (15 percent of the whole). British exports to Asia had also developed smartly, from only 3 percent of the total around 1700 to 8 percent seven decades later, and on the average Asia took four and a half times as many English manufactures after 1763 as during the preceding half century.³

As European demand for pepper and spices, cornerstones of earlier Asian trade, stagnated, articles new to Europe, like tea and coffee, or, like

³ De Vries, "Connecting Europe and Asia," 92; Ralph Davis, "English Foreign Trade, 1700–1774," *Economic History Review*, new ser. 15 (1962), 302–3.

cotton textiles, already available but hitherto little sought after, spurred growth. The English East India Company came to dominate Indian exports, focused on cottons, whereas private traders and companies from throughout northwestern Europe competed on an equal footing in the China trade, largely silk and, increasingly, tea. Europeans did not recast previously established commercial structures, routes, and practices during the long eighteenth century: chartered companies and private merchants; interconnected intercontinental and intra-Asian country trade; barter of bullion, foodstuffs, raw materials, and manufactures at multiple sites remained central. Nevertheless, conditions in supply and demand markets near and far, the fortunes of specific companies and individual merchants, prices and profit margins, and political and trade policies in Asia and Europe, all experienced short-term fluctuations as well as lasting modification.

At the end of the long eighteenth century, therefore, the leading commercial participants, the major commodities they traded, and the most important markets in which they operated were substantially different from two centuries earlier. Indian cottons and Chinese tea had become major trade goods, coffee and sugar exports had risen and declined, Japanese bullion was unavailable. Bengal and Guangzhou turned into major commercial centers. Iberian hegemony in European-Asian trade, seriously compromised even before 1600, definitively came to an end, leaving the Dutch, English, and French struggling for mastery; companies and individual merchants from several other nations also increasingly took part. Despite substantial growth, moreover, European-Asian commerce encountered multiplying price, quantity, and quality problems. Together with inherently high commercial infrastructure and political/military costs, these difficulties encouraged initiatives to copy and supplant Asian producers that over time expanded American agriculture and stimulated European import-substitution industrialization.

Already threatened by the Dutch and English in the 1590s, Portugal's more than secular primacy in Asian-European trade and shipping was lost in the 1620s, and its participation shriveled thereafter. Exclusion from Japan and its silver supplies in 1639 compounded Portuguese woes, as did the Dutch East India Company's seizure of the *Estado da Índia*'s key trading locations by the mid-1660s. Portuguese merchants did continue to do business along Asian routes and with Europe, but at a much reduced level: by far the greater part comprised ballast or specie, bartered in Asia mainly for pepper and much smaller amounts of diamonds, other spices, and textiles. On their return voyages, vessels won permission to stop in Brazil to exchange Chinese porcelain and silks and East African slaves for tobacco and, from the mid-1690s, gold, so the fabled *Carreira da Índia*

became a route dominated by trade at Mozambique and Bahia, its intermediate ports of call.

Both to displace the Portuguese in Asian-European and intra-Asian trade and to achieve a monopoly over pepper and spices, from its earliest years the VOC copied its rival by engaging in country trade – but on a much larger scale. Its captains bought Chinese goods (notably silk fabrics and raw silk) at Malay Peninsula and Taiwanese ports; there they also acquired American gold brought from Manila. In Japan, their next stop, VOC ships exchanged Chinese products for silver, then sailed directly to Indian production areas like the Coromandel Coast and Gujarat to trade silver and gold for cottons. Finally, many of the textiles were taken to Indonesia where they were bartered for pepper and spices that along with Chinese, Indian, and Persian goods would be dispatched to Europe.

By venturing directly to production areas, the VOC sidelined Asian intermediaries, reducing the Company's prices for vital barter goods and boosting its country trade profits. Following the tried and true merchant strategy of dominating market segments, the VOC enforced textile sales monopolies in Indonesia, and achieved “near-monopsony” access to spices (notably cloves, mace, nutmeg, and cinnamon, the so-called “fine spices”) and a large share of pepper brought to market.⁴ As supply and demand evolved, the VOC added Javanese sugar, Japanese copper, and Siamese tea to its intra-Asian cargoes. The Company's multilateral trade networks and market segments command served it well when in 1668 Japan's shogunate forbade exports of the silver long vital for the India trade: in its stead, the VOC could substitute Japanese gold coins, Persian and Sumatran bullion, American silver and gold (via Europe), even Japanese copper. By 1700, the VOC's intra-Asian trade was greater in volume and value than the country trades of all other Europeans combined and sufficiently profitable to finance a fifth of the goods the Company sent to Europe.⁵

Like its Portuguese predecessors, the VOC's initial objective was controlling purchases and prices of fine spices and pepper for export to Europe, where stockpiling and managed sales would moderate and stabilize prices; discourage competitors, speculators, and smugglers; and assure substantial profits. Still, even early VOC return cargoes included notable amounts of textiles (40,000 pieces a year in the 1620s), raw silk,

⁴ Om Prakash, “The Portuguese and the Dutch in Asian Maritime Trade: A Comparative Analysis,” in *Merchants, Companies and Trade. Europe and Asia in the Early Modern Era*, eds. Sushil Chaudhury and Michel Morineau (Cambridge, UK, 1999), 186.

⁵ Els M. Jacobs, *Merchant in Asia: The Trade of the Dutch East India Company during the 18th Century* (Leiden, 2006), 5.

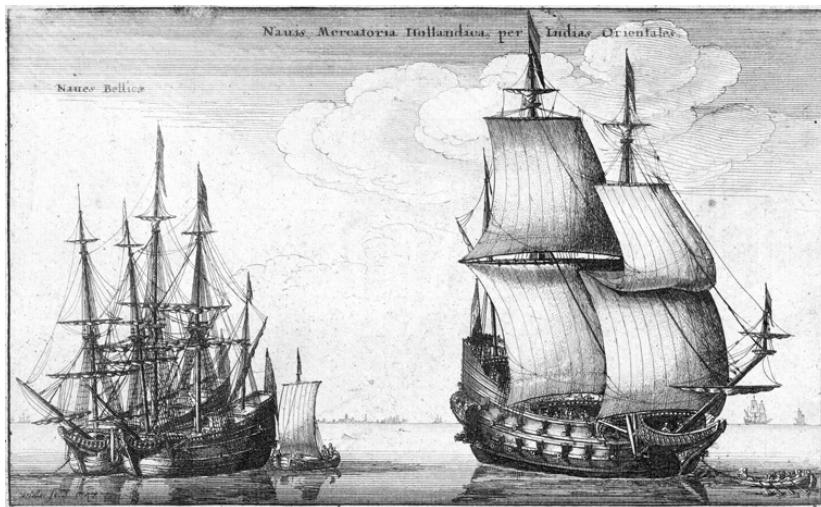


Fig. 6.1: Next to smaller, faster warships, a Dutch East Indiaman lifts anchor in preparation for departure. Of varying tonnage, vessels engaged in long-distance trade between Asia and Europe were designed to maximize cargo rather than speed, and carried large crews, numerous soldiers, and substantial armament for defense against pirates. Thus they illustrate the greater capital investment and structural distinctions between Europe's Asian and Atlantic trades.

drugs, and dyestuffs. Across the second half of the seventeenth century, as pepper profit margins fell, demand for spices stagnated, European demand for Indian cottons surged, and tea and coffee started to become popular, the Company continually modified return cargoes, with notable success. Between ca. 1620 and ca. 1700, total import invoice values quintupled (Table 6.1). By 1698–1700, the VOC's Asian-European trade was by volume twice that of the EIC, its closest competitor.

After 1670, however, the VOC's gross margins in intercontinental commerce had narrowed. Thanks to the Company's monopoly in Asia and careful sales management in Europe, spices remained lucrative: in 1698–1700 their sales receipts in Europe were triple their invoice cost in Asia. Pepper was also remunerative, if much less so because bought and sold in more competitive markets. But these goods were exceptions, and their share of cargoes decreased while that of less profitable commodities – notably textiles – was rising.⁶ From the early 1690s, moreover, VOC

⁶ Computed from Kristof Glamann, *Dutch-Asiatic Trade 1620–1740* (Copenhagen and The Hague, 1958), 13, 14.

Table 6.1 *Main VOC Imports from Asia (Percentage of Total Invoice Values)*⁷

Item	1619–1621	1668–1670	1698–1700	1738–1740	1778–1780
Pepper	56.5	30.5	11.2	8.1	9.0
Spices*	17.6	12.1	11.7	6.1	3.1
Textiles†	16.1	36.5	54.7	41.1	49.5
Tea and coffee	—	—	4.2	32.2	27.2
Drugs#	9.8	5.8	8.3	2.8	1.8
Sugar	—	4.2	0.2	3.7	0.6
Saltpeter	—	5.1	3.9	2.6	4.4
Metals^	0.1	5.7	5.3	1.1	2.7
Misc.	—	0.1	0.4	2.3	1.7
Total	100.1	100.0	99.9	100.0	100.0

* Cloves, mace, nutmeg, cinnamon

† Cloth, raw silk, cotton thread

Includes dyestuffs and perfumes

^ Copper, gold, tin

country trade accumulated deficits as growing European demand for cottons raised the VOC's prices in India and – copying the VOC – the EIC began bartering them in Indonesian pepper markets, eroding the VOC's market share.

The VOC nevertheless long retained a central place in Asian commerce. Until the 1730s, its ships regularly accounted for 60–70 percent of both outbound and homebound tonnage on the Cape route, their share only falling below half in the 1770s; its export and country trades recorded their highest values in the early 1750s; and its intra-Asian business consistently outranked all other European companies.⁸ Still, after 1700 the VOC faced rising protectionism and changing consumer preferences in Europe, and ever-increasing EIC competition in intra-Asian and Asia-European trading. Notably, the EIC won dominance of the Indian cottons trade – from 1757, exercising territorial control over Bengal, source of many of the most popular varieties – halving the VOC's once-premier intra-Asian trade article. The Company had to rely ever more heavily on metals – copper, tin, and some gold from the region, but especially American bullion – to trade in Asia.⁹

⁷ Robert Findlay and Kevin H. O'Rourke, *Power and Plenty: Trade, War, and the World Economy in the Second Millennium* (Princeton, 2007), 308.

⁸ Calculated from de Vries, "Connecting Europe and Asia," 46–49, 56–59.

⁹ De Vries, "Connecting Europe and Asia," 75–76; Jacobs, *Merchant in Asia*, 175–77, 355, 373.

Among imports to Europe (Table 6.1), spices comprised a constantly decreasing share in volume, though remaining the Company's most profitable commodity; while larger, pepper was a more variable as well as less profitable item. Asian sugar was worthwhile only when American supplies were inadequate, virtually disappearing once large amounts of cheaper Caribbean sugar became available from the 1740s.¹⁰ Coffee's fate was similar. After Yemen proved unable to meet rising European demand, the VOC established plantations in Java. Exports averaged just one metric ton between 1712 and 1716, 823 metric tons ten years later, and 1,728 tons in 1727–1731. From that point, however, competition from lower cost growers in the Americas and unsustainable Javanese cultivation practices slowed (at times reversed) expansion; the VOC found itself dependent on a narrow group of consumers willing to pay a higher price for Javanese beans.¹¹

VOC textile-related exports were also squeezed. After English laws of 1700 and 1720 prohibited importing and wearing printed, painted, dyed, and stained Indian cottons while permitting their re-export, the EIC diverted up to two-thirds of its imports to the Dutch Republic, which lacked such laws. Other East India companies' re-exports and rising competition for suitable quality cottons in India magnified pressure on the VOC. Raw silk (once a sixth of VOC imports) fell two-thirds when the Safavid dynasty's overthrow (1722) cut off Persian supplies, laws started protecting European sericulture and silk weaving, and better-quality Italian and French products undermined a once-promising Dutch silk industry. In mid-century, the VOC briefly restored Indian textile exports to Europe and the Atlantic. But these were highly competitive markets, and often protected. Moreover, voguish Bengal fabrics became less available and more expensive, and from the 1770s English mixed and, increasingly, pure cottons began to supplant Asian imports. Textiles remained half of all commodities the VOC shipped to Europe as late as 1780; ten years later they were less than a fifth.

Tea was the VOC's late eighteenth-century success. Though the Company had introduced Europeans to Japanese and Chinese tea soon after 1600 – as a medicine rather than a beverage – it did not catch on for decades. By the early 1700s, when growing European consumption revived VOC interest, the Company only had access to unreliable, expensive, often low-quality tea that Chinese junks brought to its Batavia

¹⁰ Steensgaard, "Growth and Composition of the Long-distance Trade of England and the Dutch Republic," 134–36.

¹¹ Mario Samper and Radin Fernando, "Historical Statistics of Coffee Production and Trade from 1700 to 1960," in William Gervase Clarence-Smith and Steven Topik, *The Global Coffee Economy in Africa, Asia, and Latin America, 1500–1989* (Cambridge, UK, 2003), 412–13; Jacobs, *Merchant in Asia*, 230, 253–59.

headquarters. Whereas other Europeans bought tea in Guangzhou once the Qing ordained it the port for nearly all foreign trade in 1713, the VOC delayed until 1729, then took several decades to come up with a workable and profitable strategy. Still, over 65 years (1729–1795), tea supplanted silk and porcelain to comprise on average 70 percent of all VOC exports from China, and more than half of all its Asian exports by the late 1780s. Amsterdam's market connections facilitated wide sales and re-exports, including smuggling to England and its American colonies, where EIC monopoly and import duties of 119 percent kept prices sky high and contraband lucrative.¹²

Despite the booming tea trade, VOC return shipping tonnage remained unchanged between the 1720s and 1770s, then fell more than a third in the 1780s. Overall VOC exports to Europe dropped 10 percent in value between the early 1750s and early 1770s and shrank more quickly over the next two decades.¹³ Expanding territorial authority in Indonesia boosted VOC tax and toll income from 10 percent of revenue (1690s) to 44 percent (1760s) yet raised administrative and military outlays even more, requiring increasing subsidies from Europe.¹⁴ Fine spices remained extremely profitable, their share of Company revenues and profits rising across the eighteenth century. But with overall declining profits in Europe (textiles, tea, and coffee may have earned nothing) and mounting losses in intra-Asian trade, from 1744 the Company resorted to short-term loans, though interest payments cut into earnings. As dividends continued to be distributed, thin profits of 2–3 percent turned into losses, so assets were sold.¹⁵

Dutch neutrality in Anglo-French conflicts enabled an export mini-boom during the war-torn 1760s. But in the Fourth Anglo-Dutch War (1780–1784) the VOC lost ships, forts, and factories across Asia. Worse, the 1784 British Commutation Act removed virtually all incentives for tea smuggling by cutting duties to 12.5 percent while imposing tight controls on supplies and prices that allowed EIC imports to meet all British demand. Competition in Asia also heated up. English traders bought tea in Guangzhou with Indonesian pepper and tin; merchants from other European lands and the new United States bid up prices in Guangzhou and secured their home markets. By the late 1780s, the VOC was reduced to accepting lower-quality tea than most European consumers desired; substantial losses usually resulted. By 1784, the Company had no net assets; though strategic constituents – shareholders,

¹² Yong Liu, *The Dutch East India Company's Tea Trade with China, 1757–1781* (Leiden, 2007), 2–10, 128–30.

¹³ Calculated from Jacobs, *Merchant in Asia*, 373.

¹⁴ De Vries, “Connecting Europe and Asia,” 91.

¹⁵ De Vries and van der Woude, *The First Modern Economy*, 443, 449.

admiralties, port workers – ensured that it received new loans and subsidies, they proved bootless. The revolutionary Batavian Republic nationalized the Company in 1795, but could not prevent its collapse; in the nineteenth century, Dutch Asian trade, operating without a company structure, focused its activities on increasingly colonized Indonesia.

As seen in Chapter 3, the EIC initially focused on pepper and spices paid mainly with bullion, and developed country trade that in volume and value outweighed its Asia-Europe commerce. Though at first its shipping tonnage grew quickly, from the 1630s through the 1650s (when it nearly went out of business), the Company faced disruptive political crisis followed by Civil War at home; had trouble assuring sufficient quantities, satisfactory quality, and viable prices in its important Gujarat cottons trade; and found Dutch-dominated spice and pepper markets difficult to break into. Yet thanks to general economic recovery in Restoration England and concentration on raw silk and popular Bengal white cottons and colored calicoes, a re-chartered EIC (1657) revived smartly: between the mid-1660s and late 1680s, its imports of textiles and silk sextupled in value.

In the aftermath of the Glorious Revolution (1688–1689), the Company's monopoly faced rising criticism; a competing company was founded; outbound and return tonnage fell off and for several years imports plunged. Yet by 1698 tonnage and imports (valued at three times as much as in 1668–1670) had recovered smartly; in 1709 the two companies were combined with a renewed monopoly and began laying the bases for significant expansion that from the 1730s dethroned the long-dominant VOC. Some initiatives miscarried. Persian silks, generally inferior in quality, proved hard to sell profitably; Indian indigo and Asian coffee lost out to cheaper American products. But Indian (and to a lesser extent Chinese) textiles and raw silk flourished in protected domestic and colonial markets: as early as 1698–1700 they comprised four-fifths of EIC imports (Table 6.2).

Like its Dutch counterpart, the EIC imported substantial amounts of cottons in the early seventeenth century; already in 1668–1670 cottons comprised a considerably larger proportion of English than of Dutch cargoes to Europe, and they did so throughout the eighteenth century. By 1700, Bengal supplied two-fifths of the EIC's Indian cottons, its share rising to two-thirds at the end of the 1730s. The Company also purchased significant amounts along the Coromandel Coast, and smaller quantities in Gujarat, so it could supply diverse markets with a wide variety of finishes, qualities, and prices. While reducing domestic consumption, the 1700 and 1720 laws encouraged re-exports, including large amounts of white Indian cottons printed by England's burgeoning dyeing industry.

Table 6.2 *Main EIC Imports into Europe (Percentage of Invoice Value)*¹⁶

Goods	1668–1670	1698–1700	1738–1740	1758–1760
Pepper	25.3	7.0	3.4	4.4
Textiles	56.6	74.0	69.6	53.5
Raw silk	0.6	7.1	10.9	12.3
Tea	0.0	1.1	10.2	25.2
Coffee	0.4	1.9	2.7	—
Indigo	4.3	2.8	—	—
Saltpeter	7.7	1.5	1.9	3.0
Miscellaneous	5.2	4.5	1.4	1.7
Total	100.1	99.9	100.1	100.1

By 1722–1724 re-exports of Indian cottons were 42 percent higher than in 1698–1700; in 1772–1774 they had risen another 45 percent.¹⁷ Raw silk imports doubled between the 1700s and the 1750s, feeding English and Continental weaving industries.¹⁸ Paralleling the VOC, EIC tea imports grew rapidly, quadrupling in tonnage and tripling in value between the 1720s and 1750s, by which point Chinese products accounted for a third of EIC's Asian trade. And when the cottons trade (indeed, total EIC imports) sagged in mid-century, tea surged ahead, helping total EIC import values to nearly double between 1698–1700 and 1758–1760.¹⁹

As opposed to the VOC, the EIC did not directly control the intra-Asian trade supplying its intercontinental commerce. EIC country trade was also much less geographically extensive and complex than VOC once it closed all East and Southeast Asian factories (1623) and most Indonesian (1660s), save those bartering for pepper. EIC employees and private merchants – hitherto illegal participants – won authorization to enter country trade in 1660, and soon dominated it. The Company itself focused on trade between Europe and Asia; monopoly sales in Britain and Atlantic colonies; and, from the 1750s, generating revenues for transfer to England from expanding Indian possessions. EIC purchases in Asia necessitated precious metals imports, but they were proportionally smaller than the VOC's, since the EIC proved more successful exchanging European manufactures (28 percent of its cargoes to Asia in

¹⁶ *European Commercial Enterprise in Pre-colonial India*, ed. Prakash, 120.

¹⁷ Calculated from Davis, "English Foreign Trade, 1700–1774," 302.

¹⁸ K. N. Chaudhuri, *The Trading World of Asia and the English East India Company 1660–1760* (Cambridge, UK, 1978), 536–37.

¹⁹ Chaudhuri, *Trading World of Asia*, 388; *European Commercial Enterprise in Pre-colonial India*, ed. Prakash, 121.

the first half of the eighteenth century, many of them English broadcloths); cottons from its Bengal colony from the late 1750s: and, as time went on, opium grown in India to be smuggled into China. EIC tax revenues and private merchants' assets also increasingly financed the acquisition and shipping of export goods. As a result, in 1764–1800, bullion comprised just 27 percent of EIC imports into Asia.²⁰

EIC growth was not continuous or trouble-free. In the middle third of the eighteenth century, South Asian wars complicated cottons deliveries, especially from Bengal in the 1750s and early 1760s; miscalculations about goods for barter led to gluts in some places, shortfalls elsewhere (on occasion the Company even had to buy bullion from European competitors); tea sales long suffered from smuggling at home and boycotts in and subsequent loss of once-protected North American markets. Export values languished. Like VOC, EIC profit margins eroded, from 12.45 percent in the 1710s to 5.69 percent in 1736–1745.²¹

Thereafter, however, the EIC's fortunes played out rather differently. From the 1750s, as VOC trade stagnated and then diminished, EIC exports from Asia boomed – nearly tripling in value between 1758–1760 and 1777–1779 and continuing to rise thereafter.²² The EIC also more successfully adjusted to changes in Europe. While its South Asian territorial possessions enlarged, and trade with India remained important, the rise of the mechanized English cottons industry reduced imports of Indian textiles; they were abandoned in 1813. Trade with China continued to swell. Whereas less than 11 percent of consignments to Asia went to China in the 1750s, more than 50 percent did in 1785–1810, driven largely by tea sales that doubled from 1784 to 1795 in response to the Commutation Act's lowered taxes – then continued to rise despite higher levies during the Napoleonic wars.²³ While the VOC came to depend on government loans, then founded, the EIC became a pillar of English public and private finance, the progenitor of the British empire in South Asia, and survived into the nineteenth century as both trading company and colonial power.

Already in the seventeenth century, other European merchants had ventured to Asia, and several states had chartered companies. Additional participants appeared after 1700, seeking both to emulate the VOC and

²⁰ Chris Nierstrasz, *Rivalry for Trade in Tea and Textiles: The English and Dutch East India Companies (1700–1800)* (Basingstoke, UK, 2015), 192–93; de Vries, “Connecting Europe and Asia,” 75–76.

²¹ Calculated from Chaudhuri, *Trading World of Asia*, 440.

²² Calculated from *European Commercial Enterprise in Pre-colonial India*, ed. Prakash, 120.

²³ H. V. Bowen, *The Business of Empire. The East India Company and Imperial Britain, 1756–1833* (Cambridge, UK, 2006), 234–35, 241–42.

EIC and to circumvent their monopolies. Their share of return tonnage, 12 percent in the 1700s and 27 percent in the 1750s, surpassed 40 percent in the 1780s.²⁴ After several abortive seventeenth-century efforts, from 1732 rising European demand, better financing, and focusing on Chinese goods, notably tea, brought Danes greater success, particularly between 1772 and 1807, when private traders dominated commerce with India (and, as a neutral flag during the French Revolutionary and Napoleonic wars, with Dutch Batavia and French Mauritius) while the Danish Asiatic Company monopolized trade with China.

A Swedish company also blossomed in the mid-eighteenth century by (like Denmark's Asiatic Company) concentrating on China. Though always limited by underdeveloped intra-Asian trade, competition in or even exclusion from European markets, and few protected colonial markets, Danes and Swedes together imported perhaps a third of Europe's tea during the eighteenth century, focusing on cheap black varieties specifically blended for diverse national tastes. They also dealt in less expensive, lower quality Chinese silks for consumers who could not afford European varieties, and developed a lucrative niche business for English and French merchants who, blocked by their own chartered companies from remitting fortunes back to Europe, did so by trading through Scandinavian companies or using their credit systems.²⁵ Other Asian undertakings booked less favorable results. Merchants from several nations (including Holland), chartered as the Oostende Company (1722), briefly broke into the Indian cottons trade until the Habsburg government, yielding to VOC and EIC pressure, revoked the grant in 1731. Prussian and Trieste companies were even less consequential; a proposed Genoese enterprise barely got off the ground; a renewed Belgian attempt in 1775 quickly failed.

France's Asian trade, in contrast, developed as vigorously as the country's commerce overall. In 1664, Louis XIV's minister Jean-Baptiste Colbert amalgamated several small companies – themselves outgrowths of previous Asian ventures – into the *Compagnie des Indes orientales* (French East India Company or CIO) on the monopoly model of the VOC and EIC, the companies that it intended to challenge, particularly in the Indian cottons trade. The CIO was a government initiative that depended substantially on investments by the royal family, ministers, and court nobility (merchants held just a sixth of shares); state officials also played a leading role in its administration. Hobbled by wartime

²⁴ De Vries, "Connecting Europe and Asia," 43.

²⁵ Hanna Hodacs, *Silk and Tea in the North. Scandinavian Trade and the Market for Asian Goods in Eighteenth-century Europe* (Basingstoke, UK, 2016).

disruptions, poorly chosen cargoes, chronic capital shortages, and sweeping and early (1686) limits on cotton textile imports into France, it limped along until 1719. However, private trade with Asia thrived, if under CIO oversight, even opening trade with China in 1698.

The CIO was forcibly merged with other chartered companies in 1719 into a new *Compagnie des Indes* (CI) involving a monopoly of French trade worldwide and of tobacco sales in France, the Louisiana territory, and a money-issuing bank; the company went bankrupt in 1720 in the collapse of the speculative Mississippi Bubble. Still, the earlier company had established a strong network of Indian trade factories and a sizeable commercial fleet, so once reorganized the CI prospered from 1723 to 1769. After 1731, it gave up most other activities to concentrate on flourishing trade with India and China. Textiles remained central, but new commodities contributed as well: coffee from Île de Bourbon (a CI colony, today's Réunion), where output soared from 1724 to 1745, and, from mid-century, Chinese tea and silks. Though the company lacked sufficient resources to undertake a significant country trade of its own, private merchants developed one. By the late 1730s, the Company's Asian imports had become three-fourths as valuable as the VOC's, three-fifths the EIC's.

Its rapid rise concealed significant weaknesses. Like other companies' margins, though with a less adequate financial cushion, CI profit rates declined as growing competition pushed up purchase prices in Asia while reducing sales prices in Europe. Worse, its trade suffered abrupt, sharp variations as several decades of conflicts with England in Europe and Asia disrupted French intercontinental shipping that received little protection from a royal navy focused on the Atlantic. Loss of territory and trading factories at the end of the Seven Years' War (1763), coupled with British hegemony over Bengal after 1757, complicated the Company's ability to obtain textiles. While the 1759 repeal of prohibitions on owning and wearing cottons in metropolitan France legalized imports into that large market, European producers – including some within France – also took advantage of the new dispensation. CI imports of Asian textiles had more than doubled between 1724 and 1741, surpassing the VOC's, but they dropped suddenly and deeply thereafter.²⁶

EIC competition also took a toll on French Chinese trade. As on Dutch Java, moreover, so on the Île de Bourbon soil depletion and poor cultivation techniques cut coffee yields as American production accelerated. Though the proportion of specie to total cargoes fell from 86 percent in

²⁶ Felicia Gottmann, *Global Trade, Smuggling, and the Making of Economic Liberalism. Asian Textiles in France 1680–1760* (Basingstoke, UK, 2016), 175.

1725–1734 to 55 percent in 1765–1769, imported bullion remained much more crucial for French purchases of Asian goods (especially Indian cottons) than for the EIC or VOC.²⁷ These problems, together with vociferous objections by private merchants and reforming economists, led the Company's charter to be revoked in 1769. Thereafter, apart from a briefly revived monopoly company (1785–1793), private merchants based mainly on Île de France (Mauritius) conducted – quite successfully – France's ongoing trade in Asia, two-thirds of which, after 1769, was with China. Moreover, France continued to trade with Asia overland; as noted in Chapter 3, with Venice it dominated European exchanges at Levantine termini of caravan routes, which carried significant amounts of Asian textiles and raw silk. Between 1725 and 1756, in fact, cottons, linens, and silks imported via the Levant to Marseille exceeded those the CI supplied by sea; many were woven in the Middle East, the rest mainly in India.²⁸

A New Atlantic System

Asia was an essential component of Europe's global commerce. In the 1770s, it accounted for 15 percent of Britain's imports, 14 percent of the Dutch Republic's, and 5 percent of France's.²⁹ But with the partial exception of the Dutch Republic, by 1700 (when reliable figures become available) Atlantic trade was already larger and growing more rapidly. From the 1650s, accelerating colonization, plantation agriculture, and raw materials production in the Americas had spurred renewed expansion of slaving and tropical commodities trades, and from about 1700 booming Brazilian gold exports, along with revived silver mining in both central America and Peru, added further stimulus. As a result, the Americas' and Africa's share of total English imports swelled from 19 percent (1699–1701) to 37 percent (1772–1774), and their part of exports jumped from 12 percent to 43 percent in the early 1770s; at the latter date, the Atlantic took nearly seven times Asia's proportion of English manufactures, as against four times about 1700. Though in the 1770s annual Dutch imports from the Atlantic were worth slightly less than those from Asia (eighteen and twenty million guilders, respectively), exports were three times larger (six as against two million guilders), to which should be added some part of the sixteen million guilders of Dutch imports from and twenty-eight million of exports to Iberia that originated

²⁷ *European Commercial Enterprise in Pre-colonial India*, ed. Prakash, 109.

²⁸ Gottmann, *Global Trade, Smuggling, and the Making of Economic Liberalism*, 183.

²⁹ De Vries, "Connecting Europe and Asia," 92.

in or were destined for Spanish and Portuguese colonies. While France's total trade quintupled between 1716–1720 and 1787–1789, its Atlantic colonial imports, exports, and re-exports multiplied ten-fold. Comprising 8 percent of the country's total commerce in 1716–1720, Atlantic trade was 27 percent in 1774–1778, some 40 percent on the eve of the French Revolution.

Because European goods purchased enslaved Africans, who were then transported to the Americas to produce primary products for Europe, Atlantic commerce is often presented as triangular. In fact, much if not most trade between Europe and the Americas was bilateral, and slavers often returned from the Western Hemisphere in ballast or with minimal cargoes.

Growing Atlantic trade was both cause and effect of colonial development in the Americas. Not only did expanding colonial populations consume ever greater quantities of imported manufactures, but New World plantations supplemented and often supplanted Asia as Europeans' source of numerous industrial raw materials and foodstuffs. As Caribbean planters provided larger volumes of indigo across a wider range of qualities and prices, Indian indigo, whose superior blue had displaced European woad in the later sixteenth century, was itself superseded. Though Javanese coffee output doubled, from the 1720s Europe's coffee craze was mainly brewed from West Indian beans. Of a total world coffee supply estimated at some 110 million lbs. in 1780, 80 percent was grown in the West Indies, just 10 percent each in Java and Arabia.³⁰ American sugar, which became the New World's signature tropical commodity as output octupled between 1700 and 1770, likewise chased Asian growers from the European market. From the 1760s, too, New World cotton output boomed, soon surpassing the Levant and Asia as Europe's main suppliers. And if never threatening Asian supremacy, Carolina became a sizeable exporter of rice. Export of indigenous American commodities likewise experienced impressive expansion. The 9 million lbs. of tobacco sent to Europe in the 1660s had become at least 220 million lbs. in 1775; each year around 1750, English hatters alone took at least 80,000 beaver furs, double the 1700 figure.

During what is often called the "first Atlantic system" of the long sixteenth century, intercontinental trade in the Western Hemisphere (as in Asia) had been dominated by Iberian-based commercial institutions, Iberian colonial trade, and slaving mainly destined for Iberian America.

³⁰ Jan de Vries, "Understanding Eurasian Trade in the Era of the Trading Companies," in *Goods from the East, 1600–1800. Trading Eurasia*, ed. Maxine Berg (Basingstoke, UK, 2015), 27–29.

Devised and directed by state institutions, colonial development and exports focused on bullion and on agricultural commodities, both produced by coerced native people and, increasingly, enslaved Africans.

Though as in Asia, Iberian hegemony in the Atlantic waned during the seventeenth century, Spanish and Portuguese American precious metal and agricultural commodities remained significant in international markets; moreover, both nations' Atlantic trade experienced notable revival during the eighteenth century. Tonnage between Spain and America, for instance, more than doubled between 1717–1738 and 1755–1778, as independently operated “registered” ships following their own schedules largely replaced the fleet and galleon system after 1739, eliminating periodic fairs and their high fixed prices, lowering the costs of legal trade, and facilitating merchant network expansion. Loosening trade restrictions in 1765 and 1778 provided an additional fillip, above all by permitting ports in Spanish American colonies to trade directly among themselves and with most ports in the metropole. In 1721–1760, according to a recent estimate, Spain accounted for 36 percent of Europe's American trade and Portugal 23 percent, as compared with England's 21 percent, France's 13 percent, the Dutch Republic's 7 percent.³¹

Output of Spanish American silver – essential for Europe's Asian trade and increasingly vital for Europe's own economic advance – declined about a third from its 1630s peak and remained sluggish through 1701–1710. But after institutional reform and cheaper imported mercury galvanized Mexican mines (which about 1700 supplanted long-dominant Peru), an extended expansionary wave more than tripled output by 1800. Gold's similar trajectory was yet more dramatic. Halved across the seventeenth century, output boomed from 1695 during Brazil's gold rush. By the 1740s, American gold production (more than four-fifths from Brazil) was twenty times as valuable as half a century before; when Brazil's output dwindled thereafter, half a dozen other areas maintained overall production levels through the rest of the century.³²

³¹ Xabier Lamikiz, “Transatlantic Networks and Merchant Guild Rivalry in Colonial Trade with Peru, 1729–1780: A New Interpretation,” *Hispanic American Historical Review* 91:2 (2011): 299–312; Wim Klooster, “An Overview of Dutch Trade with the Americas, 1600–1800,” in *Riches from Atlantic Commerce: Dutch Transatlantic Trade and Shipping, 1585–1817*, eds. Johannes Postma and Victor Enthoven (Leiden, 2003), 383.

³² TePaske and Brown, *A New World of Gold and Silver*, 76, 113, 29, 54–55; Antonio García-Baquero González, “American Gold and Silver in the Eighteenth Century: From Fascination to Accounting,” and John R. Fisher, “Mining and Imperial Trade in Eighteenth-century Spanish America,” in *Global Connections and Monetary History, 1470–1800*, eds. Flynn, Giráldez, and von Glahn, 107–21, 123–31.

Table 6.3 *Estimated Americas Sugar Production (Thousand Tons Per Annum)*³³

Colonial power	Portugal	Britain	Britain	Britain	France	France	Dutch Republic
Date	Brazil	Barbados	Jamaica	Other West Indies	Martinique and Guadeloupe	Saint-Domingue	Dutch "Wild Coast"
1620	15						
1655		7					
1670	27						
1700		10	5	7			
1720	20	7	10	7	14	10	
1740		7	17	11		40	
1767		6	36	25	14	63	9–10*

* 1750–1770 annual average

Precious metals remained central to Iberian American Atlantic trade: silver totaled 56 percent of total eighteenth-century Spanish American imports into Cádiz and Barcelona, gold 46 percent of Portuguese American exports. But agricultural commodities became increasingly important. Brazil, which accounted for 80–90 percent of Portugal's colonial trade, was decidedly the leading Atlantic sugar producer across the seventeenth century, weathering the crisis years remarkably well; though Caribbean islands subsequently eroded its position, even in the early eighteenth century it provided 30 percent of American sugar exports (Table 6.3). The colony produced more than gold and sugar. Its leather and hide exports octupled across the eighteenth century, feeding Portuguese tanning and exports to other parts of Europe; tobacco exports about tripled; those of cacao and coffee rose significantly; from the 1770s accelerating British demand drove up raw cotton exports which by the 1790s provided 30 percent of Britain's needs. Spanish American agricultural exports likewise recovered after seventeenth-century problems: high-quality *guatimalo* indigo won markets throughout Europe, exports of cochineal doubled, those of cacao grew fifteen-fold, of hides a startling forty-five times.

Mine and plantation expansion – and the food cultivation, artisanal crafts, and internal trade they sparked – relied on and fed the slave trade.

³³ Calculated from Ralph Davis, *The Rise of the Atlantic Economies* (Ithaca, NY, 1973), 257, Table 4; de Vries and van der Woude, *The First Modern Economy*, 472–73. In 1756–1760 and 1766–1770 Spanish colonies contributed about 1.2 thousand tons annually; Phillips, "The Growth and Composition of Trade in the Iberian Empires, 1450–1750," 58–59.

Much of Brazil's tobacco, and some of its rum and gold (the latter often purchased smuggled Asian cloth and European metalwares and weapons for exchange with Africans) paid for slaves during two centuries of ongoing growth in Portuguese slaving from the 1640s on. In nearly every decade, beginning in the 1690s, Portuguese and Brazilian slavers, Europe's largest by flag, forcibly transported more Africans than ever before: their human cargoes had nearly quadrupled in size by the 1820s (see Appendix C.2). Most came from West Central Africa. Before the rapid growth of Brazilian plantations and mines from the mid-seventeenth century, Portuguese and Brazilian slavers usually sold half their cargoes in Spanish colonies. But from 1650–1680 on, Stuart Schwartz has observed, when "Brazil and its African [slave] supply stations . . . formed an integrated system of labor and commodity production," supplanting Asia as "the heart" of Portugal's empire, Portuguese slavers disembarked virtually all their captives in Brazil.³⁴ Coerced labor was also common in Spanish America (see Appendix C.3). Numerous Spanish colonies continued to rely on Amerindian encomienda labor. Still, if slave disembarkations declined somewhat in the later seventeenth century, they gathered speed after 1700. The monarchy leased asiento contracts, so slaving was long in the hands of non-Spaniards, notably British merchants during much of the eighteenth century. Yet as sugar plantations rapidly expanded in Cuba, Puerto Rico, and other Caribbean islands in the late eighteenth and early nineteenth centuries, Spaniards entered slaving on a substantial scale (see Appendix C.2).

Substantial as the revival of Iberian Atlantic trade was, Iberian merchants and their goods lost primacy in the Atlantic from 1650/1670 as a second Atlantic system emerged. Its center of gravity lay in the North Atlantic, specifically in newly established, economically specialized plantation colonies on Caribbean islands and the southern mainland of North America. Whereas Iberian American bullion had largely powered the first system, plantation agricultural commodities alone provided the new complex's dynamism. These largely export-oriented agriculture and inter-imperial trade settlements depended on international investment and trade, much of it illegal.

Though never accounting for more than a tenth of Europe's total Atlantic trade, the Dutch were key to the inception and, for some decades, operation of the new system (though not, recent research suggests, to the invention of a new form of sugar production). They provided commercial, shipping, and credit services, particularly from their

³⁴ Stuart Schwartz, "The Economy of the Portuguese Empire," in *Portuguese Oceanic Expansion*, eds. Bethencourt and Curto, 34, 21.

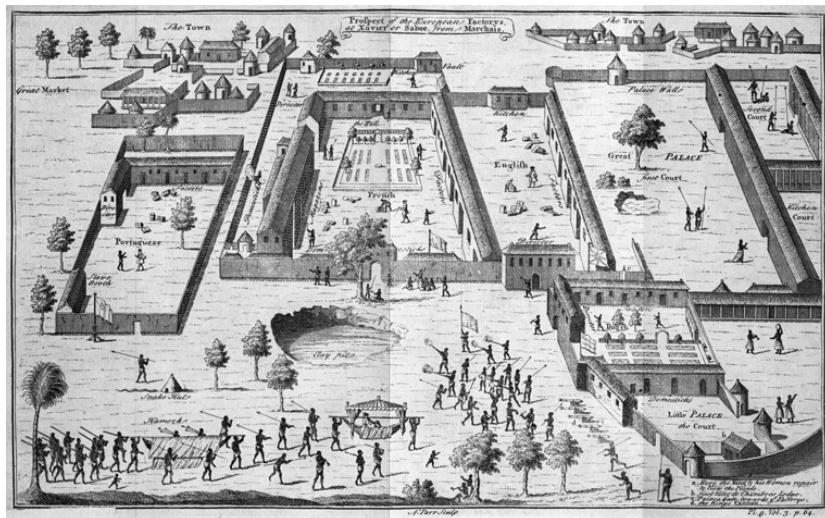


Fig. 6.2: In an arc from left to right are the Portuguese, French, English, and Dutch factories at Savi (later Ouidah in present-day Benin) on the so-called “Slave Coast.” These trading posts shipped some one million enslaved Africans to the Americas, second only to Luanda. The factories, which contained European living quarters, storehouses, gardens, and lodgings for the captives, were located between the town at the upper left and right, and (on the right of the English and Dutch factories) the several enclosed courtyards of the royal palace of the King of Hueda (Whydah), conquered by Dahomey in 1727.

entrepot s at Curaçao, which focused on intercontinental trade, and St. Eustatius (“Statia”), engaged mainly in intra-Caribbean trade. Exploiting supply problems in other nations’ colonies, the Republic’s neutrality during frequent Anglo-French wars, and geographic propinquity to the Spanish American mainland, the Dutch engaged in licit trade – its merchants held the Spanish asiento in the 1680s and 1690s – but especially in interloping that while legal in Dutch territory was unlawful elsewhere. The opportunistic formula proved lucrative. Between 1701–1710 and 1771–1780, Dutch Caribbean trade quadrupled; its merchants also profitably exported Carolina rice to Europe and smuggled tea and manufactures to northern British American colonies. The Dutch likewise developed plantation colonies on the “Wild Coast” of northern South America. These enjoyed a good measure of success: the value of their exports rose an average of 2.8 percent per year from 1701–1710 through 1771–1780. Surinam’s coffee exports exceeded Java’s by the late

1730s and were about three times larger in the early 1770s; from 1750 Wild Coast colonies exported sugar (Table 6.3). As domestic agriculture and industry faced growing difficulties, and Asian trade stagnated and turned less profitable, Atlantic commerce took on increasing importance in the Dutch economy across the long eighteenth century.

Dutch Atlantic trade was vulnerable, however, both to protectionist measures that would restrict its shipping, financial, and commercial services and to liberalization that would undercut its interloping. French and particularly British mercantilist laws limited access to those large and growing markets. Dutch slaving tripled in the third quarter of the seventeenth century as it conquered numerous Portuguese forts in Africa, but while Dutch merchants continued to participate in that dismal trade at a significant level across the eighteenth century, their share eroded as French and British slaving expanded (see Appendix C.2). At the same time, eighteenth-century reforms in Spanish commercial policy and practice that cut the costs of legal trade sapped the profitability of Dutch interloping and contraband, and a 1781 British attack wiped out St. Eustatius's smuggling trade. Dutch colonial plantations also faced severe problems: rising indebtedness, revolts by maroons (escaped slaves), European market downturns, an Amsterdam financial crisis. From 1795, French Revolution and Napoleonic wars frequently cut off shipping, while Britain occupied Dutch colonies until 1815. Increasingly sidelined by larger powers and therefore oriented to a small metropolitan market, Dutch Atlantic trade was modest at best by the end of the long eighteenth century.

Lasting English and French colonization in the Americas had begun in the early seventeenth century, as settlements on the North American mainland were quickly followed by others on Caribbean islands. The islands grew many agricultural commodities, with specializations changing among islands and over time; many also boasted merchant communities that conducted significant intra- and inter-imperial trade. They are best known, however, as the site of the so-called “sugar revolution” that began in Barbados from the 1640s and after 1680 spread to many other islands, large and small, shaping not only sugar cultivation but the organization of plantation agriculture more generally.

In the medieval Mediterranean, and subsequently Madeira, Saõ Tomé, and other Atlantic islands as well as Brazil, much the same sugar technology had been used as in the West Indies. But ownership of cultivated land and sugar mills had often been in separate hands, much sugar had been grown by sharecroppers, and labor forces both free and enslaved had worked according to personally negotiated quotas. Starting in the late seventeenth century, however, French and British planters transformed

previously small farming, sparsely settled, predominantly European- and/or Amerindian-inhabited Caribbean islands to a new form of plantation economy. This was characterized by large productive units combining single ownership of land and mills; mainly African enslaved workforces engaged in both closely supervised, regimented, repetitive agricultural work and skilled first-stage processing; employment of substantial capital and credit; and access to large merchant shipping fleets that brought their output to Europe for further refining. The new order was dynamic. It featured distinctive local and regional variants together with mobility of practices and knowledge, increasing scale, ongoing refinement of the production model, and continuous exploitation of new lands, including new islands, as soil fertility declined and regulations and trade conditions changed access to consumer markets.³⁵ Following the lead of sugar, agricultural commodities from integrated plantations using enslaved gang labor to increase efficiency, raise output, and cut prices, provided the bulk of the impressive growth that eighteenth-century French and British Atlantic trade registered, with sharply increased slaving central to it.

French American exports included furs, skins, and some agricultural commodities from New France and Louisiana – many Canadian food-stuffs fed Caribbean slaves – but overwhelmingly comprised tropical groceries from the Antilles sent to Europe.³⁶ Across the eighteenth century, Saint-Domingue became the most profitable of all European colonies. In 1767, the colony produced two-fifths of all Atlantic sugar (Table 6.3), and perhaps 60 percent of the coffee Europeans drank. Sugar (including rum and molasses), cocoa, and coffee were always the prime French American exports: 70 percent of the total in 1716, and 78 percent in 1787. Following the Seven Years' War, however, the relative mix of plantation products changed as output rose steeply. Coffee's share of exports, about a quarter of all exports in 1770, became perhaps twice that in 1787 as prices dropped below not only Java's but Surinam's as well. Another leading export was Saint-Domingue indigo; though as output of better quality guatimalo from Spanish Central America rose, it declined relatively (nearly a quarter of exports in 1716, it was 6 percent in 1787) if not absolutely. Cotton, originally planted by poorer colonists displaced by big sugar and tobacco growers, became a major crop in the later eighteenth century: just 5 percent of exports in 1716 and 8 percent in

³⁵ Stuart B. Schwartz, "Introduction," to *Tropical Babylons: Sugar and the Making of the Atlantic World, 1450–1680*, ed. Schwartz (Chapel Hill, 2004), 1–20.

³⁶ The figures in this and the next two paragraphs are based on *Histoire économique et sociale du monde*, ed. Pierre Léon (Paris, 1978), III: 67; Thomas M. Doerflinger, "The Antilles Trade of the Old Regime: A Statistical Overview," *Journal of Interdisciplinary History* 6 (1976): 397–415.

1770, it jumped to 15 percent in 1787; from the 1740s Antillean raw cotton all but ousted Levantine from France. In the seventeenth century, planters in the French Antilles had purchased slaves from third parties, usually Dutch traders, but in the eighteenth French merchants increasingly engaged in “la traite.” Between 1701–1710 and 1781–1790, French slavers’ disembarkations of African captives multiplied more than twelve-fold (see Appendix C.2). Nevertheless, from the 1750s demand outpaced supply, so planters also bought from British slavers, the wretched traffic facilitated by Jamaica’s proximity to Saint-Domingue.

Imports from the Americas exceeded French exports by a ratio of nearly 2:1 up to the mid-eighteenth century, and when exports leveled off thereafter as imports continued to shoot up, the imbalance quickly worsened to nearly 5:1. The late eighteenth-century plantation boom brought the ratio back closer to its earlier level, however, as planters equipped new and enlarged holdings, and sharply swelling slave and free settler populations needed to be clothed and fed. Much raw cotton was destined for French manufacturers, especially after domestic cotton weaving and printing was legalized in 1759. But colonial Antillean output of tropical groceries far outran French consumption, so the country’s Atlantic trade included a substantial and expanding re-export sector, notably of sugar, coffee, and indigo to the Levant, Dutch Republic, and German lands. This trade grew smartly in the final third of the eighteenth century, from perhaps 18 percent of 1767’s total to 35–36 percent of 1787’s.

The Atlantic was, in sum, crucial for French commerce in the long eighteenth century, increasingly so as the period drew to a close. Proportionally, the British and Dutch boasted larger trade with Asia, while France’s American and African imports (42 percent of its total) exceeded both Britain’s (37 percent) and Dutch (11 percent). In 1787, a third of French manufacturing exports went to the New World, including sizable amounts destined for Spanish colonies; Africa alone took more than 10 percent of total French exports. Thus the quarter century of revolution and war that opened in 1789 not only crippled France’s dynamic if brutal colonial plantation system as Saint-Domingue liberated itself but disrupted its most forceful commercial sector. Britain, long its most formidable competitor, reaped the advantage.

Tracking and progressively directing overall British trade, its Atlantic commerce grew robustly over the eighteenth century, powerfully assisted by the large population of its sedulously protected empire, a great proportion of whom were increasingly affluent free settlers. Whereas in 1760 settlers in French colonies numbered about 600,000 (at least four-fifths enslaved), the British had 2.8 million (more than half free). Between 1660 and 1776 British Atlantic shipping tonnage doubled, recorded colonial

trade rose five-fold, and re-exports of colonial commodities became one-third of all British trade. As their share jumped from 15 percent of total British exports to 51 percent, colonial markets accounted for 95 percent of added export volume between 1699–1701 and 1772–1774. As measured by official prices (which chart volumes but not current values) imports from America and Africa rose 6.5 times, exports to them nineteen times, and re-exports nearly four-fold between 1700–1701 and 1797–1798 (Table 6.4). Advance was fastest after mid-century; while this is partly a statistical artefact (Scottish trade was included from the 1760s), it correlates with overall trade increases, calculated at 0.8 percent annually between 1700 and 1740, 1.7 percent between 1740 and 1770, and 2.6 percent between 1770 and 1800.³⁷

Over time, growth rates and relative importance varied by commodity and geographic area. But across the eighteenth century, West Indian tropical groceries dominated Britain's (like France's) Atlantic imports. As falling prices helped Britons develop a sweet tooth – annual per capita consumption jumped from four lb. ca. 1700 to eleven lb. in the 1770s – sugar (with smaller quantities of rum and molasses) alone totaled half or more of total Atlantic imports, four-fifths of Caribbean. Consistently ranking second, Chesapeake tobacco was a fifth of Atlantic imports ca. 1700 but only a tenth by the 1770s, when it placed just above coffee – poised for a dramatic if short-lived 1790–1815 boom as war and revolution cut Saint-Domingue supplies and doubled their price – and Carolina rice (7 percent). While growing steadily across the eighteenth century, raw cotton was long a small export from the British Atlantic: just 2 percent of totals in 1772–1774, comparable to skins,

Table 6.4 *English and British Atlantic Trade Volumes, 1700–1701 to 1797–1798 (Percent of Total)*³⁸

Date†	Imports				Exports				Re-exports			
	West Indies	North America	Africa	Total	West Indies	North America	Africa	Total	West Indies	North America	Africa	Total
1700–1701	14	6	1	21	5	6	2	13	6	5	3	14
1750–1751	19	11	1	31	5	11	1	17	4	11	3	18
1772–1773	24	15	1	40	12	26	5	43	3	9	4	16
1797–1798	25	7	1	33	25	32	4	61	4	3	3	10

† 1700–1701 and 1750–1751 refer to England and Wales, the others include Scotland.

³⁷ R. P. Thomas and D. N. McCloskey, “Overseas Trade and Empire 1700–1860,” in *The Economic History of Britain*, 2 vols. (Cambridge, UK, 1981), II: 89.

³⁸ Based on Kenneth Morgan, *Slavery, Atlantic Trade and the British Economy, 1660–1800* (Cambridge, UK, 2000), 19–20.

hides, and timber. Only from the late 1740s had British imports from the Americas (mainly the Caribbean) exceeded Levantine, likely moderating price increases while providing long-staple varieties suitable for mechanization. But this changed drastically – cotton dethroned sugar – once southern mainland North American slave plantation cultivation developed, British cottons manufacturers' demand soared, and prices tumbled. British retained raw cotton imports, which grew less than three-fold between 1750 and 1775, more than octupled in the next quarter century – when just 5.5 percent came from the now-independent United States – tripled again by 1814–1816 (39.2 percent United States), then continued to mount until the 1850s; the United States share was already three-quarters by the 1830s.³⁹

Half to three-fifths of eighteenth-century British exports and re-exports to Atlantic destinations were cloth and clothing, metalwares a fifth. But cargoes' composition altered, depending on their destinations. Much of west Africa demanded specific types of iron bars and brass vessels, often as raw materials for local smiths. Exempt from mercantilist prohibitions affecting British consumers, Africans and free American settlers fancied Indian cottons. Cheap, coarse linens and light woollens for slave dress found ready sale in Caribbean and southern mainland colonies, heavier woollens in more northerly areas, linens and woollens among Amerindians. Though for most of the eighteenth century, textile exports and re-exports were increasingly directed to mainland North America, the expanding population also bought earthenware, window glass, hardware, and other consumer items. Up until the 1740s, demand for producer goods like nails, cordage, and wrought leather was equally buoyant, but slowed noticeably thereafter as colonial manufacturing replaced imports like nails or coarse woollens that involved little value added; exports of higher quality goods like wrought iron or pricey fabrics remained more robust.⁴⁰

Still, even on the eve of the American Revolution, a wide range of British industries sent the bulk of their exports to the kingdom's American colonies: in 1770, more than two-thirds of iron nails, cordage, wrought leather, beaver hats, linens, sailcloth, and some types of woollens; half or more of wrought copper and iron, wrought silk, printed cottons and linens, window glass and glassware, earthenware; and substantial proportions of many other items.⁴¹ Only after 1783 did merchants from the new United States make inroads: supplying Asian tea, silk, and cottons directly to domestic markets, they cut sharply into the British Atlantic re-export trade.

³⁹ Zahedieh, "Overseas Trade and Empire," 410.

⁴⁰ S. D. Smith, "The Market for Manufactures in the Thirteen Continental Colonies, 1698–1776," *Economic History Review* 51 (1998): 676–708.

⁴¹ Morgan, *Slavery, Atlantic Trade and the British Economy*, 64.

Scotland and Ireland devised specialties within British Atlantic trade, notably with American colonies. Until the 1780s–1790s, when Caribbean sugar, rum, and cotton replaced it, Chesapeake tobacco predominated in Scots commerce, comprising nearly half of its global imports in the mid-eighteenth century and, once processed, about the same proportion of its total exports. Before about 1740, tobacco was imported by a multitude of English and Scots ports, and smuggling was rife, amounting to nearly two-thirds as much as legal imports in 1715–1717, still a fifth in 1739–1748. But by 1758 Glasgow alone – and within the city a coterie of extremely rich “Tobacco Lords” organized into a classic subnetwork – had suppressed most contraband (and most other ports’ business) and controlled more than all English ports together. By 1765, Glaswegians handled more than 40 percent of all British tobacco imports. They benefited from privileges bestowed by the 1707 Act of Union with Britain: direct trade with the colonies, royal naval protection, and the exclusion of most competitors from dealing in tobacco. Glaswegians also became major suppliers of the large French tobacco monopoly; devised the “store system” that eliminated commission merchants in favor of direct purchases by shopkeeper agents in the Chesapeake who sold imported goods, granted credit, and assembled stocks of tobacco to swiftly load and turn around big, specially designed and efficiently utilized ships; and proved willing to make quickly large sales at low margins.⁴² By law, Ireland was obliged to use English intermediaries. Nevertheless, besides furnishing flaxseed, wheat and flour, sugar and rum, semi-processed iron, and lumber, the colonies provided an important market for Ireland’s linens, both medium-priced and especially cheaper varieties – for which the Americas were the biggest market outside Britain – as well as beef and other provisions; Irish linens and provisions also were traded legally and illegally with Spanish and French colonies.

Slaving was as fundamental to British as to every other Atlantic colonial plantation agriculture; in turn, plantations supplied the tropical groceries for British import expansion while consuming exports like provisions and textiles and re-exports, notably Indian cottons. Plantation agriculture also quickened North American-West Indies trade, augmenting their wealth and consumption of British goods. British slaving began in earnest during the 1640s, jumping substantially from the 1660s in tandem with the expansion of sugar cultivation. It continued to expand, despite short-lived downturns during wartime and the American Revolution, through

⁴² T. M. Devine, *Scotland’s Empire and the Shaping of the Americas, 1600–1815* (Washington, DC, 2004), 69–83.

the 1790s. Both under the Royal African Company's monopoly (which expired de facto in 1689, de jure in 1698) and subsequently, when the trade was in the hands of private merchants, British slavers supplied planters in Spanish, French, and occasionally Dutch colonies along with British. Colonial North Americans took up slaving with gusto from the 1730s, appreciably expanding their activities from independence (1783) through the early nineteenth century as cotton became king (see Appendix C.2).

During the long eighteenth century, in sum, northwestern Europe – Britain and France most of all – came to dominate intercontinental commerce. Together, the Americas, Africa, and Asia took 55 percent of British manufacturing exports in 1772–1774, as against 16 percent around 1700 – representing a more than seven-fold rise in value – whereas Europe absorbed just 13 percent more. Similarly, Asia and the Atlantic accounted for 40 percent of France's manufacturing exports in 1787–1789, up from 6 percent in 1716–1720. Still, Europeans remained the largest partners of both France and Britain, not to mention the Dutch Republic. In fact, the northwestern lands' hegemony of long-distance trade – particularly the most dynamic Atlantic sector – gave them primacy in commerce within Europe as well.

Intra-European Exchange: Hegemony at Home

Extending the process begun earlier in Antwerp and Amsterdam while unseating their Low Countries counterparts, across the long eighteenth century French and British merchants integrated European trading systems into global commodity flows and commercial trends while restructuring trade relations and the products exchanged between and within European states. Once rare luxuries, Asian and Atlantic goods became ordinary, even necessary, features of daily life; innovative as well as long-established domestic products and produce likewise circulated more widely. Improvements in transport and communications, in commercial information and advertising, and in modes of retail distribution promoted these changes throughout Europe.

Mediterranean trade illustrates both the bases of northwestern lands' commercial ascendancy and the retreat of the Dutch (not to mention Mediterranean denizens) in the face of the French and British. Iberia continued to supply essential primary products to other Europeans. Many were colonial re-exports – bullion, sugar, cotton, hides – others were domestic. Spanish wool exports, depressed during much of the seventeenth century, revived from the 1690s and remained strong – if fluctuating year to year – from the 1720s until 1789; Portuguese wine,

olive oil, and salt likewise experienced buoyant demand. But domestic and colonial consumers relied on imported manufactures, largely from northwestern Europe, which comprised three-quarters or more of the goods entering Iberia. Whether imports or exports, moreover, Spaniards and Portuguese traded only a minority of the goods in Iberian intra-European trade.

During the seventeenth century, Dutch merchants conducted much of Portugal's European commerce – 43 percent of ships in Lisbon harbor between 1640 and 1688 were from the Republic – though the English (accounting for 36 percent of ships) made inroads. The 1703 Methuen Treaty, by which English manufactures imported into Portugal were taxed at a low rate while Portuguese wine got privileged access to the English market, thus ratified – while accelerating – an emerging trend that soon gave Britain dominance. The treaty also confirmed a division of labor: even in the 1790s, manufactures (mainly textiles) were 87 percent of British exports to Portugal, food items 78 percent of Portuguese exports, nine-tenths of them destined for Britain. British traders' commanding position in Portuguese European commerce extended as far as controlling imports of Italian luxury goods and grain from Sicily and Turkey, sidelining Portuguese merchants as well as French and Dutch.⁴³ Both English and French merchants continued to dominate Spain's intra-European as its overseas trade. But here, too, though the French benefited from the Bourbon accession to the Spanish throne (1700, confirmed 1713), Britons gained an edge as the eighteenth century advanced by offering a wider range of manufactures.

Merchant communities from Mediterranean lands did carve out specialized niches – often as intermediaries for the major powers: Greeks settled in Venice between eastern and northern Europe, in Minorca and Gibraltar to assist British traders, in Trieste to broker between Habsburg central Europe and the Levant, in Russian Odessa; Maltese in all manner of legal and illegal trade across religious and political borders. With abundant capital, advanced commercial techniques, and access to a wide variety of goods including their peninsula's broad range of desirable textiles, art goods, and other high-end manufactures, northern Italians had controlled their countrymen's European trade during the Middle Ages and most of the long sixteenth century. Thereafter they remained in command of exchanges with Germany, east Elbian Europe, and the Balkans, while Genoese were middlemen in much Italian-Iberian trade thanks to their networks' strong presence in Cádiz and Lisbon, whence they participated

⁴³ Costa, Lains, and Miranda, *An Economic History of Portugal*, 152–58, 200–2, 209.

(often by proxies or naturalized members) in overseas and colonial trade. Soon after 1600, however, Dutch merchants arrogated an increasing portion of Italy's west European and related Levant commerce; from the 1630s, English traders based in Livorno began to supplant the Dutch and relegate Italian and French rivals to a lesser role. The growing influence of northwestern Europeans also changed the composition of Italian intra-European trade so it more closely resembled Iberia's. Among imports, Asian spices and American tropical groceries joined dried fish, tin and lead ores, and lighter and cheaper woollens from outside Italy. As for Italian exports, primary and semi-finished products like olive oil, currants, raw silk and silk thread, and alum replaced manufactures save silks and specialized Venetian glass products (like beads and small mirrors), all still in high demand throughout Europe and its colonies.

East Elbian and Scandinavian trade, partly overland and riverine but mainly via Baltic Sea routes, likewise altered as it merged with global commerce that northwest Europeans dominated. The up-and-coming port of Hamburg derived some benefit. Based on family and religious confession, its merchant networks' branches in Bordeaux and Cádiz exchanged cheap linens directed to slaves on colonial plantations for western European and colonial goods; the city also became an important processing center of sugar, coffee, and tobacco for eastern and Nordic European customers.

Overall, however, northwestern European merchants dominated trade within eastern and northern Europe. They had direct access to the colonial produce (and better-quality western European textiles) that were diminishing the hegemony of long-time Baltic staple imports (salt, herring, and wine). Equally salient, their countries' growing industries needed east Elbian and Scandinavian industrial raw materials – flax and hemp, timber and naval stores for ships, iron and copper – which supplemented and partially supplanted Baltic grain exports (also harmed by rising productivity in western European agriculture, new foodstuff consumption habits, and corn laws that subsidized English grain exports). The Dutch, who in the sixteenth century had largely replaced the Hanse, long retained primacy. After late seventeenth-century Anglo-Dutch wars, however, the British gradually ousted them. As the Dutch share of total Baltic trade fell from half in 1720 to less than a third in 1770 – though absolute volumes continued to rise – Britain took the lead from 1740 and London succeeded Amsterdam as the main western entrepôt for Baltic goods.

The changes in east Elbian-Scandinavian-Baltic trade patterns and goods – the Dutch Republic's “mother trade” – prompted transformations

that rippled throughout the Dutch commercial sector.⁴⁴ By the 1770s total trade volumes had rebounded from 1720s lows, but without surpassing mid-seventeenth century levels. Concomitantly, Dutch merchants had developed new primary trading connections, focused on different commodities and entrepôt functions. This novel commercial system also featured less integration between foreign trade and domestic manufacturing; separation and specialization of formerly unified commercial functions; growing emphasis on financial services and investments; and notable rise in the proportion of colonial goods among both imports and exports.

The mother trade had rested on imported foodstuffs and raw materials worked up by domestic manufacturing into exports, and on Amsterdam as the privileged entrepôt for exchanges along coastal routes between Iberia and France and the Baltic and North Seas. In the new system, Asian and American colonial commodities destined increasingly for the southern Netherlands and central Europe via riverine and overland routes bulked large. Some tropical groceries required processing before re-export. But refining sugar and milling tobacco – as well as making butter and cheese and distilling gin, the main rising Dutch intra-European exports – were less labor intensive and added less value than shipbuilding or textile weaving, whose exports shares fell.

In the past, Dutch international traders had typically not only bought and sold commodities, but shipped them on vessels they owned and self-financed. Now, however, merchants often served as commission agents, handling goods they did not own. Specialists financed commerce, their clients including foreign merchants and their trade outside the Republic. Owning and operating ships became a distinct profession that likewise provided services to all comers. These innovations accompanied a pronounced shift toward American and Asian goods: 11 percent of imports, 9 percent of total exports, and 18 percent of re-exports in the 1650s, intercontinental commodities were 44 percent of imports, 40 percent of total exports, and 58 percent of re-exports in the 1770s; European products' share shrank correspondingly. Initially, Asian goods propelled this growth, doubling in value from the 1670s to the 1720s before slowing; thereafter, West Indian commodities became important, rising from 12–14 percent of total foreign trade in the 1710s, to 17 percent in the 1750s, and 25 percent in the 1770s.

The new organization of trade brought some revival of the Republic's Baltic and German trade. Growing riverine and road traffic helped double the value of Dutch-German exports and imports (and, because exports

⁴⁴ Data in this section come from de Vries and van der Woude, *The First Modern Economy*, 481–503.

were worth twice imports, produce a robust trade surplus). Linen, timber, coal, wine, iron, rags for paper, even some grain came to the Republic in exchange for manufactures and mounting colonial re-exports (14 percent in 1753, 70 percent in 1790). Still grounded in bullion, salt, and raw wool imports but now including among exports a healthy quantity of Asian goods along with Baltic products and Dutch linens, exchanges with Spain remained vigorous, yielding the Republic a strongly positive trade balance.

But the novel arrangements also facilitated direct trade that bypassed the Republic, harming its entrepôt function, its minor ports, and its share of intra-European trade even when commercial volumes and values rose – major threats given the marked European orientation of the country's commerce, not just imports (75 percent) but also exports and re-exports (92 percent). Though Dutch colonial re-exports to the Baltic multiplied 4.5 times between the 1660s and 1760s, the Republic furnished just a fourth of Europe's total re-exports to the Baltic in the 1770s as against two-thirds in the 1720s; its Russian trade withered as well. Hamburg's development into a major entrepôt, processing center, and shipping hub came at the expense of the Dutch: their Baltic shipping dropped from one-third in the mid-1760s to a fifth in 1789, their share of exports to a tenth.

The Republic's biggest challenges in intra-European commerce – as in intercontinental – came from France and England, once key trading partners but now formidable rivals boosted by their dominance of Atlantic colonial plantation produce. After decades of erosion, in 1789 the Dutch conducted just 20 percent of France's European trade, and a long-positive trade balance had reversed, as French restrictionist policies and wars curbed Dutch activities, and French merchants brought linens, salt, and wine directly to the Baltic, notably to Hamburg, which after 1750 also refined a growing quantity of French colonial sugar. Still, the Republic's traders did carve out a profitable niche by processing French colonial re-exports for further re-export to German lands. Negligible in 1700, these goods constituted half of Dutch imports from France about 1750, and four-fifths in 1789; in return, the Dutch sent cotton textiles, cowries, and other Asian re-exports vital to French slaving and its colonial plantation economy.

England's commercial development represented a much greater trial for the Dutch. Even before the Republic's birth, Netherlands and English trade had been closely intertwined. London and southeastern England (the epicenter of the country's economic growth) depended on markets accessed through, and commercial practices diffused from, Low Countries' ports; during the Golden Age, Amsterdam was the entrepôt

for England's Baltic and Atlantic trade. From the mid-seventeenth century, however, new English commercial policies progressively recast this relationship to the Republic's disadvantage.

As intended, the mercantilist English Navigation Acts enacted between 1650 and 1673 ousted the Dutch from English Baltic and Atlantic trade and shipping by prohibiting non-English ships to transport goods from Europe to England or from outside Europe to England or its colonies, requiring colonial "enumerated" goods – including the chief tropical groceries – to be shipped only to England or other English colonies, and mandating that European goods destined for the colonies be first landed in England to pay duties, then reshipped on English vessels. Consequently, English merchants increasingly handled Dutch trade and English ships carried Dutch goods – even into the Baltic, where Dutch merchants chartered English vessels for bulk goods. And by ignoring financial matters, the Acts and associated measures tacitly encouraged Dutch investments, augmenting the capital available for English trade.

Together with changes in the Dutch economy, these laws also reconfigured cargoes traveling between the Republic and England. Rather than woollens, the Dutch imported British grain and, after mid-century, coal and iron goods; industrial raw materials and foodstuffs replaced manufactures both Dutch and from elsewhere in Europe. Historically, Dutch exports to England had much exceeded imports from that island, yet already in the 1690s they were just half or a third as large. As in Atlantic and Baltic trade, moreover, English merchants replaced Dutch on North Sea routes. Similarly, whereas in the early eighteenth century the Dutch handled nearly half of English re-exports to Europe (and two-thirds of Indian cottons, mostly forbidden to English consumers), those goods were wholly in English hands thereafter. Once again, Dutch finance superseded Dutch trade: English merchants used banks in the Republic to arrange payments in Germany and the Baltic.

A shift to re-exports also characterized France's intra-European trade during the long eighteenth century, which expanded most rapidly between the 1730s and early 1750s. As elsewhere, the change was driven primarily by booming European demand for American commodities (up eight-fold 1716–1720 to 1784–1788, as against three-fold for European goods), and secondarily for Asian goods, particularly in the first half of the century.⁴⁵ North German and Baltic markets became increasingly important, their share of French non-colonial trade jumping from a tenth in

⁴⁵ Calculated from Paul Butel, "France, the Antilles, and Europe in the Seventeenth and Eighteenth Centuries: Renewals of Foreign Trade," in *The Rise of Merchant Empires*, ed. Tracy, 163; Daudin, *Commerce et prospérité*, 234–36, 380.

1730 to a third in 1776, as colonial re-exports and French wine were exchanged for grain, textile fibers, timber and naval supplies. Like English Navigation Acts, French mercantilist “*Exclusif*” policies increasingly sidelined Dutch merchants and the Amsterdam entrepôt in favor of direct trade with the Baltic, though French merchants shared business with their Hamburg and Hanse counterparts to a greater extent than British traders did. As France directed more re-exports to the Baltic, commerce with the Dutch and the Mediterranean lagged overall growth rates and at best stagnated in absolute terms after 1754; their shares of French non-colonial trade, nearly a third (Dutch) and a half (Mediterranean) in 1730, had shrunk to a fifth and a quarter respectively in 1776, the latter decline reflecting, among other blows, the inauguration in 1771 of protections for Spanish textiles.

European trade remained the largest single component of French foreign commerce; though well below the Dutch Republic’s share (53 percent as against 75 percent in the 1770s) it was well above Britain’s both for imports (37 percent), and exports and re-exports (70 percent in 1787).⁴⁶ French manufactures were particularly dependent on European consumers, who took 88 percent of exported manufactures in 1716, and 64 percent in 1787, whereas English manufacturing exports to Europe dropped from 78 percent in 1722–1724 to just 34 percent in 1784–1786. France’s dependence on European markets had much to do with the character of its American possessions, always centered in the Caribbean and even more so after Britain acquired nearly all French North American colonies in 1763. Lacking dynamic free settler demand, French exports to the Americas were just a third of their imports from that region, and besides some manufactures, after the loss of Canada they included large amounts of foodstuffs for the Antilles, whereas the British West Indies were largely provisioned by British mainland colonies. And if French merchants and ships controlled France’s long-distance oceanic trade, much of its European trade was in the hands of foreigners, again in sharp contrast with Britain.

As London and its south-eastern English hinterland metamorphosed from one of several Atlantic trade entrepôts – and dependent upon Amsterdam at that – to the center of the largest, most dynamic, and best protected intercontinental trading system, Britain’s trade relations with Europe as a whole and with its various regions were substantially reorganized. The Continent (and Ireland) ceased to be the main destination for Britain’s domestic exports: though growing in absolute terms, its

⁴⁶ Calculated from de Vries, “Connecting Europe and Asia,” 92; de Vries and van der Woude, *The First Modern Economy*, 496–99; Daudin, *Commerce et prospérité*, 230–34.

share dropping from 85 percent in 1700–1701 to 30 percent in 1797–1798 (while the Atlantic share jumped from 12 to 61 percent). Europe remained a considerably more important source of imports (68 percent in 1700–1701, 42 percent in 1797–1798), and far and away the principal consumer of re-exports (85 and 88 percent, respectively), mainly tropical groceries.⁴⁷

The composition of commodity flows between Britain and Europe changed as well. Imports of foodstuffs halved by value between 1699–1701 (46 percent) and 1772–1774 (22 percent). Preferential tariffs helped assure imports of textile raw materials – linen yarn, raw flax and hemp, raw and thrown silk. Demand was sufficiently strong that when tariff aid was lacking – or imports faced steep tariffs – imports of iron, timber, and some other European primary materials rose sharply. Nevertheless, while Europeans remained British industries' key foreign suppliers of raw materials, their share slid from three quarters of the total in 1699–1701 to two-thirds in 1772–1774, as imports of dyestuffs and raw cotton from the Americas increased.

Woollen fabrics retained their traditional status as England's premier export to Europe (and Europe remained their largest market) until dethroned by cottons at the very end of the eighteenth century. Yet despite the dispatch of increasing quantities, the proportion of woollens among exported manufactures dropped consistently: 77 percent by value in 1699–1701, they were 52 percent in 1752–1754, less than a fifth in 1794–1806 (when cottons were a third). Moreover, woollens were the only manufacture for which exports to Europe were critical; the chief markets for growing manufactures – Scottish and Irish linens, small metalwares, and, to a lesser degree, pottery, glass, silks, and, very late, cotton textiles – were in the Atlantic, where protective tariffs that excluded the European rivals that had long dominated English consumption particularly helped linens and silks. Despite a brief bump in grain sales in mid-century, exports of domestic foodstuffs to Europe stagnated in value and fell sharply in share.

Britain's increasing overseas orientation, together with rising protectionism elsewhere, diminished while also modifying the relative importance of every European region (as defined by English customs) in the kingdom's commerce. Tariffs imposed to shield nascent Scandinavian domestic industry and shipping halved northern Europe's (Scandinavia, the Baltic, east Elbia) already diminutive share of British exports (6 to 3 percent), while re-exports stagnated (4 percent). Thanks to cheap linens (many destined for re-

⁴⁷ Data, from Zahedieh, "Overseas Trade and Empire," 394, are for English and Welsh trade in 1700–1701, Scottish as well in 1797–1798.

export to the colonies) and raw materials (flax and hemp, iron, furs, and naval stores) the region's portion of British imports did rise modestly, from a tenth to an eighth. Northwestern (Germany, France, the Dutch Republic, and Belgium) and southern Europe (Iberia and the Mediterranean, including the Ottoman Empire and North Africa), traditionally England's largest trading partners, registered more dramatic change. From together providing half of imports in 1699–1701 (northwestern 24 percent, southern 27 percent), they fell to a quarter in 1772–1774 (10 and 14 percent respectively); from taking three-quarters of exports at the first date (42 and 33 percent) they dropped to just over a third (15 and 22 percent); and from 71 percent (50 and 11 percent) of re-exports they eroded to 60 percent (52 and 8 percent). As protected linen weaving developed in Ireland and Scotland, imports from France and the Netherlands fell sharply; rising sales of linen yarn and madder, the main industrial raw materials northwest Europe supplied Britain, were insufficient to compensate for them. Of once-leading southern imports, Portuguese wine sales marked time, while Italian raw and thrown silk was hurt by mounting Asian supplies. Harming British exports, French woollens took a growing part of high-end demand in both regions, while German, Spanish, and Portuguese producers increasingly satisfied domestic consumption of cheaper varieties. Neither region took many of the linens and metalwares that were the dynamic British domestic exports of the age, and only rarely did they provide significant imports of foodstuffs and industrial raw materials.

The one European area with which British trade increased was Ireland. More salient, it was a colony, to which British merchants and goods had privileged access. Little wonder that between 1699–1701 and 1772–1774 its share of total British exports (largely textiles and metalwares) climbed from 4 percent to 10 percent; re-exports (mainly tropical groceries) 10 percent to 19 percent; imports (linens, many for re-export, and linen thread or yarn) 7 percent to 11 percent; in absolute terms, imports tripled, exports and re-exports sextupled. Beyond its specific circumstances, then, British-Irish trade underlines the growing centrality of overseas goods and markets for European commerce – even among Europeans.

Marketing to Consumers

Formal and informal, market and non-market, licit and illicit means of distribution made the expanding array of consumer goods available to Europeans at home and abroad, helping to form internationally convergent middling consumer demand as evidenced, for example, by the Atlantic-wide vogue, from the 1750s, for bright printed cottons. Historians have emphasized the proliferation of retail shops. Initially most common in

western Europe and in cities, as the eighteenth century progressed they appeared across the Continent and in villages, particularly in regions with flourishing rural industry and commercial agriculture, as well as in overseas colonies. Admittedly, urban stores tended to be more specialized: metropoles like London and Paris boasted exclusive fashion shops, but even modest city establishments often focused on a small range of products. City shops also offered more extensive choice, featured display windows, circulated print advertisements, and clustered in shopping districts. But more generalist village shops also broadened their stock, from no later than the early eighteenth century including globally sourced goods. Shopkeeping became a respected profession – with women prominent in key sectors such as clothing, fabrics, and food and drink – shopper a discrete social identity, shopping a recognized cultural practice.

Peddlers often complemented retail shops – or were even employed by them – and mail services not only distributed publicity about goods but

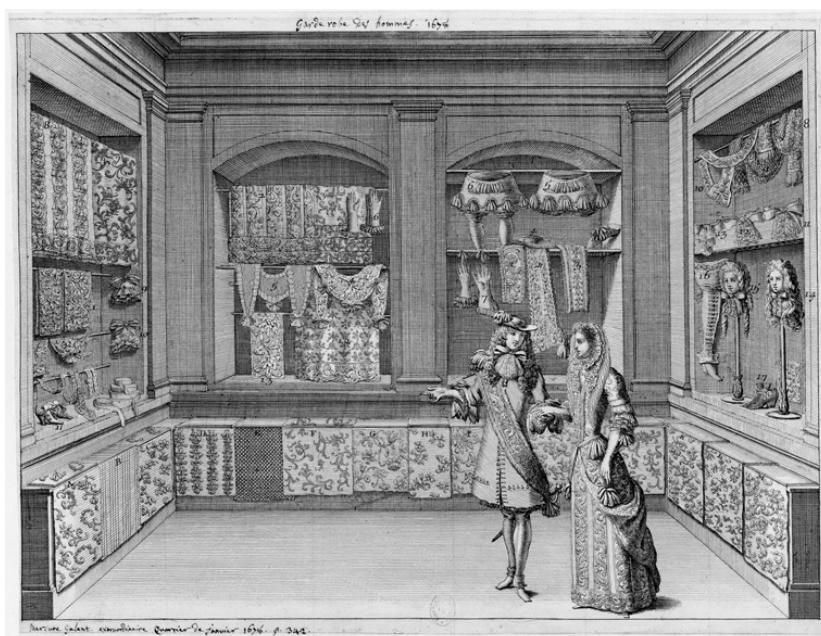


Fig. 6.3: This modish later seventeenth-century Paris shop specialized in expensive textiles and clothing. The journal that published the idealized image not only advised its readers (many lived in the provinces) about the latest styles in court and capital, but enumerated currently fashionable garments and fabrics.

also orders for them. Not all consumption involved new items: a very large – if understudied – second-hand trade provided repaired, altered, or just no longer desired products, styles, and knowledge to broader social groups in city and country alike. Numerous probate auctions served similar purposes, as did bequests and gifts. Beyond the law, contraband circulated sizable quantities of consumer goods, again to both urban and rural purchasers. Some were heavily taxed necessities like salt, but many were global commodities subject to hefty excises (tobacco, for instance) or outright prohibition (Indian cottons). However distributed and acquired, they widened consumer choice and stimulated demand; in particular, Asian goods – notably ceramics and most crucially cottons – provided standards of excellence that European producers sought to emulate and desirable goods that they attempted to imitate and displace with feasible domestic replicas.

Advances in communications and transportation helped spread goods, modes, and practices. They proceeded furthest in northwestern Europe and its overseas extensions. Newspapers and magazines multiplied and postal services spread, hastening the diffusion of commercial information while ameliorating its quality; canals, rivers, and roads were modernized; coastal shipping facilities developed. But – if often primarily for strategic rather than economic reasons – improvements also occurred elsewhere. Despite inadequate central government funding, Spain, for instance, upgraded its internal transport network and sped up trade, cut costs, and promoted product market integration. Source and symptom of growing internal demand, rural markets appeared throughout the country, fed by ever more active regional trade networks. Portugal, in contrast, exemplified the problems that lack of improvement posed. Poor roads kept freight and other transaction costs high – so much so, in fact, that imported rather than domestic wheat fed the growing city of Lisbon. Yet if interior market integration and domestic trade development were thereby hobbled and the emergence of regional and national-level traders slowed, even in Portugal – as in other commercially less developed areas – new products, styles, and consumption habit expectations materialized. How, if at all, did they, and the trade and merchants that sustained them, shape economic development?

Trade and Transformation

Across the long eighteenth century, ports, hinterlands, and industries oriented toward non-local markets – some already in evidence in the sixteenth century, others of more recent vintage – blossomed widely throughout Europe. They enriched some merchants, shippers, and

financiers, while also giving work to thousands of mariners, artisans, and service providers. Overall population and urbanization grew fastest in the Atlantic states most engaged in intercontinental trade. But was trade's relationship with growth cause or correlation? Were some branches of commerce more consequential than others? And did commerce influence or even induce structural change or manifest broader economic trends? As noted in Chapter 3, answers to these questions have been many and contentious, especially concerning the contributions of trade to the factory industrialization that first emerged from the 1760s–1770s.

Fleshing out Marx's claims that imperial Britain's commercial system had enabled its achievement, numerous studies have developed Eric Williams's argument, in his ground-breaking 1944 *Capitalism and Slavery*, that profits derived from slaving were a key source of industrial capital, particularly in light of rising demand for and prices of slaves during the eighteenth century. According to some calculations, overall slaving profits were comparatively high and could have provided substantial shares of domestic investment. Dutch slavers may have earned 3 percent at best, but the considerably bigger French *traite* returned 6 percent with less risk than state debt with greater liquidity and better returns than private investments. Similarly, the profits in the yet larger English slave trade averaged 5–10 percent, well above government bonds at 3.5 percent. By one estimate, in 1770 slave trade profits were the equivalent of nearly 8 percent of total British investment and nearly two-fifths of total commercial and industrial investment.⁴⁸ Moreover, slaving was just one branch of overseas trade, the overall contribution of which would thus have been yet greater, not to mention its importance in stimulating investment in physical infrastructure and the development of financial and commercial institutions.

These arguments have been strongly resisted. Overseas trade volumes and profits, including slaving, critics assert, were small relative to European economies as a whole, and therefore could add only small increments to funds available for investment. Even in Great Britain, which captured the lion's share of eighteenth-century trade profits, gains realized in intercontinental trade are said to have provided less than a fifth of all investment capital. Admittedly, some colonial merchants invested in forward-looking industries: for example, certain Scottish tobacco traders put capital in mining, metallurgy, and linen weaving and bleaching firms noted for product diversification as well as for adopting new technology that boosted productivity. But most commercial

⁴⁸ Barbara L. Solow, "Caribbean Slavery and British Growth: The Eric Williams Hypothesis," *Journal of Development Economics* 17 (1985): 105.

earnings were plowed back into trade, shipping, or associated activities like marine insurance, or put into landed estates and government bonds; long-distance merchants often financed or acquired colonial plantations. As a rule, merchants sought profits not from investment in production but from hegemony over market segments, with growth focused on recurrent dealings and adding new market segments. And even merchants who did invest favored industries like shipbuilding and sailcloth manufacture directly linked with commerce, or processing of colonial groceries – and these did not propel the Industrial Revolution. Paradigmatically, sugar – ordinarily the leading colonial commodity from the 1660s to the early 1800s and long the prime impetus to slaving – did not have a large impact on metropolitan economies. Its refining neither stimulated technological change nor elicited notable growth in other sectors, and with one notable exception the same was true of other colonial plantation crops.

In the event, recent scholarship maintains, early modern commerce's key contribution to European growth and change was not capital for industrial investment but access to specific markets, goods, and labor forces. Economies did not, however, benefit equally, even when possessing substantial intercontinental networks, colonial empires, and Atlantic activities. Portugal was Europe's major slaver (accounting for nearly half of all captives disembarked in the Americas) and boasted a plantation colony, Brazil, that both exported valuable agricultural commodities and was a major gold producer. Portuguese and Brazilian merchants controlled exchanges of Brazilian rum and tobacco for African slaves, and Portuguese dominated tobacco processing and distribution. But these were low-quality commodities, and their production and sale added little value and earned small profits. In the eighteenth century, Portuguese were brokers but British merchants bought and processed most colonial groceries.

Brazilian consumers did become more important to Portuguese industry, most of all producers of linen and woollen textiles, owing to rising demand fueled by Brazil's long gold boom and more effective bans on many imports and on local manufacturing in the 1770s. Whereas in 1730, Portuguese goods of all types, including foodstuffs comprised just 30 percent of Brazilian imports, in 1800, Portuguese manufactures alone amounted to 35 percent of its exports to the colony, now the largest single destination outside the kingdom for its industrial output. Even then, however, the bulk of manufactures sold in Portugal's colonies (as in Portugal itself) were British. Moreover, neither Portuguese nor Brazilians achieved effective dominance of Brazil's lucrative sugar and gold trades; and if colonial gold raised wages and thus incomes in the metropole, they also made Portuguese industry uncompetitive in Europe

and increased consumption of imported manufactures. Hence intercontinental and especially colonial trade reinforced Portugal's role as a specialized producer of primary products rather than stimulating manufacturing. In the early nineteenth century Brazil provided 11 percent of Britain's raw cotton, while British cotton fabrics alone comprised 14 percent of Portuguese imports.

Spain's trade with its much larger and more populous empire expanded appreciably. But contraband and, after late eighteenth-century reforms, liberalized trade brought in large amounts of cheaper, better quality, and/or more desirable foreign goods. That other Europeans and, increasingly, colonial merchants had charge of Spain's overseas trade also augmented imports of non-Spanish goods. Domestic manufactures received little impetus from export markets, which even at the end of the eighteenth century took just 5 percent of output and from just a few regions. A cottons industry did arise in Catalonia, but colonial sumptuary laws, readily available silks at all price ranges, and association of cottons with indigenous and enslaved people long depressed settler demand; in addition, many subaltern colonists made their own fabrics or obtained them from local workshops. The influx of American silver, like Brazilian gold in Portugal, drove up Spanish wages and prices, making its goods increasingly uncompetitive. As in Portugal, in sum, outsiders appropriated most economic gains Spanish commerce and colonies generated.

The Dutch Republic was consistently a leading re-exporter of colonial products, but its exports included few domestic manufactures. Equally important, Dutch metropolitan and colonial settler populations were both small. Once Europe's principal middleman for global as well as European goods, the Republic's role dwindled as mercantilist policies and wars excluded Dutch merchants and goods from much larger and more vigorous French and English markets at home and abroad. Increasingly, Dutch trade depended on Asian markets, which took few European manufactures, and on less prosperous areas of Europe, while Dutch merchants sought profits in financing their European rivals.

The impact of commerce on the economies of France and Britain, the eighteenth century's leading – and dueling – trading and imperial powers, has occasioned the most research and discussion. Scholars have often interpreted French foreign trade as having had scant effects on the internal economy; it might have mattered for specific localities and branches of manufacturing, but it determined neither general capitalist development nor factory industrialization. Asian and other European manufacturers profited most from its goods exports; much of its intra-European re-export trade was in the hands of foreigners; and beyond ports and their

immediate hinterlands, the metropolitan French economy remained largely subsistence-oriented and disconnected from foreign commerce, with domestic consumption taking 93 percent of total output. Moreover, French merchants showed little propensity to invest in industry; when a few did, whether in sugar refining or textile weaving, their descendants withdrew. Nor did France control lucrative overseas markets. Lacking colonies with many affluent free settlers, its Atlantic trade involved heavy reliance on exports and re-exports to other states' possessions. This presented few problems to high quality, stringently regulated, fashionable – if costly – goods, which could dominate demanding niche markets. But it proved less viable when demand rose for middling-level products, where price was an important consideration. Superior French linens, for example, which had long dominated Spanish American markets, lost market share to less expensive but acceptable Irish and east Elbian substitutes across the eighteenth century. Finally, with its eyes firmly fixed on Europe, France's government failed adequately to protect its empire or trade against either external forces – mainly England – or internal, as seen in the Haitian Revolution, which led to the loss of Saint-Domingue, by far its most productive and commercially valuable colony.

Newer interpretations and fresh calculations posit closer and more positive links between foreign trade and the domestic economy. Over the eighteenth century, it has been proposed, trade raised per capita income 8 percent, total growth 7–13 percent (5.5–7.5 percent from overseas trade alone), and secular GNP 3.5–5.5 percent (2–3 percent from intercontinental commerce). Intercontinental trade particularly rewarded industry: Asia and the Atlantic accounted for 40 percent of France's manufacturing exports in 1787–1789, up from 6 percent in 1716–1720; the Caribbean alone bought thirteen times more. Even though France lacked populous North American possessions, its Atlantic commerce, focused on Antillean plantation colonies, Africa, and some key Spanish American markets, grew rapidly. French plantation commodities not only experienced a higher rate of export growth than those from any other European colony, but by 1770, French Caribbean output was well above British in sugar, coffee, and indigo, and over the next two decades extremely rapid expansion of Saint-Domingue's production widened the French lead. Mercantilist policies designed to maximize exports and minimize imports helped. From 1655, protective tariffs on sugar galvanized colonial production (up four-fold 1713–1789), metropolitan processing, and, due to low domestic demand, massive re-exports.

Admittedly, most commercial profits were reinvested in trade – logically so, since it was the most profitable economic sector. But overseas commerce, growing faster and returning higher profits than the internal

economy, encouraged capital accumulation and entrepreneurial activity in domestic sectors linked with markets abroad: the colonies alone took 45 percent of France's increased manufacturing exports. Concomitantly, as foreign trade introduced new consumption goods into the overwhelmingly agrarian French economy it created new demand, heightened agricultural and manufacturing commercialization, and developed interior traders' commercial skills. In this account, a "virtuous circle" of increased foreign trade, new goods, and fresh demand sparked industrial development – in the late eighteenth century the flourishing French cottons industry received crucial, if not large, injections of merchant funds, introduced new machines, and had varied international sources of raw material supply.

Though Smith emphasized commerce as a motor of growth and productivity gains he also held that British trade's potential benefits were curtailed by monopoly rents benefiting narrow groups of merchants and financiers that mercantilism levied on consumers and by military costs that empire imposed on taxpayers. Recent historiography has viewed both more positively. Scholars now consider the Navigation Acts to have successfully advanced regional specialization that promoted efficiency – if concurrently ensuring an expanding group of merchants monopoly rents within the protected imperial market. The Acts also excluded vital trade items not available in metropole or colonies – slaves, salt for fisheries, Madeira wine – from the lists of enumerated items that could only be provided by producers within the empire, carried by ships from within the empire, and traded by metropolitan or colonial merchants. And while raising consumer prices, tariffs – 20–25 percent on imports, even higher on French goods – over time assisted successful import-substitution industrialization not to mention maintained merchants' profits and their support for the mercantilist empire. Imperial conflicts also reaped significant economic benefits. Though the Spanish slave asiento that Britain obtained in the 1713 Treaty of Utrecht did not achieve the anticipated profits, that contract did help Britain open lucrative trade in other goods, and wars did eliminate the Dutch as commercial rivals, while complicating France's commercial development to Britain's advantage.

Because of the resulting structure, which combined targeted mercantilism and a strong empire, scholars maintain, trade flourished, generating change as well as growth. In Britain, as in France, exports were the dynamic sector, contributing disproportionate increments to the economy as they grew more rapidly than domestic consumption: as total export volumes multiplied 4.6 times, their share of national income doubled from 8 percent in 1700 to 16 percent in 1800, and they accounted for 40 percent or more of total added industrial output. Wages, profits, and interest resulting from export expansion supported

an impressive 70 percent of England's net population gain across the eighteenth century. Intercontinental commerce provided the critical dynamic, not European: the Americas, Africa, and Asia took 55 percent of British manufacturing exports in 1772–1774, as against 16 percent around 1700 – representing a more than seven-fold rise in value – whereas Europe absorbed just 13 percent more.

Within overseas trade, Atlantic and specifically colonial trade was even more important for Britain than for France. The Caribbean furnished raw materials and groceries imports (13.5 percent of all British imports in 1700, 24 percent in 1770), North America markets for manufactures (6 percent of 1700's total, 26 percent of 1770's), Africa the slaves (120,000 disembarked in the British Caribbean and North America in 1701–1710, 270,000 in the 1770s) without whose unpaid labor the great expansion of commodity production and burgeoning Atlantic trade would have been impossible. In addition, Britain's populous, rapidly growing northern mainland colonies, unsuited for export-oriented plantation agriculture, produced food-stuffs, fish, and timber traded intra-colonially, spurring autonomous growth and attendant consumer demand for a diverse array of British manufactures. Colonial trade also provided inexpensive raw materials and large and (apart from the mid-eighteenth century) growing – not to mention protected – markets. Exports – to the Atlantic most of all – were key for British cottons manufacturing, which in 1801 sold nearly two-thirds of its output abroad. In the industry's infancy (1699–1701), the Atlantic took 80 percent of those exports; in 1772–1774 (after cottons export volumes had multiplied eleven-fold), 84 percent. Though markets broadened thereafter, Atlantic demand remained crucial.

Europe's commerce presented a mixed balance sheet at the end of the long eighteenth century. New trade patterns and relations had formed, commercial leadership changed hands, once unfamiliar goods become integral to everyday life, novel consumption expectations and habits emerged. Yet the merchants who had impelled and richly benefited from these developments remained heavily committed to market exploitation, not involved with – much less invested in – production. Commerce was, however, just one aspect of European economies. How commercial trends played out, and how, where, and when they affected capitalism's emergence, depended on responses within agriculture and industry, which are explored in the next two chapters.

Suggested Reading

Many works listed at the end of Chapter 3 are pertinent to subjects covered here. For overviews of trade in the leading colonial powers see Nuala Zahedieh, “Overseas Trade and Empire,” in *The Economic History of Modern Britain*, eds. Roderick Floud, Jane Humphries, and Paul Johnson, 2 vols. (Cambridge, UK, 2014), I: 392–420; and Guillaume Daudin, *Commerce et prospérité. France au XVIII^e siècle*, 2nd ed. (Paris, 2011). David Ormrod, *The Rise of Commercial Empires. England and the Netherlands in the Age of Mercantilism, 1650–1770* (Cambridge, UK, 2003), places Dutch trade within a regional context; see also M. van Tielhof, *The “Mother of All Trades”: The Baltic Grain Trade in Amsterdam from the Late 16th to the Early 19th Century* (Leiden, 2002). For Spain, see Guillermo Pérez Sarrión, *The Emergence of a National Market in Spain, 1650–1800. Trade Networks, Foreign Powers and the State* (2012; London, 2016), and Regina Grafe, *Distant Tyranny. Markets, Power and Backwardness in Spain, 1650–1800* (Princeton, 2012). H. W. S. Fisher, *The Portugal Trade. A Study of Anglo-Portuguese Commerce 1700–1770* (London, 1971), covers more subjects than its title suggests. For Mediterranean trade, see Gigliola Pagano de Divisiis, *English Merchants in Seventeenth Century Italy* (Cambridge, UK, 1997); and *At the Centre of the Old World. Trade and Manufacturing in Venice and the Venetian Mainland, 1400–1800*, ed. Paola Lanaro (Toronto, 2006). Scandinavian and Baltic trade are discussed in several chapters of *The Cambridge History of Scandinavia*, vol. II.

For commerce with and within Asia, consult Els M. Jacobs, *Merchant in Asia: The Trade of the Dutch East India Company during the 18th Century* (Leiden, 2006); Yong Liu, *The Dutch East India Company’s Tea Trade with China, 1757–1781* (Leiden, 2007); Chris Nierstrasz, *Rivalry for Trade in Tea and Textiles: The English and Dutch East India Companies (1700–1800)* (Basingstoke, UK, 2015); K. N. Chaudhuri, *The Trading World of Asia and the English East India Company 1660–1760* (Cambridge, UK, 1978); *The New Cambridge History of India. II.5., European Commercial Enterprise in Pre-colonial India*, ed. Om Prakash (Cambridge, UK, 1998). For chartered companies, see *The East India Company, 1600–1857*, eds. William A. Pettigrew and Mahesh Gopalan (London and New York, 2017); H. V. Bowen, *The Business of Empire. The East India Company and Imperial Britain, 1756–1833* (Cambridge, UK, 2006); Philippe Haudrère, *La Compagnie française des Indes au XVIII^e siècle*, 2 vols. (2nd ed.; Paris, 2005); Donald C. Wellington, *French East India Companies: A Historical Account and Record of Trade* (Lanham, MD, 2006). Felicia Gottmann, *Global Trade, Smuggling, and the Making of Economic Liberalism. Asian Textiles in France 1680–1760* (Basingstoke, UK, 2016), discusses licit and illicit trade; Felicia Gottmann, “French-Asian Connections: The Compagnies des Indes, France’s Eastern Trade, and New Directions in Historical Scholarship,” *The Historical Journal* 56 (2013): 537–62, is an overview with bibliography. Essays in *Goods from the East, 1600–1800. Trading Eurasia*, ed. Maxine Berg (Basingstoke, UK, 2015) discuss new consumption items and their significance.

Pierre Gervais, “Neither Imperial, nor Atlantic: A Merchant Perspective on International Trade in the Eighteenth Century,” *History of European Ideas* 34 (2008): 465–73, propounds a wide conceptualization. Kenneth Morgan,

Slavery, Atlantic Trade and the British Economy, 1660–1800 (Cambridge, UK, 2000), is broader than its title signals. De Vries and van der Woude, *The First Modern Economy*, 464–81, is the best overview of Dutch Atlantic commerce; P. C. Emmer, “The Dutch and the Second Atlantic System,” in *Slavery and the Rise of the Atlantic System*, ed. Barbara Solow (Cambridge, UK, 1991), 75–95; and *Riches from Atlantic Commerce: Dutch Transatlantic Trade and Shipping, 1585–1817*, eds. Johannes Postma and Victor Enthoven (Leiden, 2003), are helpful updates. For the “sugar revolution” and its background, see B. W. Higman, “The Sugar Revolution,” *Economic History Review* 53 (2000): 213–36; *Tropical Babylons: Sugar and the Making of the Atlantic World, 1450–1680*, ed. Stuart B. Schwartz (Chapel Hill, 2004); Russell Menard, *Sweet Negotiations: Sugar, Slavery, and Plantation Agriculture in Early Barbados* (Charlottesville, 2006). For Scottish trade, see T. M. Devine, *Scotland’s Empire and the Shaping of the Americas, 1600–1815* (Washington, DC, 2004); for Irish, Thomas M. Truxes, *Irish-American Trade, 1660–1783* (Cambridge, UK, 1988); for Spanish, Xabier Lamikiz, *Trade and Trust in the Eighteenth Century Atlantic World: Spanish Merchants and Their Overseas Networks* (Woodbridge, UK, 2010), and Catia Brilli, *Genoese Trade and Migration in the Spanish Atlantic (1700–1830)*, New York, 2016); for Italian, Corey Tazzara, *The Free Port of Livorno and the Transformation of the Mediterranean World, 1574–1790* (Oxford, 2017). For retailing, Jon Stobart and Lucy Bailey, “Retail Revolution and the Village Shop, c. 1660–1860,” *Economic History Review* 71 (2018): 393–417; Danielle van den Heuvel and Sheilagh Ogilvie, “Retail Development in the Consumer Revolution: The Netherlands, c. 1670–c. 1815,” *Explorations in Economic History* 50 (2013): 69–87; *Retailers and Consumer Changes in Early Modern Europe*, eds. Bruno Blondé, et al. (Tours, 2005); *Alternative Exchanges: Secondhand Circulations from the Sixteenth Century to the Present*, ed. Laurence Fontaine (New York, 2008); Laurence Fontaine, *History of Pedlars in Europe* (Durham, NC, 1996).

The effects of foreign trade on European economies are treated in *A Deus Ex Machina Revisited. Atlantic Colonial Trade and European Economic Development*, eds. Piet Emmer, Olivier Pétré-Grenouilleau, and Jessica V. Roitman (Leiden, 2006); Kevin O’Rourke, Leandro Prados de la Escosura, and Guillaume Daudin, “Trade and Empire,” in *The Cambridge Economic History of Modern Europe*, vol. 1, eds. Stephen Broadberry and Kevin O’Rourke (Cambridge, UK, 2010), 96–121; Nuno Palma, “Sailing away from Malthus: Intercontinental Trade and European Economic Growth, 1500–1800,” *Cliometrica* 10 (2016): 129–49. Eric E. Williams, *Capitalism and Slavery* (Chapel Hill, 1944), set off modern debates on the relations of slaving, American plantation agriculture, and the Industrial Revolution; recent considerations include *Slavery and the Rise of the Atlantic System*, ed. Barbara L. Solow (Cambridge, UK, 1991); David Eltis and Stanley Engerman, “The Importance of Slavery and the Slave Trade to Industrializing Britain,” *Journal of Economic History* 60 (2000): 123–44; Joseph E. Inikori, *Africans and the Industrial Revolution in England: A Study in International Trade and Economic Development* (Cambridge, UK, 2002); Guillaume Daudin, “Profitability of Slave and Long-Distance Trading in Context: The Case of Eighteenth-century France,” *Journal of Economic History* 64 (2004): 144–71.

For empire and mercantilism, see Patrick K. O'Brien, "Inseparable Connections: Trade, Economy, Fiscal State, and the Expansion of Empire, 1688–1815," in *The Oxford History of the British Empire, II, The Eighteenth Century*, ed. P. J. Marshall (Oxford, 1998), 53–77; Lars Magnusson, *The Political Economy of Mercantilism* (London, 2015); *Mercantilism Reimagined. Political Economy in Early Modern Britain and its Empire*, eds. Philip Stern and Carl Wennerlind (Oxford, 2013); Jonathan Barth, "Reconstructing Mercantilism: Consensus and Conflict in British Imperial Economy in the Seventeenth and Eighteenth Centuries," *William and Mary Quarterly* 73 (2016): 257–90.

7 Agriculture: Divergence, Development, Disappointment

During the long sixteenth century, the increased agricultural commercialization and specialization, differentiation among the rural population, and concentration of land ownership that marked late medieval agrarian Europe had become more pronounced. Novel trends had also gotten underway: tenurial reorganization, a “little divergence” between eastern and western European agrarian structures and farming practices, the supplanting of Mediterranean by northwestern lands, the appearance of areas marked by change even within regions typified by stability. Old or new, all had encountered headwinds even before the crisis decades in the seventeenth century. This chapter examines the impact on the agrarian sector of that period’s reorganization and reversal, good times and adversity, and the substance and results of eighteenth-century recovery. Which innovations persisted, and which halted or altered? Were regional differences eroded, reinforced, supplanted by new configurations? How were rural societies affected? Did new production relations emerge in the countryside? And how did agriculture interact with other economic sectors?

Little Divergences

East Elbia

Manorial demesnes and peasant tenures in east Elbian Europe had prospered during the long sixteenth century by producing grain and livestock not only for export but even more for expanding domestic markets. The ensuing period’s numerous wars and their attendant disruption of trade routes and marketing networks, uneven but locally severe epidemic disease and demographic decline, and wide destruction of crops and cattle halted, even reversed, those gains. In many places, depressed conditions persisted well into the eighteenth century. Much land became vacant and output decreased, as in Poland, where the overall cultivated area shrank 20 percent between 1620 and 1720, total farm production 25–30 percent. The rise of new competitors cut into foreign demand, complicating

recovery. Net annual exports of English grains, flour, and malt tripled from about 65,000 tons (2.4 million bushels) on average in the mid-1670s to more than 195,000 tons (7.2 million bushels) in 1745–1754, and most went to the Low Countries and the Mediterranean basin, formerly Baltic grains' chief markets. Baltic rye and wheat exports fell correspondingly: from 137,000 tons per year between 1600 and 1649, to 112,000 tons in 1650–1699, and 64,400 in 1700–1749. Similarly, as breeders in Denmark, western Germany, and the Netherlands supplied more of the livestock consumed in western European cities, yearly exports of oxen from Hungary, 100,000 head a year between 1550 and 1600, fell to 60,000 during the next half-century.

The prolonged crisis provoked some changes in agrarian east Elbia. Seigniorial authority frequently collapsed in wartime and peasants refused to pay rents or dues and render labor services, on occasion resorting to insurrection or flight and other less overt forms of resistance. Under duress, or to repopulate their lands, some lords made concessions regarding in-kind payments or corvée obligations. More often, however, demesne lordship was reinforced. Lords revived or extended earlier claims over peasant labor and surplus, raising requirements for compulsory but unremunerated work, hiking charges, subordinating more peasants to dependent status. After peasant insurrection in Mecklenburg (eastern Germany) ended in defeat, lords expropriated holdings and amalgamated them into their demesnes, reducing tenants to cottagers or smallholders reliant on manorial labor on terms and at rates that landlords set. In neighboring Brandenburg and Prussia, peasant rents and labor services nearly quadrupled between 1614 and 1717, and after 1650 hereditary dependence was imposed on remaining free peasants in Prussia. In Bohemia, where much of the old nobility was wiped out early in the Thirty Years' War, the largely foreign conquerors who replaced them quickly dismantled the peasantry's customary and legal protections. Lords enlarged their demesnes by seizing unoccupied holdings, then worked them by boosting *robot* (labor services) to three or – at haymaking and harvest time – more days per week; especially unlucky peasants (who formed as much as a fourth of the rural population) owed six days a week year-round. Admittedly, when a major rebellion against the heightened burdens erupted in 1680, the Habsburg emperor Leopold I (ruled 1658–1705) issued a decree that limited labor services to three days a week, forbade summary rent and fee increases, and freed tenants from having to buy all goods from their lords at prices fixed by the lords. But the edict remained a dead letter: lords uniformly ignored it – save for those who found in it an excuse to raise *robot* wherever it had previously been less than three days a week.

Improved economic conditions in the eighteenth century brought some easing of demesne lordship. Sometimes peasants were able to purchase rights of inheritance, guarantees against expulsion or arbitrary changes in the charges they owed, and authorization to sell or mortgage holdings. In a few lands – notably Brandenburg-Prussia – rulers seeking to enhance their revenues and curb noble wealth and power while retaining a peasantry able to pay taxes introduced Bauernschutz policies modeled on those pioneered in western Germany (see Chapter 4). These moderated seigniorial levies, substituted cash payments for performance of some labor services, reduced haulage obligations, and facilitated leases of seigniorial meadows on good terms.

Pronounced demographic recovery – east Elbian population growth between 1700 to 1800 was second (and marginally at that) only to north-western Europe – may have contributed to landlord willingness to make changes, as it had exacerbated parcelization of holdings and multiplied the landless and landpoor: 5 percent of villagers in Prussian-controlled areas of Silesia in 1577, cottagers were 52 percent in 1787; even before that date, the landless comprised 40–60 percent of Bohemia's rural population. Nobles who now commanded labor services above estate needs could see good reason to commute corvées into cash payments; other landowners could employ cheaply the growing throngs of rural folk with tiny holdings or none at all.

Rather than instituting novel tenurial or corvée arrangements, however, most estate owners saw in growing land hunger a chance to intensify levies and cancel reductions previously granted. Lithuanian and Belarusian lords thus imposed three days of labor services a week on their once little-obligated tenants. Even apparently favorable changes did not necessarily signify a lightening burden. Increases in other obligations often accompanied commuted labor services, which in any event might well be revoked when landlords' labor requirements changed. Peasants buying rights to the land they tilled did not come to own the property, for they still owed charges, even robot, and could be deprived of the land for any number of reasons. Although in 1740 Prussian lords lost their customary right to expropriate peasant lands, until late in the eighteenth century peasants still owed up to six days of labor.

Fresh impositions also appeared. In Poland, nobles established a remarkably lucrative trade in grain alcohol, the *propinacja*, thereby disposing of grain difficult to sell on international markets while – by mandating compulsory purchases – appropriating peasant cash that might otherwise have been spent off the estate. On royal properties, where revenues from agricultural products fell from 70 percent of total income in 1661 to 41 percent in 1764, *propinacja* grew from 6 percent to 38

percent. In Bohemia, estate-brewed beer – the only kind that tenants were permitted to buy – served similar purposes. Whereas in the early eighteenth century breweries supplied less than a quarter of lords' income, in 1757 they accounted for 43 percent. Demesne lordship and its burdens also expanded into new areas. The development of rye exports through Königsberg (Kaliningrad) after 1750, for example, encouraged the demesne lords in Lithuania and Belarus to introduce novel labor-service requirements.

As these examples also indicate, for all its feudal attributes demesne lordship remained a form of commercial agriculture that reacted to market conditions. Sometimes this involved new entrants into foreign markets: Lithuanian and Belarusian estate owners were responding to rising western prices. More often, however, it entailed reorienting exports: despite revived rye sales, demand for most east Elbian agricultural commodities in western Europe remained depressed even when England's grain exports waned after about 1750. Substitutes such as rice and maize had spread widely, not to mention potatoes, which in late eighteenth-century Belgium supplied 40 percent of the nourishment formerly furnished by cereals, helping turn the country into a grain exporter. In the second half of the eighteenth century, North American grain was also shipped directly to the Mediterranean. Hence shipments from Gdańsk continued to drop, to 20,000 tons by 1770, and even around 1800, after several decades of recovery, they totaled only 60,000 tons, far below previous highs. However, east Elbian demographic growth and stepped-up urbanization – Europe's highest rate of increase by far from 1650 to 1800 – boosted demand for agricultural produce, so the region's grain was increasingly directed to nearby consumers. Again, though by 1770 Hungarian cattle exports regained their 1570 high point, they had lost many south German and Italian markets. In response, breeders focused on neighboring areas within the Habsburg Empire, notably Austria and Bohemia. In short, east Elbian agriculture came to rely even less than in the past on foreign markets and more heavily on demand within the region. This shift deepened an existing trend while bolstering the region's agriculture. But it also exposed its weakness vis-à-vis more productive western European farming.

Yet neither east Elbian demesne lordship nor the region's surviving peasant agriculture was technically or organizationally immobile. Agrarian innovations were adopted from western Europe and indigenous novelties introduced. Peasants divided common lands into individually farmed holdings; raised fruit, pigs, poultry, and other specialties; developed new products, such as the dessert wines for which Hungary became famous. Landlords sought fresh ways to enhance productivity. East

German estate owners improved yield ratios by planting legumes and following more intensive crop rotations. More notable was *Koppelwirtschaft*, a type of convertible husbandry in which grain was grown for several years, then pasture for livestock replaced arable for three to six years, after which the rotation recommenced. Influenced by Dutch immigrants' skills and stock, landlords in Schleswig-Holstein adapted *Koppelwirtschaft* for dairying, their counterparts in Mecklenburg for sheep; like all other innovations, these were intended to expand output destined for domestic and nearby export markets.

Even at the end of our period, however, modified obligations and new methods remained straws in the wind. Nor did they signify alteration in the social, juridical, or property relations that undergirded demesne lordship. These withstood challenges from even powerful "absolutist" rulers. In the late eighteenth century, Frederick the Great, who reigned over Prussia from 1740 to 1786, as well as the Habsburg monarchs Maria Theresa (ruled 1765–1780) and Joseph II (1780–1790), sought to modify peasant conditions as part of larger programs of enlightened centralizing reform. Beginning with their hereditary lands, they regulated peasant obligations to lords (fixing labor services at a maximum of three days per week and converting some obligations into payments in cash or kind), strengthened peasants' right of occupancy on the land they tilled, taxed all land equally, and curbed the nobility's administrative and judicial power. In part at the urging of native thinkers, and in part influenced by the ideas of François Quesnay (1694–1774) and his fellow "Physiocrats" (French reformers who argued that creating a class of thriving tenant farmers would spark broad economic growth), Maria Theresa and Joseph undertook further reforms on some Crown estates. They abolished personal bondage, commuted labor services to annual cash rentals, and divided demesnes into small farms worked by peasants with hereditary tenure. Finally, in a series of bold 1781–1783 decrees, Joseph extended these changes to the peasantry throughout the majority of the Habsburg Empire.

It was all very largely in vain. Like their predecessors under Leopold I, most seigniors strenuously opposed the crucial reform measures, overtly refused to obey them, and eventually rolled them back. The great nobles were the vanguard of obstruction. After weathering seventeenth-century storms, the magnates had enhanced their wealth and power in the next century. Against their concentrated wealth and power, monarchs found they had little choice but to back down. Maria Theresa disbanded her oversight commission rather than confront continued magnate violations of her reforming decrees; Leopold II (Emperor 1790–1792) reversed the commutation of corvée.

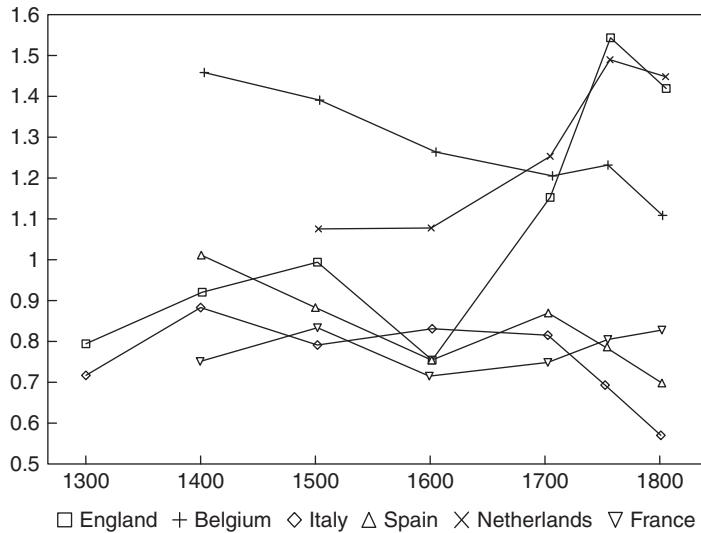
East Elbian agriculture, already long commercialized, provided food and industrial raw materials like wool and flax to domestic and, to a lesser extent, foreign markets. The growth of landpoor and landless strata engendered a cheap labor supply available for industrial as well as farm employment. Landlords concentrated control of wealth and other human and natural resources, and in some places strata of estate owners and substantial tenants interested in and capable of agricultural improvement were beginning to appear. But all these developments were incorporated into an agrarian structure that both limited the mobility of labor and prevented its full proletarianization; discouraged the widespread adoption of innovation by lords and peasants alike; hobbled increases in productivity, which even on the most advanced farms lagged well behind western norms; and depressed the incomes of the overwhelmingly peasant majority, curbing domestic demand. Pressure from competitors abroad and improvers at home was evident, but dominant economic, social, and political arrangements remained sufficiently vigorous to repel it.

Mediterranean Europe

Though highly productive, Mediterranean agriculture started encountering the congeries of problems summarized as “the seventeenth-century crisis” as early as the 1570s and suffered severe degradation thereafter; despite rallying in the eighteenth century, agrarian Iberia and Italy came to rank among the laggards in Europe’s growing “little divergence.” Existing regional disparities were exacerbated during both the downturn period and succeeding recovery. Still, if too many Spanish and Italian regions became bywords for backwardness, highly productive agrarian sectors appeared in a few.

Iberia After more than a century of often sharp fluctuations, Castilian pastoralism hit bottom in 1716, when wool exports were just 2.7 million lbs. Soon thereafter, however, and consistently from the early 1730s, foreign demand and wool prices picked up, and with them migratory and sedentary flocks and exports all revived. Exports rose steadily to more than 7 million lbs. in the 1740s and reached an extraordinary 16.8 million lbs. in 1751. Generally, exports remained above 10.5 million lbs. through 1789, when decline set in, perhaps in response to the end of the record profits that stable production costs and pasture rent ceilings imposed by the crown had assured grazers across the eighteenth century.¹

¹ Phillips and Phillips, *Spain's Golden Fleece*, 303–4, 273–74.



Graph 7.1: Output per Worker in Mediterranean and Northwestern European Agriculture, 1300–1800

Source: Robert C. Allen, “Britain’s Economic Ascendancy in a European Context,” in *Exceptionalism and Industrialisation: Britain and Its European Rivals, 1688–1815*, ed. Leandro Prados de la Escosura (Cambridge, UK, 2004), 23.

For many decades, land abandoned during the seventeenth century accommodated both expanding flocks and renascent arable. Spurred by demographic revival, abundant rural labor, and the planting – especially in northern provinces – of maize, up to the 1750s output and rents increased appreciably throughout much of Spain. But from mid-century output gains slowed, yet population continued to climb and, after falling for a century and a half, urbanization rates shot up. Despite the positive market signal of rising prices, domestic production fell behind demand, and Atlantic coast regions had to import grain from France, indicating that the extensive agrarian system had reached the limits of its ability to improve.

Though labor productivity likely rose in the seventeenth century, the advance was lost in the eighteenth – just when it went up notably in much of northwestern Europe, widening an already sizeable gap (Graph 7.1). The availability of vacant land and cheap rural labor had weakened landlords’ incentive – or indeed, their need – to invest in innovation; extension (eventually including encroachments on pasture) remained by far their preferred method of increasing output. Despite improvements, beyond

coastal areas a lack of navigable rivers, still inadequate roads, and sheer distance minimized competition from imported cereals. Climate, too, limited change, since in much of the peninsula low rainfall made northern European convertible husbandry impracticable, which restricted manure supplies as well as crop yields.

Yet even experiments with alternative fertilizers, not to mention other farming innovations, were notable by their rarity, even – especially – as land became scarcer. Flush with lucrative seigniorial jurisdictions, political power, and frequent financial largesse from monarchs whose economic reforms focused on trade and industry rather than even mild agricultural initiatives, landowners bought out failing peasants and ruined nobles alike, concentrating property ownership. An influx of landowners from the ranks of officialdom in the eighteenth century brought no change, for like the established aristocracy they profited nicely by enlarging their estates to gain additional rent income (as well as building lavish palaces and enhancing their social standing) rather than by undertaking risky and costly improvement. When enclosures occurred, most properties continued to be used for traditional crops raised in conventional extensive ways rather than for introducing innovations. Concomitantly, accelerating rural demographic increase occasioned land parcelization, quickly rising rents (as land hunger facilitated the imposition of short leases), and subsistence agricultural practices among the mass of the tenantry seeking security.

Admittedly, a tiny stratum of relatively well-to-do farmers made a timid appearance, and some experimented with new crops and methods. But most prosperous peasants found the obstacles to innovation too great and the opportunities for profit in time-honored ways too attractive. Thus they turned with gusto to loan-sharking, tithe and tax farming, the subletting of inadequate plots at extortionate rents. Little wonder that about 1750, Spanish grain yields were just a third of northwestern Europe's, and though they inched up thereafter, they dropped even further behind the faster-rising leaders. Spain's problem was not that landowners ignored market signals sent by growing demand and rising prices, but that they responded – rationally given the resource and reward structures – by extensification, not improvement. For their part, peasants lacked the security that might have induced them to introduce changes on their own, were unable to accumulate sufficient capital to do so or, for a few, found that exploiting their fellows was much less risky and more remunerative.

The lack of productivity gains in a time of rising population pushed up prices, which were aggravated by heavy consumption taxes on foodstuffs (and other popular items), a renewed influx of American bullion and, in

the late eighteenth century, wars and poor weather. These factors also depressed mass demand for manufactures, while the concentration of property and income among the affluent augmented imports of foreign luxuries. Rising raw wool exports disadvantaged local manufacturing, particularly that dependent on cheap raw materials. Low productivity also made it difficult for labor to leave farms for urban industry – though the proliferation of small plots did increase the ranks of the rural under-employed who might work in village industry as well as on extensively cultivated big estates. A few of the prerequisites of industrialization were present, notably cheap labor and – potentially – raw materials. Yet dominant property relations and structures of surplus extraction constrained product and commodity markets while directing capital toward social, political, and conspicuous consumption rather than productive investment.

The Mediterranean kingdoms were something of an exception. Though agrarian Valencia had been badly hurt by the 1609 expulsion of Moriscos, from the mid-seventeenth century the Alcoi (Alcoy) area both fed an expanding population and prospered by diversifying its commercial agriculture from barley to wheat, maize, and vines, extending irrigation systems, and boosting yields by introducing new crop rotations. In contrast to most Spanish agriculture, for nearly a century agricultural labor productivity rose and prices declined or stabilized. In the mid-eighteenth century, however, productivity growth stalled and prices rose as this form of intensive agrarian innovation reached the limits imposed by the contemporary allocation of resources and power. Nevertheless, the output gains did make labor available for non-agricultural work.

Catalan agriculture likewise increased productivity and yields while supplying necessary inputs to industry. Expanding domestic and foreign demand provided crucial stimulus. Catalonia's population more than doubled across the eighteenth century, the fastest rate of increase recorded in Spain, and Barcelona grew nearly three-fold; the city's merchants also shipped much produce abroad. As in the later Middle Ages and long sixteenth century, many Catalan farmers responded energetically to market opportunities. They invested in irrigation systems and abundant fertilizer, as well as adding maize, potatoes, and root vegetables to an already impressive array of crops. Such innovations – characteristic of advanced agriculture throughout Europe even if uncommon elsewhere in Spain – were introduced by some larger proprietors employing day laborers, but more significantly by the many Catalan peasants who operated family farms with long-term leases, customary rights to inheritance, and moderate rents and taxes.

Intensive polyculture was not solely responsible for Catalonia's agrarian success. Assured of reliable food supplies at moderate prices, the numerous smallholders in drier inland districts specialized in labor- and land-intensive viticulture within a unique form of sharecropping known as *rabassa morta*. Contracted for the life of the vineyard rather than a fixed term, *rabassa morta* gave both landowners (who also furnished working capital) and tenants (who owned as well as cared for the vines) a vested interest in optimizing output over the long term, the more so because tenants could sell up to two-thirds of the harvest; most further enhanced their gains by making and selling the wine from their own private plots that ranged from a couple up to five hectares in extent. As a whole, Catalonia's varied and productive agriculture released labor; damped down income inequality, raising demand for the region's manufactures, textiles most of all; helped landowners accumulate capital that some subsequently invested in cotton factories; and provided valuable exports that financed industrial equipment and raw materials imports. These assets helped Catalonia become the cradle of Spanish industrialization; unfortunately, they were not soon matched elsewhere in Iberia.

After a downtown comparable in its breadth and intensity to other Iberian kingdoms, from the mid-seventeenth century rural Portugal undertook output-boosting crop diversification and expanded commercialization. Maize, introduced in the sixteenth century, was widely planted from the 1650s; olives, fruit, and other tree crops extensively cultivated; market-oriented oxen and sheep husbandry became important; wool and flax production increased notably. Vines were the greatest success: wine production doubled over the eighteenth century, thanks to demand from Brazil and England most of all. Even before the 1703 Methuen Treaty (see Chapter 6), Portugal supplied more than a third of the wine drunk in England, by the 1740s 80 percent, and it kept that commanding position across the eighteenth century. To enhance quality and price by regulating production, and to secure a lucrative market segment, the government established the *Companhia das Vinhas do Alto Douro* in 1756, endowing it with monopolies of distilling *aguardente*, aging and fortifying spirits, and wholesaling port wine, as well as the first-ever demarcated production zone.²

Output growth, diversification, and commercialization were, however, neither results of nor stimuli to changes in agricultural techniques or property-holding structures. Production gains could readily be achieved by traditional extensive measures, notably putting more hands to work on more acreage, not only woodlands and waste but increasingly pastures

² Costa, Lains, and Miranda, *An Economic History of Portugal*, 176–77, 183–84, 172–73.

turned into arable, and intensification of vineyard labor. Land and labor productivity sank, while agricultural prices went up and real wages down, limiting income available for manufactures and transfers of labor out of agriculture. Grain yields remained so low that most peasants were left with minimal surpluses after paying rents, taxes, and production costs and saving seeds for planting. A growing shortfall, added to abysmal overland transport and internal customs barriers, protected inefficient inland producers and traders but also required rising grain imports that totaled 7 percent of domestic consumption in the later eighteenth century, much more in Lisbon (55 percent as early as 1729, 72 percent in 1778–1787), while profiting the merchant networks that controlled grain importing and marketing.

Landownership remained lopsided as well. Aristocrats and the Catholic Church held three-quarters or more; reforms of entail did little to mitigate this concentration because large properties were exempted. In northern districts, tenancies decreased markedly in size due to pronounced rural population growth; in the hot, arid South, big estates employing wage labor became even more dominant. With the urban cost of living high and job opportunities scarce, even when population grew few rural laborers left the countryside – in fact, Portugal noticeably de-urbanized after 1650 – unless they emigrated. A scattering of industries did emerge. But the restricted labor supply, small amounts of capital, and shallow markets that Portuguese agriculture contributed limited the prospects of these industrial undertakings.

Italy Italian agriculture experienced at least as severe a seventeenth-century downturn as Iberian; sluggish eighteenth-century revival raised output in absolute terms but assured – even before sharp reversal at the end of the period – that agrarian Italy, like Spain, steadily lost ground relative to advancing northwestern Europe (Graph 7.1). Crisis and recovery accentuated regional divisions that had emerged during the long sixteenth century. Pursuing a long-established pattern of crop diversification, the North (Piedmont, Lombardy, the Veneto, and parts of Emilia-Romagna) boasted the most productive farming; mezzadria brought stability but little growth to the Center (Tuscany, Umbria, Le Marche, and the rest of Emilia-Romagna); despite some impressively productive commercial husbandry, continued agrarian decline put the *Mezzogiorno* (the southern half of the peninsula, Sardinia, and Sicily) at the forefront of Italy's negative little divergence. Both the general trend and the regional disparities strongly influenced prospects for economic growth and eventual structural change.

Registering slow and regular improvement, albeit no dramatic breakthroughs, from no later than the 1740s northern Italy's commercial agriculture proved most adaptable to new conditions. As grain consumption and prices fell in the later seventeenth century, farmers once again branched out into new specializations. Some planted artificial grasses and switched to dairying; the fame of Parma's cheese dates from these years. Others introduced interculture, planting vines and crop-bearing trees in grain fields, or, like the hemp growers of Emilia, cultivated profitable industrial crops. Rice, already widely sown, expanded its territory. Maize spread rapidly after the 1620s; compared to wheat, maize had a considerably higher yield per hectare and consequent lower unit selling price, so it became a staple of the northern Italian popular diet. Yet while raising land productivity, maize also required considerably more labor, so it both enabled population growth and kept more agricultural workers on farms, often at the cost of declining labor productivity, increasingly parcelized holdings, and underemployment.

These changes were facilitated by a renewed influx of urban capital, whether seeking more secure investments than trade or industry during the crisis years or, during the expansionary decades, aware that profits were again to be made from the land. Combined with a lightening fiscal burden, these funds overcame the shortage of resources that had played so critical a role in choking off sixteenth-century growth. Some landlords, like their predecessors, innovated, notably by assembling substantial tenant farms employing as day laborers some of the growing crowd of landpoor and landless dispossessed initially by agrarian depression and later by rising rents. Alongside them existed peasant-proprietors who also utilized new methods of land management and employed waged workers. Assured of a supply of cheap labor, both groups responded nimbly to rising demand and prices for farm goods as the eighteenth century went on. They eliminated fallow, cultivated fodder crops, manured more frequently, invested in irrigation, improved tools, built better buildings, and plowed up wastes, marshes, and other previously uncultivated ground. None of these methods was new. But taken together they could result in agriculture as productive as any in Europe.

Still, adequately capitalized innovative farms were the exception; moreover, intensive agriculture – like extensive – exhausts the soil without proper fertilizing, and too many northern Italian farms had insufficient livestock. In mid-eighteenth-century Lombardy, well-manured land recorded high yields, yet the overall average was no greater than in the sixteenth century. These problems were exacerbated by landlords' continuing propensity to profit by raising rents, a temptation hard to avoid when the number of peasants – and thus the demand for land – rose

smartly from the later seventeenth century. Though this strategy produced higher output – mainly through yet more intensive cultivation – to pay the higher rents, it also reduced peasant incentives and resources.

Central Italy recorded more uniformly mediocre levels of agricultural output and productivity. Sharecropping continued to give poor peasants access to land, but few had the wherewithal to improve their farms. Landlords concerned to expand output (and income) customarily established new farms rather than upgrading those already in existence, opting for more rent income over investment in improvement. Admittedly, during bad years landowners extended additional credit and postponed payment, but that only locked peasant families into swelling, hereditary fetters of debt. On the Tuscan estate of Altopascio, peasant indebtedness burgeoned more than sixteen-fold from 1624 to 1718 and kept growing until the estate was sold in 1783, at which point the great majority of peasants had no assets whatsoever. Under these conditions, second-rate methods were the norm, the more so because contracts were short and sharecroppers who envisaged permanent improvements knew that these would be left behind if they moved on.

Some initiatives did foster greater commercialization and a degree of rural industrial activity. Most notably, as Italian, French, and English silk weaving expanded, landlords seeking marketable crops, as well as the Papacy (which needed an easily taxed commodity to pay for its rule of most of central Italy), required sharecroppers to cultivate mulberry trees and raise silkworm cocoons to be boiled and thread reeled or spooled in rudimentary shed-like factories located in towns and cities throughout the region. Output of raw silk in the Center and North, fewer than 100 metric tons about 1600, jumped more than thirty-fold in the next two and a half centuries. Silk cultivation provided peasants additional employment, yet because landlords and rulers took most of the profit, sharecropping tenancies remained poorly capitalized, technically stagnant, and largely subsistence-oriented. As many eighteenth-century travelers commented, a productive farmstead was a rarity in a mezzadria zone.

In the past, the Mezzogiorno had specialized in foodstuffs and raw materials exported most of all to northern and central Italian cities. Already in the later sixteenth century, however, inefficiencies and excessive levies had made the region's irregularly supplied grain costly. During the long eighteenth century, cheaper competitors (including North Americans) and substitutes like maize and rice effectively displaced it from remaining markets abroad; by 1710–1720, exports were but a tenth of what they had been in the 1580s. Across this period, too, mulberry trees planted elsewhere in the peninsula increasingly satisfied the northern silk industry. Southern farms sought salvation in extensive cultivation and

nomadic sheep and cattle herding, but across the seventeenth century the decay of north Italian woollens industries threw the Dogana into a profound slump, the number of sheep declining by up to 75 percent. Even in the eighteenth century, when demand revived, southern agriculture never regained its earlier bloom, and exports all but vanished for good. The region's growing cities – especially the booming capitals of Naples, where population nearly doubled during the eighteenth century, and Palermo – absorbed most of the foodstuffs supplied by farms whose productivity and yields consistently fell; a small, locally oriented woollens industry around Naples and Salerno consumed the bulk of the Dogana's shrunken output.

Southern landlords battened on virtually every aspect of the region's increasingly dismal agricultural economy. They collected seigniorial monopolies, excises, and judicial fees, and engaged in tax-farming and money-lending; when prices were low, these activities constituted the largest part of their revenues. Few proprietors lived on the land, preferring city pleasures while leasing their latifundia in large blocs to substantial middlemen. The necessary labor was provided by permanent and migratory wage-earners drawn from the 60–70 percent of the farm population who were day laborers (*braccianti*). Occupying wretched huts and tiny gardens planted with vegetables and a few trees or vines, braccianti survived by foraging for snails, wood, chestnuts, mushrooms, and other forest products, hunting (and poaching), and other expedients legal or not, for remaining grain farmers needed significant amounts of labor for just 30 days a year, vineyard owners for two or three months.

On their side, middlemen were nothing if not enterprising. When population grew in the eighteenth century, they often subdivided big holdings into small tenancies. These were sublet on short-term, insecure leases at high rents to tenants who also borrowed money, seed, and cattle at usurious rates and soon staggered under the weight of debts that encumbered increasingly meager and unproductive plots.

Little of the surplus that landlords and middlemen appropriated returned to the land, and less went into agricultural improvement. If not spent conspicuously or invested in government bonds, it was used to purchase additional holdings. Given rural population growth and consequent rising demand for land and expanding supply of labor, neither owners nor big tenants needed to invest in irrigation, drainage, tree planting, or fertilization, and most peasants were too indebted and had too unsure a hold on their tenancies to undertake on their own these projects, even when urgent. Consequently, Mezzogiorno agriculture faced ever more pressing problems with malarial marsh formation, soil depletion, deforestation, erosion, and the spread of impenetrable brushland. An increasingly wretched peasantry engaged in, or were the victims

of, endemic lawlessness and recurrent but fruitless rebellion. Though its agrarian order was founded on landlords' property rights over land rather than over people, southern Italy came to resemble east Elbian Europe in its predominantly extensive arable and pastoral agriculture increasingly oriented, as foreign markets slipped away, to regional consumers.

Across the eighteenth century, then, severe constraints hobbled Italian agriculture, but their weight was unevenly distributed among regions. Mezzadria could be found in most of the peninsula, because many landlords sought assured – if modest – incomes whenever they leased family-sized holdings to peasants. But it was most substantial and most oppressive in central Italy, where it hindered capital accumulation and investment to boost productivity. Sharecropping also hamstrung rural industrialization. Though family labor was often underemployed on the *mezzadro*, many landlords actively opposed supplementary craft work for the market lest it cut into agricultural production from which they drew income. At best, such a family would receive additional land to till. Neither did the increasing cultivation of silk cocoons help develop crafts in the countryside. While vital industrial raw materials, cocoons were not processed in the countryside but in urban centers (where they provided low-wage work for only a few months a year). Moreover, the stages that added by far the greatest value – throwing (spinning) and dyeing the silk – were rarely performed even in central Italian towns; the overwhelming bulk of the region's raw silk was destined for export to northern Italy, France, and England. If anything, mulberry trees and silkworm cocoons limited the mobility of rural labor and capital rather than freeing them for redeployment into towns, industry – or even into more productive agriculture.

The establishment of large properties continued apace, now favored by the adoption of legal devices that transmitted estates undivided across generations. This concentration of property ownership could foster agrarian improvement, as when resident northern landlords pumped capital and innovations into their substantial farms. Even in the north, however, the lure of city and court promoted absenteeism, and with it interest in and commitment to improving the countryside waned. Nor, with rents rising even without investment, was there much incentive to do so. The problem was much worse elsewhere. It was compounded by the accumulation of land in the hands of the Catholic Church, which was forbidden to alienate it but lacked both liquid capital and competitive pressure to innovate. By the early eighteenth century, fully a third of Italian property was held in ecclesiastical mortmain (the perpetual ownership of real estate by institutions prohibited from selling or otherwise transferring it).

Finally, feudal levies were still collected all over Italy. Their burden was lightest in the north, where landowners received most of their income

from farming and correspondingly less from seigniorial dues and rights, and where municipal and territorial governments had pruned feudal jurisdictions. Central and southern proprietors, in contrast, relied more on feudal revenues in the absence of agricultural progress – which therefore became that much more difficult to launch.

Northern Italian agriculture provided inputs to other sectors. Its farms kept land productivity high if labor productivity low, raising output of foodstuffs and industrial raw materials, while enlarging holdings expropriated and expelled many peasants from the land, “freeing” – impelling – them to seek jobs in urban or rural industries to supplement whatever farm work they could obtain. At the same time, however, northern Italian agriculture attracted capital yet spent it predominantly on applying existing techniques and practices more widely and intensively rather than on innovation, and the impoverishment of much of the peasantry restricted demand for manufactures. Still, for all their ambiguity, agrarian conditions in the North were more propitious for economic change than in central and southern Italy, where land, labor, and capital were largely immobilized and the agrarian surplus typically transferred out of the economy altogether.

Western Europe

During more than a century and a half of crisis and renewal, western Europe’s already disparate agrarian areas became even more varied within as well as across state boundaries. Gross farm output mounted everywhere, but in most places expanding production barely kept up with demographic increase and fell behind from 1750, as both rural and urban population soared. The North Sea region continued to develop most spiritedly, creating or widening gaps in agricultural productivity, real wages, and occupational distribution. Yet leadership changed among northwestern European states. Notably, the Dutch Republic’s agriculture – like the country’s economy as a whole – stalled, albeit at a high level of productivity, and Belgium’s once-exceptional labor productivity continued its protracted decline, while in rates of growth and degree of structural transformation, England’s agrarian sector outpaced all of Europe.

Western Germany-Switzerland Agriculture suffered badly if unevenly from long decades of war that devastated German lands west of the Elbe during much of the seventeenth century. Production, population, and demand plummeted, and remained depressed for years. Landlords’ incomes sank as loans granted to keep peasants afloat had to be forgiven, rents lowered, and dues reduced. As elsewhere on the

Continent, output bounced back starting in the early eighteenth century, picking up speed from the 1740s. It was led, as in the later sixteenth century, by areas in the northwest that emulated progressive farming in the neighboring Low Countries. By and large, however, western Germany's agricultural productivity remained unexceptional.

The repeated conflicts forced throngs of peasants to the wall. Innovations previously attempted were frequently abandoned. More intensive methods, adopted when labor was abundant and cheap and markets brisk, became impracticable when depopulation reduced the labor force, pushing up wages, and irrelevant when demand slackened. Rotation cycles had to be shortened because long-neglected land required more frequent rest when put back under the plow.

Peasants west of the Elbe, like those further east, often owed dues, fees, and labor services, at times onerous. Taking a page from their east Elbian brethren and hoping to exploit wartime dislocation and demoralization, some seventeenth-century landlords tried to form large estates worked by enserfed peasants. But by means of flight, violence, and legal challenges in territorial and Imperial courts most of the rural population successfully resisted reenservment and maintained the strong village communities and mainly free-peasant farming that had arisen across the later Middle Ages and sixteenth century. Noble attempts to turn back the clock also ran up against state-building princes' redoubled efforts to centralize power, secure their tax base, and curb aristocratic authority. In the end, not only was the landlords' onslaught blunted but corvées and other existing feudal obligations were generally mitigated if not abolished and what historians have termed a "rent offensive" thwarted. By the eighteenth century, the bulk of western German land was held by peasants on secure leases or (less commonly) owned by them. The peasantry's total burden was not alleviated, however, and probably intensified, since princes raised their imposts and landlords' position restrengthened as accelerating population growth – most occurring in the countryside – drove up demand for land.

As elsewhere, demographic increase, along with rising taxes and rents, also promoted parcelization of holdings and differentiation among the peasantry. The peasant elite that had begun to take shape during the sixteenth century consolidated its primacy during the long eighteenth century. In some places, government policies furthered the process by sanctioning or even mandating that holdings be passed on undivided to heirs. More widely, substantial farmers bought land vacated during one or another war. Because of these developments, the number of farmers with holdings adequate for the practice of commercial agriculture remained constant or even expanded modestly.

Compared to their pre-crisis predecessors, these farmers were more welcoming of innovations such as new fodder crops, stall feeding,

convertible husbandry, rotations with no fallow, potatoes to feed growing throngs of poor. They also responded flexibly to variable market conditions. When agricultural wages were high and grain prices depressed in the seventeenth century, many abandoned cereals for cattle and oxen breeding, since prices for meat and leather stayed healthier and livestock could be tended by family members. Others, their land less suitable for pasture or located close to cities, planted tree or horticultural crops. Then, during the eighteenth century, as grain prices rebounded and those of meat lagged while demographic increase helped moderate wages, many west German commercial farmers switched back to cereals with hired labor. On their side, many viticulturists gave up when the vines they had replanted after the end of the Thirty Years' War were destroyed once again in late seventeenth century hostilities; a smaller group, however, took advantage of falling wages and a favorable location to profit again from this labor-intensive crop.

Concomitantly, the ranks of smallholders, cottagers, and laborers dependent on wage work, thinned during the seventeenth-century crisis, underwent massive expansion. Bauernschutz laws proved able to slow but not stop the process. Areas where impartible inheritance was not practiced were most strongly affected. The multitudes of landpoor and landless were eager for employment, and – particularly in the lower Rhineland and central Germany – some found it, in rural industries processing domestic wool, flax, hemp, or leather, and in mining and refining local iron ore. Yet state, landlord, and, in many places, church levies pruned the disposable income of even the most substantial farmers, while pockets of agrarian innovation were not sufficiently large to raise productivity overall. Poor harvests in 1755–1762 and 1771–1772 aggravated inflation. Food prices escalated from the 1730s, and as grain prices doubled between 1750 and 1800 while wages rose by just a half, if that, mass demand for manufactures shrank. Nor, research indicates, did much landed wealth flow into industrial investment. Particularly in northwestern Germany, agriculture could provide resources to other sectors. But in most cases, the magnitude and impact of that contribution was circumscribed by demand as well as supply constraints and the continuing vigor of the existing social relations of production.

A severe economic crisis, repeated rural rebellions eventuating in the Peasants' War (1653), and renewed religious conflicts shook seventeenth-century Switzerland. Yet the period also saw the emergence and rapid growth – both in upland and valley areas – of commercial cheese production for sale across Europe. Though peasants on small holdings were the main raw milk suppliers, a limited group of entrepreneurial large farmers had the liquid capital needed to acquire sufficient quantities of milk and process it in bulk for export. Domestic and foreign demand for Swiss cheese, increasingly

marketed as Emmentaler or Gruyère, remained buoyant across the eighteenth century – so much so, indeed, that rising numbers of grain farmers switched to dairying, while the biggest cheesemakers acquired additional land, concentrating property ownership while becoming increasingly wealthy and dominant within Swiss agriculture and controlling to their advantage access to markets. Healthy foreign demand and rural population growth also fostered division of holdings, encouraging more intensive farming in many cantons – viticulture expanded impressively, for instance – as well as adoption of new root crops and artificial fertilizers, but also engendering a growing precarious population in the countryside. Commercial and demographic trends thus both pulled and pushed many peasants to find additional sources of income, most widely in rural cotton spinning and weaving, as well as in commercialized household handicraft production, notably watchmaking. As in northwestern Germany, in short, some of Swiss agriculture could provide resources for broader change.

Scandinavia Deep agricultural downturn persisted across much of seventeenth-century Scandinavia, aggravating economic differentiation among peasants and magnifying their reliance on non-agricultural work to make ends meet. These trends continued – often intensified – when conditions improved in the eighteenth century, because the challenges posed by rising population and tenurial changes were met not by raising very low productivity but by extending cultivation, often onto less fertile soils; on occasion, even this expedient failed, triggering price spikes, hunger, even famine.

Estates with demesnes and middling-sized peasant tenancies remained a defining characteristic of Danish agriculture, but economic and financial problems stemming from prolonged wars provoked significant changes in landholding. By 1700, the Crown had sold half of its once-extensive holdings (half the country's farmland a century earlier), auctioning off additional properties after costly wars in 1709–1721 and the early 1760s. Townspeople, notably merchants, were the main purchasers; by the 1770s they owned a third of all land. Throughout, nobles retained not only the largest share – just under a half – but administrative and judicial dominance as well, their preeminence bolstered by sixteenth-century consolidation of holdings in the hands of the wealthiest aristocrats and by tax exemptions. Peasant freeholds, always a small sliver of holdings (5–6 percent at most) shrank to just 1–2 percent.³ As elsewhere

³ Figures cited in this section are based on Dan H. Andersen and Jens Chr. V. Johansen, “Economy and Social Conditions,” in *The Cambridge History of Scandinavia*, eds. Kouri and Olesen, II: 458–59, 467–68, 470, 474–75; for population, see Appendix A.

in Europe – and with similar regional variations – the number of small-holders and landless multiplied, not just during the destructive war years but also once rural population growth accelerated even before 1700 and emigration slowed, raising demand for holdings.

No matter who their landlords were (in addition to state, noble, and bourgeois landowners, ecclesiastical institutions held about a tenth of Danish land), as in east Elbia tenants long owed entry fines, largely in-kind dues, and labor services on the demesne, typically fulfilled by hired servants or small-holding subtenants. Estate owners also hired small-holders to work on demesnes, and in commercial fishing, forestry, and tile-making. Few estates, however, were turned into Mediterranean-style latifundia staffed by day laborers, in large part because of firm Crown opposition to anything that threatened to reduce taxes that tenants alone owed. With extensive pastoral and scattered-field arable agriculture the norm, output was typically raised by cultivating additional land, though some peasants did initiate new rotations or specialized in either dairying or grain-growing. Some owners leased their demesnes, occasionally on contracts requiring improvements or the use of advanced techniques. But most – including bourgeois – seem not to have invested much in agricultural change, preferring known rent and fee income, not to mention the power and prestige their properties conferred.

Still, faced with growing demand but modest yields, sinking labor productivity, and rising prices, from the 1750s the Crown and some reform-minded nobles began introducing changes. They ended labor services and other servile duties, enclosed open fields, and established compact farms. While many tenants were settled on viable individual properties with hereditary and freehold contracts, others bought their farms, mainly from owners eager both to profit from escalating land prices and to invest in more lucrative trading opportunities. Yet the tenurial and organizational changes also significantly increased the number of peasants with inadequate holdings or no land at all, further expanding the ranks of the rural wage-dependent population. A portion of them found work in country crafts and industries, notably cheap textiles for domestic consumers and Danish West Indian slaves. But persistent low productivity limited the stimuli that Danish agriculture could furnish to broader economic growth.

Norway had a much lower proportion of estates and of noble land-ownership than Denmark, which ruled it, and a much higher and (thanks to sales of church and Crown properties) growing proportion of peasant freeholds: one-fifth the land in 1661, a third in 1721, nearly three-fifths by 1801. Members of the country's small urban bourgeoisie often bought estates in the eighteenth century, but only to profit tidily by quick resale.

Whether owners or tenants, peasants living on individual farms continued to control Norwegian agriculture and were powerful and cohesive enough to defeat – by rebellion – Crown efforts to raise taxes during the eighteenth century. With insufficient fertile arable, many engaged in extensive pastoral and supplemental rural occupations. While cropland was enlarged by about half – much involving reclaiming properties abandoned during the seventeenth century – yields remained mediocre and 20–25 percent of grain consumption had to be imported. For all that, population revived smartly (up a third in 1650–1750, nearly 50 percent in the next half century) – with its usual effects of declining farm size and expanding throngs of landpoor, day workers, and servants. As a result, only a quarter of the 80–90 percent of the population living in the countryside comprised by far the bulk of the domestic market, and that affluent group relied largely on goods imported from elsewhere in Europe and overseas.

Peasant farming and few estates were likewise features of Swedish agriculture, though nobles whose tenants owed labor services and payments in grain held a third of agrarian properties around 1700, their holdings concentrated in the more productive southern arable districts. Freehold peasants whose main levy was state taxes owned another third, the Crown, which collected various duties from its tenants, the remaining third. By 1800, sales to finance wars, which had already cut Crown landownership during the seventeenth century, had pushed its share below a sixth, while peasant freeholds accounted for half and nobles retained their previous portion.

Ownership changes bred minimal improvement. Like Norway's, little of Sweden's land was suitable for arable – perhaps 2 percent in 1700 – so extensive livestock grazing for local markets was a leading activity. In subsequent decades, as during the sixteenth-century expansion, forests were cleared and plains dug up, and some enclosure and property amalgamation occurred, raising total output. But with little investment and few advances – rotations long discarded elsewhere remained the Swedish norm throughout the period – productivity remained very low and large-scale imports of Baltic rye necessary to feed the population. In central Sweden, mining and processing iron and copper ore afforded some industrial employment, yet the work might well be full-time rather than combined with farming. More often, hunting and fishing provided the margin needed for subsistence, and in some areas hemp spinning and weaving turned out marketable goods, though much of the cloth was for auto-consumption. In Swedish-ruled Finland, the noble presence was always much weaker, and timbering and the production of forestry products like pitch and tar the main non-farming rural industry, but otherwise agricultural conditions and trends were much the same. Thus like

Norway's, Sweden's and Finland's agrarian sector could make an even weaker contribution to industrial and wider economic change than Denmark's.

Crisis and recovery alike had continued the process of Scandinavian peasant differentiation over the long eighteenth century. Peasants did not practice a productive agriculture. Yet they retained control of agriculture whether they occupied tenancies or freeholds, and when combined with part-time fishing, lumbering, charcoal-, pitch-, or tar-making, the food they produced on their farms or nearby generally provided adequate subsistence. As a result, few peasants were pulled or forced off the land; but neither need they innovate much, nor could they. While a rural non-agricultural labor supply was emerging in Scandinavia, the impulse and resources for development would not come from within the agricultural sector.

France Recent research has radically revised a well-established albeit ideologically and methodologically diverse historiographical consensus that emphasized the shortcomings of eighteenth-century France's agricultural performance, especially in contrast to contemporary England's. Recalculations of levels of productivity, reconsiderations of venerable subjects from property-holding patterns to farm debt, reevaluations of obstacles to agrarian advance, and introduction of new or at least refurbished topics such as political conditions, the role of urban markets, the contribution of rural industry, and the nature of peasant strategies – all have led to a more positive view of French agriculture, whether in cross-Channel comparisons, on its own terms, or relative to the kingdom's overall economic development. Nevertheless, for all its positive aspects – alone in Europe, for instance, agricultural labor productivity continued to rise after 1750 – France's agrarian sector lagged well behind the leaders (Graph 7.1).

The seventeenth century brought rural France falling output, prices, farm incomes, and rents, along with rising taxes, wartime destruction, massive debt, impoverishment, and land abandonment. Yet even during the bleakest decades, stretching from about 1660 to the 1710s, population in town and country continued to grow, suggesting the productive reserves that subsequently allowed marked recovery to set in. Increases in net output at least matched population growth before 1750 and pulled ahead thereafter at a pace of up to 0.4 percent a year, with land productivity perhaps increasing 15 percent over the half century and total factor productivity (gains in output in excess of additional inputs of land, labor, and capital) by 0.16–0.30 percent annually, indicating greater efficiency in the use of productive factors and/or technological innovation.

Historians have long credited such progress as occurred in the French countryside to the small minority of well-off plowmen who both owned and leased large farms producing for the market. Already evident in the long sixteenth century, tenants leasing big compact farms from noble, clerical, and bourgeois landowners were most common in the open-field districts of northern France, later emerging in other regions; by some estimates, they held a third of French farmland at the end of the eighteenth century. At the same time, as elsewhere in Europe the growth of large properties, demographic increase, and partible inheritance swelled the bottom of French rural society, and this mainly subsistence-oriented, increasingly indebted small-holder, sharecropper, landpoor, and landless majority has been blamed for retarding advance and eventually bringing it to a halt.

Yet there was no straightforward correlation among farm size, land usage pattern, tenurial structure, commercialization, innovation, and productivity. To be sure, particularly on the fertile plains of French Flanders and the Paris basin, farmers with big holdings employing wage labor innovated to achieve high grain yields and raise output. But many small and middling farmers also realized excellent results, most of all by specialized commercial agriculture: stockbreeding and dairying, vineyards and olive groves, tobacco fields and market gardens, sheep herding and flax cultivation. French peasants of all kinds likewise showed themselves willing to alter their crop mix in response to changing demand and competition. As dyers came to prefer imported tropical indigo to pastel, for instance, farmers in the southwest phased out woad cultivation in favor of maize.

Like eighteenth-century Physiocrats and other agricultural reformers, modern historians have typically considered large farms on the English model prerequisites for land consolidation, enclosure, and engrossment, privatization of common fields, and extinction of collective rights that would usher in more efficient rotations, plowing, irrigation, and other productivity-enhancing innovations. In contrast, small farmers were thought held back by lack of capital, dispersed and elongated fields, and short-term leases that made them unwilling to make investments that would only turn a profit over time; sharecroppers, too, were considered unwilling or unable to introduce changes because their additional effort could not be adequately recompensed. These views are only partly accurate.

Many large farms were indeed formed by enclosure and amalgamation of scattered strips, and some sedulously pursued changes in tenures and communal practices as in agricultural technology. But others did not, and big compact properties might even be divided

into separately leased farmsteads, while others consisted of widely scattered plots in numerous villages. Even when it occurred, consolidation frequently did not induce further changes, often for good reason: collective grazing on arable after harvest was a valuable source of fertilizer. Many improvements could be and were implemented on unenclosed fields, and scholarship has demonstrated that these farms could be nearly as productive – and at a lower cost and with less disruption. Collective regulations were far more flexible in practice and limited in extent than is often claimed, so change could and did take place even where they operated. Common gleaning rights usually did not interfere with individual farmers' ability to use their fields as they wished, for instance, and common rotations co-existed with initiatives entailing new crops and other innovations. Farmers big and small repeatedly usurped common land, and even when the Crown tried to stop these seizures (mainly to ensure that villages would have revenues sufficient to pay taxes), its remedy was to require the leasing of commons, not their retention for collective use. And, as we shall see below, studies of English agriculture have nuanced interpretations asserting the superiority of large, enclosed agriculture and the flaws of smaller and open-field holdings, calling into question stark oppositions with French structures and practices.

Changes in French agriculture also went on in less obvious ways. By lawsuit, passive resistance, and occasional overt violence, supported intermittently by royal protective policies, many peasants had gained de facto control of their holdings. The land market that had then developed facilitated sale or lease of parcels among peasants themselves so as to assemble coherent holdings. Moreover, while leases were often for relatively short terms – some evidence indicates, in fact, that landlords increasingly converted once-hereditary leases to adjustable terms – expulsions were relatively rare and lineal inheritance of holdings prevalent, so tenants could invest with some certainty that they or their heirs would reap the benefits. While there were many poor sharecroppers, others kept enough of their surplus that they ventured improvements, and some came to rank among the richest farmers in their area.

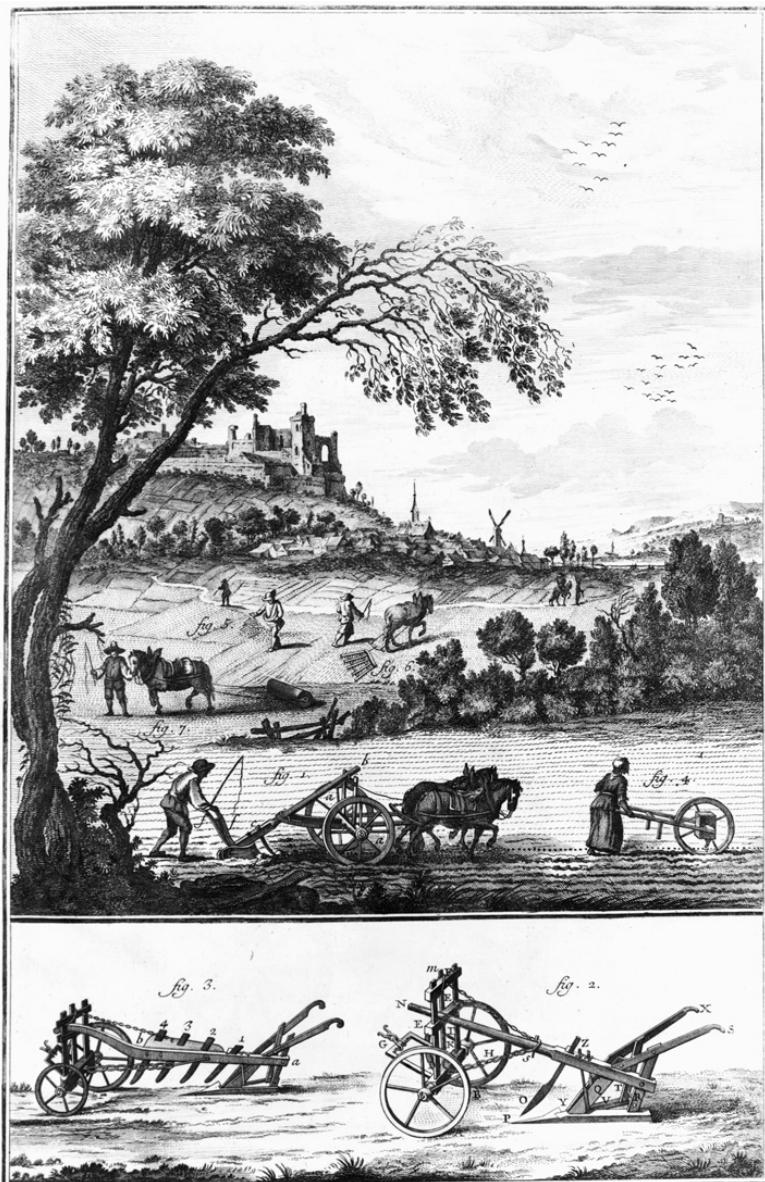
Indebtedness, too, was not inevitably either cause or sign of agrarian problems. Admittedly, short-term advances for consumption typically reflected and deepened immiseration. Yet borrowing permitted enterprising peasants to invest, innovate, and specialize, with long-term loans functioning as mortgages – though ones that lenders did not typically intend to call. Foreclosures were rare, increasing in bad times (thus they skyrocketed in the seventeenth century), but when conditions mended, lenders sold the land they had acquired. Rather than a means of peasant

expropriation, long-term credit was extended either to earn a steady return or to assure urban merchants supplies of wine, livestock, or other agricultural commodities. Peasants were subjected to urban capital – but to keep farmers on the land, not transfer properties to the bourgeoisie. Creditors' goal was neither engagement in agricultural production nor ownership of farmland but control of marketable output – a commercial strategy characteristic of the times.

Whether French farmers would embrace or resist innovation depended, new scholarship insists, less on tenurial structures, determinate peasant and landlord strata, new field systems, and privatized resources than once believed. Nor were mentalities the problem: not those of peasants whose purported unthinking commitment to security, customary standard of living, and self-sufficiency led them blindly to reject new crops, cultivation practices, and landholding patterns; nor those of landlords who imprudently prioritized lavish social display, conspicuous consumption, and paternalistic duties over improvement or even maintenance. Rather, market conditions, politico-military decisions, fiscal and public investment policies, levels of transaction costs and landlord levies, and the strategies that peasants and landowners developed to function on this unstable terrain were the key determinants of French agrarian successes – and failures.

Colonial West Indian demand invigorated Atlantic port hinterlands: grain, wine, and brandy exported through Bordeaux are best known. At the same time, commercial networks reached further into the countryside. French cities, however, were less thick on the ground than in much of Europe, urbanization levels lower, and population growth slower, particularly in comparison with England. French demographic gains over the long eighteenth century occurred primarily in the countryside. Some scholars have argued that France's urban deficit explains much of its ongoing agricultural lag behind England; colonial demand, while important for specific agrarian sectors in particular regions, was never large enough overall to compensate.

Peace was, unsurprisingly, as beneficial for French as for all European agriculture, allowing productivity advances as impressive as in the leading countries. War injured farming not just directly, through destruction, drafts, and disease but also, and with more lasting effects, through taxes imposed and investments foregone. The seventeenth century saw the greatest burdens: annual crown imposts – 60–70 million livres in the early 1630s – had perhaps doubled by the end of the Thirty Years' War and then soared again during Louis XIV's wars in the 1690s. Increases moderated thereafter. But growing reliance on consumption taxes kept up the pressure on the peasantry, as did tithes (about 9 percent of gross



Agriculture, Labourage

Fig. 7.1: The eleven volumes of detailed plates in *Encyclopedia*, the great mid-eighteenth-century publishing achievement of the French Enlightenment, intended to reform practices in agriculture and industry by detailed depictions and descriptions of new inventions and best practices. This image contrasts the “common plow” (2) with Jethro Tull’s improved model (3) and a drill (4) that allowed seed to be immediately covered by the furrow made by the mold-board of the plow following it (1).

output, though not levied on all products), and tax farmers often collected by seizing capital goods like animals. Worse, the state insufficiently invested in the kinds of commercial infrastructure – roads, canals, and other means of communications and transport – that by facilitating the flow of information and goods would have cut transactions costs, better integrated markets, and encouraged specialization. Landlord levies seem to have declined during crisis decades, but there is evidence of rent increases once population and output swelled again. In certain regions, moreover, peasants continued to owe substantial seigniorial dues that in the second half of the eighteenth century some landlords tried to raise or even reimpose.

Landlords thus enjoyed a range of income sources that did not obligate much expenditure on their properties, though some well positioned near cities found that they could augment their wealth by prudent investments. Peasants had to navigate within this shifting constellation of forces, so their game plans varied, at times radically. They might acquire property by lease or purchase, consolidating it to innovate or raise efficiency. But they might divide farms to provide all their heirs holdings not just for subsistence but perhaps to be mortgaged to acquire capital for agricultural improvement or other activities, notably crafts and industries that mushroomed throughout the eighteenth-century countryside. Rich peasants might vigorously uphold collective rights, from which they were likely to benefit differentially – enjoying, for example, high stints. Their poorer neighbors might support division of common land so they could attain holdings and the possibilities they opened, again including industrial work. Peasants might specialize, and their specializations, too, were increasingly complementary with manufacturing: commercial farmers and industrial workers within one village or in nearby settlements, agricultural and non-agricultural labor by members of the same family, even the same individual performing agricultural work in some seasons, industrial in others. But farmers also might diversify, seeking insurance in a variety of activities, including industrial labor. Though not optimal in terms of promoting productivity gains or agrarian change, their choices – intended to maintain their peasant property and status – were eminently rational under conditions that were only discontinuously propitious for agriculture.

This mix of strategies enabled French farmers to stay on the land to a markedly greater degree than their counterparts in the Low Countries or England, and perhaps Spain and Italy. Admittedly, their successes were piecemeal and repeatedly interrupted, and on average French agricultural productivity per capita remained stubbornly behind the northwestern European leaders, though its continued increase demonstrates that

French agrarian practices had not yet exhausted their potential. At the same time, the French agrarian structure supplied labor, raw materials, and large-scale (if relatively shallow) demand that promoted industrialization – much of it in the villages.

The Low Countries The distinct coastal and inland agrarian regimes of the southern and northern Netherlands experienced severe reversals at some point during the seventeenth century followed by revival beginning in the first third of the eighteenth. As in the past, however, all four regions followed diverse trajectories, and their divergences had disparate implications for each country's economic development.

The initial decades of the long Dutch Revolt (1566–1648) badly bruised Belgian agriculture. From the 1590s, rising prices, lower rents, and favorable lease terms provided a breather, but renewed warfare starting in the 1630s ushered in a longer and more severe downturn, marked by crop destruction, harvest failure, disease, escalating taxes, and rural depopulation. In the 1680s, grain output stood at its lowest level since the later Middle Ages, and rents had dropped by up to two-thirds. No later than 1720, however, the agrarian economy rallied vigorously, aided by the onset of prolonged peace. By 1750–1770, grain output was a third greater than a century before, industrial crops and crafts that used them were thriving, and population growth had resumed, first and most strongly in the countryside.

Scholars long maintained that Belgian agriculture's interrupted rally in the early seventeenth century as well as the longer upswing that began a century later rested on innovation involving new crops, rotations, tools, and techniques: in some accounts, on an "agricultural revolution." It now appears that the performance of Belgian farming mainly demonstrated both the untapped possibilities and the ongoing resilience of improvements initiated in the later Middle Ages. When implemented broadly and in a sustained manner, tilling more intensively, planting better seeds, cultivating fodder crops to feed additional livestock, and/or integrating clover into rotation cycles improved soil quality, boosted efficiency, and increased production. Where feasible, the "Brabant" plow (easier to maneuver, thanks to a curved moldboard) was adopted. In addition, widespread adoption of the potato as a basic foodstuff was crucial for assuring food for the broad populace. As elsewhere, however, the end of war and its attendant calamities mattered most for the return and durability of agricultural well-being.

Substantial mixed grain and livestock farms producing mainly for domestic urban markets were characteristic of coastal west Flanders and a band extending from Hainaut across southern Brabant into the

Namurois. These holdings were principally owned by nobles and urban bourgeois who sought tenants with sufficient financial resources to exploit the holdings capably and then sustained good relations in order to keep those tenants and their descendants on the farms. Landlords therefore reduced rents during hard times, while also supporting tenant innovation with credit, seeds, and cattle, and investments in drainage systems, better buildings, and other expensive projects. With these improvements, large-scale farming consolidated its hegemony. Productivity achievements, however, were modest (Graph 7.1); landowners sought assured income streams rather than growth. Crisis-period declines were stopped and then reversed, yet medieval levels were not surpassed and often not equaled, and though wasteland was plowed up, after 1750 grain imports became necessary.

Additional research is sorely needed, but available evidence indicates that the other long-typical form of Belgian agriculture – labor-intensive small holdings specializing in dairying, gardening, and industrial raw materials like flax and dyestuffs – continued to dominate the most densely urbanized areas. By combining highly productive farming with labor and credit exchange with larger tenancies, many smallholders survived the seventeenth-century depression. The eighteenth century brought not just welcome peacetime and rising prices, but also strong rural demographic revival resulting in surging rents and intensified subdivision of tenancies. By late in the century, 80–85 percent of farms in interior Flanders had 2.5 or fewer ha. On some diminutive farms, peasants planted potatoes, which gave yields up to five times higher than wheat, for their own consumption, and wheat for sale in towns; others expanded long-present rural industries, often spinning locally grown flax and weaving linen cloth. Substantial or small-scale, Belgium's agrarian systems were stable rather than dynamic.

The Dutch Republic's distinctive coastal and inland agrarian regimes were also disparate. During the long sixteenth century, low levels of investment, specialization, and commercialization had hobbled agriculture in the interior provinces, and they suffered longest and most harshly during the Dutch Revolt. That very backwardness, however, helped their peasants both take advantage of opportunities during the Golden Age and weather the agrarian depression that battened on the country between the 1660s and 1730s. With less capital sunk in costly infrastructure and less commitment to specific crops, rotations, and markets, and often enjoying in-kind rents that enabled them to withstand commodity and rental price fluctuations, inland farmers had greater flexibility than their peers in coastal provinces.

They switched from stock rearing to cereals (including on open fields), divided common lands, and manured wastes by temporary sheepfolds

and sod. They responded to growing demand for vegetables, fruit, tobacco, hops, hemp, and yet other specialized crops that drew on existing horticultural knowledge while requiring limited funds. They took on well-paid if short-term harvest labor and deepened their engagement with industry. More intensive agriculture raised land productivity – in the once desperately poor Drenthe, for instance, grain yields advanced from a miserable 3:1 in 1600 to a more respectable 7:1 in 1800 – while also accommodating population growth and the establishment of additional farms. But it also entailed heightened self-exploitation, shrinking average farm size (a trend exacerbated by partible inheritance), and, in the absence of sizeable capital investment, falling labor productivity.

With lower labor costs and prices and booming demand, growing specialization could be a recipe for success. It also made farmers increasingly dependent on – and vulnerable to changes in – market prices, as tobacco growers found. Though the yield per hectare on Veluwe micro-farms (many smaller than a hectare) could be two to three times higher than on American slave plantations, per capita output was lower, and as better-quality Chesapeake tobacco became more abundant and progressively cheaper from about 1710, Dutch sot-weed was ousted from key Baltic markets. Matters became worse for raw materials producers from the mid-eighteenth century. Russian hemp and Flemish hops undersold Dutch. And just when domestic flax became scarcer and dearer, new – and high – English tariffs were imposed, which, together with rising exports of inexpensive German and east Elbian fabrics, badly harmed inland rural linen spinning and weaving.

All was not lost. Many farmers successfully planted potatoes in place of tobacco and hops; vegetables and fruits did well furnishing the towns and cities in Europe's most urbanized state; Groningen developed a lucrative specialty supplying oats to England. Diversification and commercialization thus rewarded some peasants in the interior provinces. Yet peasant poverty rose and work opportunities shrank, notably – if not only – in the rural industries that had once promised a new vocation for rural labor, raw materials, and trade.

The specialized commercial agriculture of the Dutch maritime provinces that had flourished during the Golden Age, becoming Europe's most productive, came under severe pressure thereafter. Prices dropped; land taxes skyrocketed (for example jumping four-fold in Holland between the 1650s and the eighteenth century); polder and drainage authorities raised levies to make necessary but costly repairs and upgrades; epidemics ravaged livestock herds in 1714–1720, 1744–1754, and yet again in 1769–1784. Surging population growth, especially in towns and cities, had been crucial to farm prosperity, so demographic

sluggishness in the Republic itself and in its leading nearby markets – Belgium, western Germany, and France – and deurbanization in the Republic as severe as in Belgium contributed significantly to agrarian malaise.

Lake drainage and coastal impoldering – indices of the demand for agricultural goods – had been at their height between 1615 and 1639. By 1665–1689, they had fallen nearly 75 percent, remaining depressed for nearly a century thereafter; even an upturn after 1765 never returned activity close to Golden Age levels. As Dutch landlords always held land with an eye to its profitability, many pulled back when returns were unsatisfactory, particularly in comparison with government bonds and office. Capital for new investment – or even for routine maintenance – became more costly and difficult to obtain. Rent arrears piled up, evictions mounted, and tenurial security weakened as indebted farmers surrendered title to and compensation for structures they had built.

Seeking to cut costs in a high-wage, low-price environment, farmers deferred maintenance, manured fields less often – and on occasion acquired machines for churning butter and threshing. Most of all they took the opposite tack from their inland counterparts and switched from intensive to extensive agriculture; fattening meat cattle instead of producing butter and cheese proved especially attractive once a tariff on cattle imports was in place from 1686. But widespread recovery only set in from the 1730s and especially after mid-century as demand revived in external markets (aided by the belated abolition of high dairy export duties) and taxes stabilized or even declined in real terms. As throughout Europe, political conditions and decisions were critical determinants of Dutch agriculture's fortunes.

Some small farms survived the long depression by practicing horticulture for adjacent towns and cities or by raising industrial raw materials. As in the inland provinces, rising foreign competition undermined the viability of Dutch flax and hemp in the later eighteenth century, but demand for madder was so buoyant that Dutch output continued to grow even though French and English farmers were starting to cultivate the dye by assiduously copying Dutch techniques. Still, the agrarian revival of the coastal Republic was driven mainly by larger farmers who gradually returned to growing grain to supplant imports, export-oriented dairying, and potatoes cultivated for both domestic and foreign markets.

In the course of the long eighteenth century, in short, the agriculture of the Republic's coastal provinces came full circle, ending up with the same kind of intensive, specialized, commercial farming that had won it rural Europe's highest standard of living during the Golden Age. The area's

agriculture remained among the most productive in Europe by a substantial margin (Graph 7.1), not only providing more than adequately for the domestic population but supplying an expansive export trade that outpaced farm imports. Yet much had changed. Growth indices slowed appreciably. Whereas in the long sixteenth century real output rose nearly 150 percent, in the subsequent century and a half it advanced just 50 percent. Similarly, in the first period the proportion of the maritime region's population living in the countryside fell from about three-fifths to less than a half and the proportion of rural folk engaged in farming dropped from 75 percent to 55 percent; that just a quarter of total coastal-region people engaged in agriculture indicates rising agricultural productivity that freed – and forced – many individuals to seek jobs in other sectors. In the long eighteenth century, however, the coastal region's rural population share crept up to about half, the farming population to 56 percent of that, and agriculturists to 28 percent of the total regional population: signs of stagnating farm productivity and the cessation of previous diversification of rural employment.

The structure of landholding changed significantly as well, most notably in Holland, the leading agricultural province, where working farmers' holdings increased noticeably. In the sixteenth century, farmers had owned close to half of Holland's farmland, urban bourgeois a quarter, religious institutions 10–20 percent, the nobility 5–10 percent. Over time, clerical and aristocratic holdings eroded, and many urbanites sold out during the crisis decades, few returning thereafter. Tenants were far and away the main buyers, with the largest farmers raising both their share of land and the average size of their holdings. Land purchases also increased the number of smallholders, but with often marginal properties their survival depended on labor on bigger farms. For rather than dispersed rural industry that drew on cheap rural labor and locally grown raw materials, the coastal provinces featured industrial areas – notably the Zaan in northern Holland and wind-powered milling in southern Holland – that employed full-time workers distinct from the farm population. Demographic re-ruralization thus increased the agricultural rather than the craft and industrial population. For all their advanced features and high productivity, Dutch, like Belgian, agrarian regimes plateaued at the end of the eighteenth century.

As a result of alterations in both inland and coastal regions, agriculture also took on a different function within the Dutch economy. Previously, the agrarian sector had supplied specialty foodstuffs for domestic consumption and raw materials for domestic industry, while Baltic imports had provided basic cereals. In the eighteenth century, however, domestic grain supplanted imports and most specialty foodstuffs and primary

products were destined for export rather than domestic use. Agriculture also contributed to the erosion of Amsterdam's once-crucial entrepôt role: farm exports were principally handled by provincial ports that were closer to farm districts and offered lower rates. Just like trade (Chapter 6), agriculture became a more autonomous sector as the once tightly integrated Dutch economy disjoined. Never tightly integrated into either an international division of labor or a trade-dominated national economy, in contrast, Belgium's interrelated agrarian sectors afforded a more auspicious context for industrialization. Helped by secure tenures and prices that, as the eighteenth century went on, rose faster than rents and wages, large-scale mixed farmers supplied basic foodstuffs and robust demand for manufactures for both personal and farm use. Small peasants and day laborers provided additional food crops and vital industrial raw materials. They also constituted a proliferating mass of inexpensive labor that was only partly employed on either their own holdings or the large farms, and though individually their consumption was limited, their increasing numbers and growing market orientation boosted demand for consumer goods.

Britain Slumping agricultural prices, falling rents, and substantial arrears were common features in mid- and later seventeenth-century rural England. Yet even amid these signs of agrarian distress there were many positive trends, and after about 1600 they predominated.⁴ Total agricultural output rose between 0.3 and 0.7 percent per year, up to 1760 outpacing population growth. Additional acreage explains some of the increase: perhaps a third more land was farmed in 1800 than a century before, most of it pasture. But rising labor productivity was more significant; it doubled between 1600 and 1750, most of the increase occurring after 1660 (Graph 7.1). As overall cereals yields increased some 50 percent and parliaments controlled by oligarchies responsive to landlord and merchant interests enacted statutes to limit wheat imports and subsidize cereal exports, England became a significant exporter. From the 1720s through the 1750s nearly 7 percent of domestic grain production was shipped abroad, representing more than a tenth of all domestic exports by value. From that point, to be sure, problems appeared. Labor productivity dipped between 1750 and 1800 and total agricultural output grew just 10 percent while population soared 50 percent, by far the fastest rate of increase in any major European country. Food prices

⁴ Data in this section come from Joyce Burnette, "Agriculture, 1700–1870," in *The Cambridge Economic History of Modern Britain*, vol. 1 (Cambridge, UK, 2014), 89–90, 92, 100–6, 113–14; Robert C. Allen, *The British Industrial Revolution in Global Perspective* (Cambridge, UK, 2008), 64–66.

mounted sharply, and by the 1770s England imported substantial quantities of wheat and rice. Generally unimpressive in 1600, in about a century English farming had become as productive as the Dutch. But as in the Republic – as, indeed, nearly everywhere in Europe – late eighteenth century reversals indicate, agriculture had reached the limits of what it could achieve without drastic transformation.

English agriculture boasted some singular characteristics. The prototypical farm, encompassing a substantial landowner, a rent-paying tenant, and wage laborers, stood in sharp contrast to the smaller family-owned and operated farms that predominated on the Continent: 85 percent of eighteenth-century English farmers were tenants, as against one-third across the Channel. Particularly impressive at a time when the farming share of the population was rising in the Dutch Republic and Belgium, Europe's other leading agrarian regimes, England's gains were produced by a shrinking portion of the labor force (though because of the country's overall demographic surge, the absolute number of agriculturists grew slightly). Whereas about two-thirds of English male workers farmed in the early sixteenth century, just below half were agriculturists around 1700. The rate of decrease doubled over the next century, so by 1800 agriculture employed only a third of all workers, well below even the Dutch Republic.

A long, distinguished, and productively contentious historiography has sought to explain those achievements. Many accounts argue that interrelated structural changes – enclosure, privatization of common lands, farm consolidation, concentration of land ownership, and loosening of tenurial security – were the critical preconditions for English advance. Enclosure had begun centuries earlier, but the process sped up after 1740, when Parliament replaced the unanimity previously required by consent on the part of 75–80 percent of landowners concerned. Rising prices for farm goods, and perhaps declining interest rates, made enclosure attractive as well, despite its frequently high cost. By 1800, 84 percent of all farmland was enclosed, and most remaining open fields disappeared shortly thereafter. Common lands, a fifth of farmland as late as the 1770s, likewise nearly vanished as Parliamentary enclosure ramped up.

Many smallholders, unable to afford labor and materials for enclosure, and their cattle excluded from privatized commons, abandoned their holdings. Across the period, too, tenants suffered from decreased protection against eviction, as landlords converted multiple-life tenancies into contracts with terms of twenty-one years or fewer. As lease terms were shortened, tenants also faced more frequent rent hikes; intensifying population growth, which heightened competition for tenancies, enhanced landlords' bargaining power. The land market, stimulated initially by

the seventeenth-century agricultural downturn and subsequently by enclosure, the advent of long-term mortgages, and falling interest rates, became increasingly active. Together, these forces allowed landlords to amalgamate holdings, so average farm size grew, doubling in areas especially affected by enclosure, like the south Midlands. Large proprietors were the main beneficiaries. By one estimate, owners of more than 1150 ha. (3,000 acres) held at least 25 percent of farmland in 1790, up from 15–20 percent in 1690, and their holdings tended to be scattered across England, which helped minimize any ill effects of local conditions. The share belonging to landowners with less than 115 ha. (300 acres) – usually in one place – had dropped from between a quarter and a third to less than a sixth.

For all that, recent scholarship has tempered the claims once made for the novelty and impact of shifts in landholding and tenures on English agriculture during the long eighteenth century – as for the long sixteenth century. For one thing, they are now understood as the culmination of processes that long marked agrarian England rather than radical innovations. Privately owned, individually worked farms were only increasing the dominance that they had enjoyed since the later Middle Ages, if not before; even in 1500 just a third of farmland had been common lands and 71 percent of English farmland had been enclosed before 1700. Not only, moreover, were farms on average already considerably larger than across the Channel, but mean farm size rose both in areas of enclosure and in open-field zones, suggesting that the trend depended on forces other than how fields were organized.

As in the earlier period, too, the results of institutional innovations are now seen as disparate, dispersed, and often modest; contributory to agrarian advance but not critical for it. Admittedly, sizeable enclosed farms tended to attract more capital, presumably to reap advantages from their larger scale. Landlords improved farm structures, tenants purchased and bred more and better livestock, and both invested in liming and marling to enhance soil quality. Freed from restraints imposed by communal regulations, enclosed farms may also have been quicker to adopt new crops and practices or revive ideas and practices pioneered earlier. Results, however, were mainly influenced by where and how thoroughly changes were implemented. Introducing drainage on enclosed farms with heavy clay soil lifted yields of cereals other than wheat by up to a third (and all grains by 15 percent) compared with open fields, but enclosed land in lighter soil districts saw much smaller gains. Not only, moreover, did innovations soon spread from enclosed to open fields – hardly a surprising fact in a commercial agriculture like England's – but the current of diffusion often ran in the other direction,

because neglected common wastes and pastures were favored sites of experimentation.

Nor did enclosure inevitably portend new practices; in County Durham, for instance, it entrenched a traditional three-course rotation. In part, such outcomes reflect the fact that agricultural methods that had evolved over the centuries were often the most appropriate ones for the districts where they were found. Enclosure also did not necessarily result in agricultural change: most landlords enclosed not to stimulate improvements but, by terminating existing leases, to raise rents – which indeed commonly went up twice as much on enclosed as on open-field holdings. While some of the income from fattened rent rolls was plowed back into farm improvements, the majority was directed elsewhere, including to conspicuous consumption and socio-political investments little different in kind from those of their fellows abroad. Though landlords such as Charles “Turnip” Townshend (1674–1738) actively promoted innovation, the once-storied progressive, risk-taking landowner is no longer seen as central to England’s process of agricultural modernization. In many cases, in short, enclosure did not represent the replacement of an agricultural system on its last legs, but the redistribution of profits of a still viable agrarian regime from farmers to landlords.

Structural and tenurial modifications mainly contributed to English agrarian progress, it now seems, by accelerating the already established dynamism of pastoral agriculture. Often on converted arable fields, but more notably on enclosed common lands, rearing more cattle, oxen, horses, sheep, and/or pigs on each hectare raised labor productivity thanks to more efficient deployment of the workforce as well as of fixed capital. Along with selective breeding, the quantitative increase supplied more animal protein, raw materials (especially wool for England’s premier industry), manure that helped boost arable yields, and power not only for agriculture (where its 6:1 substitution for human energy further enhanced labor productivity) but even more for transport and industry. Already in 1700, animal products accounted for half of English agricultural output, and the proportion only grew thereafter, whereas most other European farming focused on arable crops.

Other explanations of England’s agricultural growth spotlight innovative crops, technologies, and practices. Scholars have pointed to evidence of more carefully selected seeds, improved grasses, and the planting of turnips and legumes; convertible husbandry and floated water meadows to raise both arable and pastoral output; labor-saving equipment like seed drills and more efficient swing plows; and better tillage and prolonged switches from crops to pasture to restore soil fertility. Among other

novelties and revivals, farmers sought to replace imported olive oil with rapeseed and foreign woad with domestic; supplement conventional crops with fruits and vegetables to utilize family labor more fully; raise dyestuffs like weld, madder, and saffron and textile fibers like hemp and flax.

Changes were sensitive to relative price movements; when wages rose, or demand for meat and grain surged – as after 1750 – new crops were often abandoned, though practices like row cultivation, careful hoeing, and repeated weeding were likely to be maintained because improved yields outweighed the cost of extra labor inputs. Introducing fodder crops that permitted rotations without fallow and clover and other legumes that fixed nitrogen in the soil does appear to have boosted arable and pastoral output. However, attempts to measure the effects of most innovations have been inconclusive or indicated minimal gains. When most or all new methods were adopted together, the combination could raise yields, labor, and perhaps land productivity. The extent to which that happened remains, however, to be learned.

Supply-side interpretations like these contend that changes in the relations and forces of production impelled agrarian improvement during the long eighteenth century. As with other economic sectors, another current of recent studies argues instead that the key factor was rising demand, fueled notably by urbanization, altered occupational patterns, novel consumption trends, and improved market efficiency. England and Wales urbanized without interruption across the early modern period, and though the pace slowed after 1700, the demographic upswing made city dwellers nearly four times more numerous in 1800 than in 1650; London (after 1700 Europe's largest city) soared from 400,000 to 865,000. Agricultural improvements that raised the demand for labor also raised real wages and spurred consumption in the countryside. Moreover, the ever greater proportion of the rural population engaged not in farming but in mining, construction, transport, rural crafts and industries, trade and commerce, also depended on the market for foodstuffs and primary materials. All consumers' preferences were altering as well – more meat, dairy products, vegetables, and fruits, not to mention tropical groceries – and many raw materials were novel or at least sourced from new locations.

Imports satisfied some increasingly crucial wants: butter and meat from Ireland; colonial sugar, rum, tobacco, rice, coffee, and cotton; Asian spices, tea, and coffee; Baltic flax and hemp; Portuguese wine; Mediterranean dried fruit, raw silk, and dyestuffs. But the bulk of the swelling demand – in particular basic foodstuffs and raw materials – had to be supplied by domestic farms, and this, it is maintained, spurred English landlords to invest, reorganize, and consolidate, and – most of

all – farmers to adjust land management, crop and stock mixes, and cultivation methods. Growth in both output and productivity was the outcome. The transport and communications advances noted in Chapter 6 promoted market integration and coordination over ever-wider areas of the country. Along with rising demand, enhanced market efficiency and growing effective market size advanced specialization, not just local like horticulture in the vicinity of cities but regional as well, such as hops in Kent and livestock in the Southwest among many others.

Yet whether accelerating demand was the reason for rising agricultural productivity or its consequence turns out to be difficult to ascertain. What does seem clear is that England's exceptional agricultural performance during the long eighteenth century resulted from a concatenation of factors both deeply rooted in the country's past and new. Long-existing trends – ongoing innovations in crops and practices, large units with a tripartite structure, commercialized farming at once specialized and diversified – were widely, consistently, and persistently implemented by working farmers motivated by rising prices due to intensifying domestic demand and assisted by imports of critical items that enabled a large proportion of English acreage to be devoted to animal husbandry. This bundle of changes occurred on increasingly hegemonic large enclosed properties and on remaining small and medium farms, including those with open fields. It did not result in uniquely high productivity. But for a preindustrial economy it did permit an unusually large proportion of the labor force to be employed outside agriculture – increasingly as full-time industrial workers – and be assured of a more than adequate supply of calories and raw materials.

Though Scotland and Ireland had distinctive agrarian institutions and specializations (and Ireland stood in a subordinated colonial relation), and in both farming was far and away the leading economic sector, many of the changes in structures and practices seen in English agriculture affected them as well. Irish agriculture was polarized between a mass of smallholding tenants and cottars and concentrated noble landholding. But within this largely stable structure two specialized commercial sectors emerged across the eighteenth century. Labor-intensive cultivation of cereals and potatoes – not only more nutritious than grains but because of their high yields per hectare well adapted to Ireland's predominantly small farms – both fueled and responded to rising domestic demand, notably in towns and cities where population soared more than twenty-fold between 1650 and 1800. By some calculations, late eighteenth-century Irish wheat yields about equaled England's. Extensive pastoral husbandry, likewise boosted by potatoes (in this case planted for fodder), produced butter, pork, and beef for export to the Baltic, the Low

Countries, France, Spain, and particularly Britain's American colonies and, from the 1760s, England.

An equally divided agrarian society was to be found in Scotland, where before the eighteenth century landlords' income and authority bore some resemblance to east Elbia. In-kind land and feudal rents provided most of their revenue, and their tenants owed labor services. There was, however, no serfdom (apart from mines) or manors, and agriculture was only weakly commercialized. It was also unproductive, as repeated recourse to grain imports in the seventeenth century, and a severe subsistence crisis in the 1690s, revealed. Yet mounting rent arrears and debt discouraged tenant innovations, while landlords were rentiers rather than agrarian improvers.

The 1707 Act of Union that joined Scotland and England did encourage a minority of landlords to undertake English-style reforms of tenures and practices to profit from the much larger market formed by the new United Kingdom. Others imposed steep short-term leases in return for the abolition of labor services. But most pursued time-honored tenant-squeezing, notably by raising rents and dues. Still, as the eighteenth century went on, Scottish agriculture felt increasing pressure from the more advanced agriculture to the south, as well as the lure of its expanding market. In addition, Scotland's urbanization, if at a slower pace than Ireland's, nonetheless significantly boosted domestic demand. These forces, and transport and market improvements, led to relatively rapid top-down transformation of agriculture, particularly in the Lowlands, the country's economic heartland. Common lands were divided, holdings expropriated and engrossed, in-kind rents converted to cash, tenants required to improve or leave. New crop rotations, cultivation practices, and adoption of turnips helped raise output and improve yields of oats, Scotland's main cereal, and a flourishing meat and hides trade with England developed.

The implications of all these developments for British economic change in general and industrialization in particular remain in dispute. Some historians argue that agriculture contributed little or nothing. Far from consistently supplying cheap commodities, English farm output (the largest component of the kingdom's total) fell behind demand during the second half of the eighteenth century, pushing up food and raw material prices and requiring ever greater imports. Moreover, wage and demographic trends reduced the importance of the agrarian sector's demand for domestic manufactures. The history of real wages of agricultural laborers – two-thirds or more of agriculturists – is controversial. By some accounts, after briefly rising in the 1730s and 1740s following two centuries of decline, they sank again after 1750; by others, they rose from

1650 to 1780. In both scenarios, however, from mid-century farm workers faced higher living costs and deteriorating employment security as hiring by the day supplanted year-long contracts and many laborers were engaged only at harvest-time.⁵ All farmers also comprised a shrinking proportion of the English populace: although the absolute number of agriculturalists increased 10–13 percent across the eighteenth century, population as a whole jumped nearly 70 percent. Thus the one-third gain in farmers' consumption of manufactures between 1700 and 1800 paled next to the three-fold growth of industrial output. English agriculture was also not a major source of industrial capital. Landlords invested little in manufacturing (or in trade, for that matter), and the amounts they spent on farm improvements may have resulted in a net inflow of capital into the agrarian sector.

These are significant caveats. Yet British agriculture did make several important contributions to economic change. Abundant and relatively inexpensive food and raw materials were made available between 1660 and 1740. Mounting industrial output and prices indicate that much of this enhanced purchasing power – enjoyed by all English people – translated into broadening demand for manufactures. It also shaped new consumer expectations that sustained increases in per-capita consumption of industrial goods even when agricultural prices rose again in the second half of the eighteenth century. Though cereal imports grew, as earlier in the Netherlands they enabled more lucrative domestic specializations, while imported raw materials either supplied important existing industries that were expanding or, like cotton, made possible the development of new ones. Across the entire span of crisis and recovery, too, farming shed labor relative to the rest of the economy. Some of those displaced migrated to towns, but many others remained in the countryside, endowing England with Europe's proportionately largest rural non-agricultural population west of the Elbe.

Comparable studies have yet to illuminate many of these topics for Irish and Scottish agriculture. Some research does suggest that landlords in Scotland were more active industrial investors than their English counterparts, notably in soap making and sugar refining (using coal mined on their estates), and in shale and limestone quarrying, though very rarely in textiles of any sort. In addition, Scotland and Ireland experienced growth in smallholder, cottar, and laborer populations unable to earn full subsistence from agriculture. Throughout Britain, in short, a variety of

⁵ Gregory Clark, "The Long March of History: Farm Wages, Population, and Economic Growth, England 1290–1869," *Economic History Review*, new ser. 60 (2007): 100, 108–9.

agrarian changes moved workers out of farming. Whether part-time or – especially in England – full-time, many found employment in industry.

Agrarian Trends, Initiatives, and Implications

No dramatic transformation reconfigured European agriculture across the long eighteenth century. Output did increase, helping sustain both demographic growth that by 1700 had recovered most losses during the crisis years and accelerated thereafter, and a long-term, broad if uneven shift of labor from farming into rural and urban non-agricultural work. These achievements owed very little to innovative techniques. Rather, they relied on wider and more regular use of tried and true but heretofore sporadically and incompletely adopted strategies: working the land more intensively, expanding acreage under cultivation or in pasture, adopting new rotations, selecting better seeds and livestock, planting fodder crops, higher-yield cereals, and specialized produce. Because of Europe's diverse property and tenurial relations, levels and forms of surplus appropriation, and geoclimatic ecologies, agriculturists were disparately interested in or able to implement any or all of these changes, so differences among agrarian regimes intensified.

In most of Europe, labor productivity rose minimally or, more often, fell. Even as commercialization increased, existing agrarian regimes either gave landlords and peasants little reason to change, or denied them the resources they would need to do so. But in a limited number of districts in many states, and more uniformly in the Dutch Republic and England, labor productivity surged, likely exceeding the record levels that Belgium – the pacesetter through the mid-seventeenth century – had achieved in the later Middle Ages (Graph 7.1). No single technical or landholding formula brought success: neither enclosed nor open fields, large farms or small, arable or pastoral. None achieved unbroken growth, and in the second half of the eighteenth century diminishing returns set in and productivity regressed. They all exemplified the potential in efficiently exploiting long-standing forces of production – but all also showed the limits of those practices and techniques. Agriculture was destined to be revolutionized only in the nineteenth century.

These productive agrarian regimes did provide what have been taken as prerequisites of industrial development: sufficient food to support considerable urban and rural non-farm populations, vital industrial raw materials, robust demand for both consumer and producer manufactures, sizeable supplies of non-agricultural city and especially rural labor. Yet the leading agricultural regions had no monopoly on these resources. Primary products were widely cultivated and commercialized,

rural demand was broad if in many places shallow, and the non-farm populace was growing everywhere, albeit at an uneven pace. Even in little urbanized east Elbia, shaped by demesne lordship, a singular commercial agriculture gave rise to proportionally the largest non-agricultural rural populace in Europe and lords who encouraged, even invested in, rural manufacturing. What pathways, then, led to industrial development in the eighteenth century? Chapter 8 seeks to answer this question.

Suggested Reading

Material relevant to this period is found in many works listed at the end of Chapter 4. For east Elbia, see also Edgar Melton, “Population Structure, the Market Economy, and the Transformation of *Gutsherrschaft* in Central Europe, 1650–1800: The Cases of Brandenburg and Bohemia,” *German History* 16 (1998): 297–327; W. W. Hagen, “Two Ages of Seigniorial Economy in Brandenburg-Prussia: Structural Innovation in the 16th Century, Productivity Gains in the 18th Century,” in *European Aristocracies and Colonial Elites: Patrimonial Management Strategies and Economic Development, 15th-18th Centuries*, eds. Paul Janssens and Bartolomé Yun-Casalilla (Aldershot, UK, 2005), 137–53; Carsten Porskrog Rasmussen, “Innovative Feudalism. The Development of Dairy Farming and ‘Kopelwirtschaft’ on Manors in Schleswig-Holstein in the Seventeenth and Eighteenth Centuries,” *Agricultural History Review* 58 (2010): 172–90; Mikolaj Malinowski, “Market Conditions in Preindustrial Poland, 1500–1772,” *Economic History of Developing Regions* 31 (2016): 253–76.

Recent reviews of Iberian agrarian issues and findings are in Carlos Álvarez-Nogal, Leandro Prados de la Escosura, and Carlos Santiago-Caballero, “Spanish Agriculture in the Little Divergence,” *European Review of Economic History* 20 (2016): 452–77; Carlos Santiago-Caballero, “The Rain in Spain? Climate versus Urban Demand as Causes of Agricultural Stagnation in Eighteenth-century Spain,” *European Review of Economic History* 17 (2013): 451–70. For bibliography, albeit on the peasantry more than agrarian history, see Guido Alfani, “Back to the Peasants: New Insights into the Economic, Social, and Demographic History of Northern Italian Rural Populations During the Early Modern Era,” *History Compass* 12 (2014): 62–71. Frank McArdle, *Altopascio* (Cambridge, UK, 1978), remains a fine case study. For Scandinavia, see Dan H. Andersen and Jens Chr. V. Johansen, “Economy and Social Conditions,” in *The Cambridge History of Scandinavia*, eds. Kouri and Olesen, II: 457–89; for Danish reforms, H. Arnold Barton, *Scandinavia in the Revolutionary Era, 1760–1815* (Minneapolis, 1986).

For France, see Gérard Béaur, “The Benefits of a Historiographical Crisis: The Study of French Rural History (c. 1500–1800) during the Last Fifty Years,” in *Rural History in the North Sea Area*, eds. Thoen and Van Molle, 119–45, on long-established and newer approaches; Daudin, *Commerce et prospérité* (Chapter 6), 24–26, 67–106, on intermediaries and rural industry; Peter M. Jones, “The Challenge of Land Reform in Eighteenth and Nineteenth-century France,” *Past and Present* 216 (2012): 107–42, on obstacles to land consolidation and enclosure; Thomas E. Brennan, “Peasants and Debt in Eighteenth-century Champagne,”

Journal of Interdisciplinary History 37 (2006): 175–200, on debt benefits and problems; Philip T. Hoffman and Jean-Laurent Rosenthal, “New Work In French Economic History,” *French Historical Studies* 23 (2000): 439–54, on agrarian issues from a transactions cost perspective; Philip T. Hoffman, *Growth in a Traditional Society. The French Countryside, 1450–1815* (Princeton, 1996), on Total Factor Productivity in the Paris basin.

English-language monographs on Low Countries agriculture in the seventeenth and eighteenth century are almost entirely lacking; for very brief overviews with bibliographies of works mainly in Dutch and French, see *Rural History in the North Sea Area*, eds. Thoen and Van Molle, Chapters 8, 11, 12; for the Dutch Republic, de Vries and van der Woude, *The First Modern Economy*, 27–40, 210–34, 529–61.

In contrast, the literature on English and British agriculture is immense and constantly growing. *The Agrarian History of England and Wales. Vol. V, 1640–1750*, ed. Joan Thirsk, 2 vols. (Cambridge, UK, 1985), and Vol. VI, 1750–1850, ed. G. E. Mingay (Cambridge, UK, 1989), remain valuable. For an overview, see Joyce Burnette, “Agriculture, 1700–1870,” in *The Cambridge Economic History of Modern Britain*, I: 89–117. Recent interpretations include Mark Overton, “Re-Establishing the English Agricultural Revolution,” *Agricultural History Review* 44 (1995): 1–20 (key changes happened after 1750); Joan Thirsk, *Alternative Agriculture: A History from the Black Death to the Present Day* (Oxford, 1997) (England’s complicated history of agrarian innovation); Gregory Clark, “Land Rental Values and the Agrarian Economy: England and Wales, 1500–1914,” *European Review of Economic History* 6 (2002): 281–308 (no agricultural revolution occurred); E. A. Wrigley, “The Transition to an Advanced Organic Economy: Half a Millennium of English Agriculture,” *Economic History Review* 59 (2006): 435–80 (eighteenth-century changes in longer perspective); Robert C. Allen, *The British Industrial Revolution in Global Perspective* (Cambridge, UK, 2008), Chapter 3 (demand-driven interpretation); Muldrew, *Food, Energy and the Creation of Industriousness* (farmer demand); Leigh Shaw-Taylor, “The Rise of Agrarian Capitalism and the Decline of Family Farming in England,” *Economic History Review* 65 (2012): 26–60; Morgan Kelly and Cormac Ó Gráda, “Numerare Est Errare: Agricultural Output and Food Supply in England Before and During the Industrial Revolution,” *Journal of Economic History* 73 (2013): 1132–63 (critical review of estimates and suggestions for more accurate calculations). For Scotland’s agrarian transition, see Neil Davidson, “The Scottish Path to Capitalist Agriculture,” *Journal of Agrarian Change* 4 (2004): 227–68, 411–60; 5 (2005): 1–72.

8 Proto-industry to Early Industrial Revolution

Throughout Europe, industries revived then grew impressively across the long eighteenth century. Papermills in the Zaan (Holland) annually produced 20,000 reams in 1650, increasing to 160,000 reams in 1780; shipments of Irish linen shot up from one–two million yards in the 1710s to forty-seven million yards in the 1790s; French iron output more than tripled from 1740 to 1789. The expansion of rural manufacturing was especially marked, even in less industrialized areas such as Poland, where around 1800 thousands of spinners in the surrounding countryside supplied thread to the 1,000 or so linen looms in Andrychów village. The activities, workplaces, and production structures of industrialized country districts and manufacturing towns came to resemble one another. Among Europe's fastest growing cities in the eighteenth century were centers that coordinated or integrated urban and rural production.

Not all locales, industries, or even states thrived; the experiences of Europe's industry during the long eighteenth century were as varied as those of its commerce and agriculture. Swelling rural production often came at the expense of urban: as the number of silk looms in the countryside around Vicenza, on the Venetian Terraferma, jumped from 100 in 1675 to more than 1,100 in 1781, the 800 looms present as late as 1750 in Venice itself dwindled to just sixty in 1792. Rural districts, too, frequently found their production shifted to yet lower wage areas whether within the same state or across borders. Some previously prosperous industries encountered hard times; for example, many light and new woollens, after flourishing in the long sixteenth century, languished in the long eighteenth. Nor was prior European primacy a guarantee of ongoing success: despite a few bright spots – gin distilling, papermaking, printing and publishing – overall industrial production in the Dutch Republic shriveled and its long-standing mainstays like shipbuilding, textile weaving, and beer brewing nearly disappeared.

The most dynamic trades, regions, and states were favored by mutually supportive domestic and export markets providing strong and consistent demand. But the character of these markets was different than in the long

sixteenth century. At home, critical demand came from expanding, if amorphous, middling groups – commercial farmers, small entrepreneurs, shopkeepers, affluent artisans. Abroad, overseas markets were liveliest, especially those North American and West Indies colonies that experienced rapid demographic growth yet had few industries of their own. Among Europeans, in contrast, trade grew more slowly, for not only was domestic industrial development satisfying an increasing proportion of internal demand, but it was accompanied, and fostered, by rising interstate barriers.

As in trade and agriculture, existing technologies, practices, and modes of organization remained dominant in industry, and exploiting them more efficiently generated most growth. Long-familiar goods likewise stayed preeminent. Yet global trade and colonization increasingly influenced not just European consumption but its industrial production as well. Processing of tropical groceries became a larger branch of industry; by learning – albeit slowly – from India, Europeans also mastered the manufacture of the signature product of early industrialization, cotton textiles. Moreover, building on initiatives across the period, from the 1760s mechanization was starting to transform a few industries – first and foremost cottons. The epochal nature of the ensuing Industrial Revolution has justifiably focused attention on those industries and on England, where many of the changes were first implemented and which subsequently became the world's leading industrial economy. Yet impressive industrial development also occurred elsewhere in Europe, shaped by unique environments rather than following an English blueprint that historians once considered normative. This chapter analyzes forces that promoted, modified, and obstructed the processes of change, the distinctive industrializations that ensued, and the explanations that scholars have proposed to account for Europe's disparate industrializations.

Demand and Industrial Change

“Consumption is the sole end and purpose of production,” wrote Adam Smith, and Marx insisted on their interdependence: “Without production [there is] no consumption, but also, without consumption, no production, since production would then be purposeless.”¹ Until recently, however, the historiography of industrialization has privileged developments in production – in the supply of manufactures – over those affecting

¹ Adam Smith, *Wealth of Nations* (New York, 1937), 625; Karl Marx, *Grundrisse. Foundations of the Critique of Political Economy* (Harmondsworth, UK, 1973), 91.

consumption – demand for those goods – on the grounds that industrial change was primarily a supply-side phenomenon.

Since the 1980s, studies of changes in consumption and material culture – often interpreted as a qualitative and quantitative “consumer revolution” that preceded and laid the necessary foundation for mechanized factory production – have begun to redress the balance. Scholars have identified several interacting elements as crucial for encouraging the acquisition of commodities, particularly those destined for private consumption, though public goods have not been wholly neglected. These demand factors were widely felt across Europe, though not uniformly or straightforwardly, and they did not always have positive effects. Europe’s heterogeneous political, social, and cultural ecologies configured demand as differentially as every other aspect of its economies.

Government spending – devoted, in this era of global commercial reach, colonial empire-building, and consequent world wars even more heavily than in the past to the military – enhanced demand for a parade of goods from bricks to boots, ships to shirts. Its effects were evident from England, where expanded naval shipyards at least quadrupled employment from 1650 to 1750, to Spain’s Basque region, where new armament plants and higher-output and improved-quality iron bloomeries opened to furnish the royal navy’s complete overhaul. More directly relevant to consumer goods – and more innovative – the lure of military contracts motivated successful initiatives to produce the multiple components of uniforms and other matériel in large, low-cost, standardized batches. State policies also stimulated civilian demand: court displays consciously promoted elite fashions, while sumptuary laws encouraged appropriate consumption across the social hierarchy and in tandem with protective acts tried to foster demand for domestic products.

Political interventions also impeded the growth of demand. On much of the Continent, interstate and internal levies obstructed movement and raised prices of goods, helping to keep many non-luxury markets small and local. Products travelling on the Rhine, for instance, owed numerous tolls to the many states lining the riverbanks. At several sovereign cities they had to be unloaded and offered for sale; only then could they be shipped on, and only in boats operated by members of the towns’ guilds. Again, several French peripheral provinces, including rich industrialized parts of Flanders conquered in the later seventeenth century, were deemed “foreign” for fiscal purposes. Upon entering the central “Five Great Farms” provinces, goods made in these reputedly foreign parts owed duties like those imposed on manufactures from lands outside His Majesty’s dominions.

To be sure, some states reduced or eliminated internal tolls. At almost the same stroke, however, many instituted high tariffs or outright prohibitions on imports of manufactures. Although customs duties between Hungary and the rest of the Habsburg Empire were cut drastically in 1754, for example, and two decades later nearly all duties were abolished among the various Austrian provinces, tariffs on foreign manufactures jumped so much that many items were effectively excluded. Many other lands also erected protective barriers: even the freer-trade Dutch Republic decreed that its troops' uniforms could only be tailored from domestic cloth, despite the acknowledged lower cost of equally good fabrics made by competitors. And formal and informal sumptuary regulations and conventions both secular and religious that sought to institute or maintain hierarchies of acceptable consumption – though selectively enforced, often challenged, and decreasingly obeyed – not only shaped but at times dampened consumers' desires and behavior regarding novel mass-market items as well as luxury goods.

The ongoing expansion of commercial agriculture raised discretionary incomes among many landlords and tenants while obliging more small-holders and farm laborers to buy necessities they previously had made for their own use. Yet as we have seen, in most places sagging productivity held back or reversed growth in farm incomes, and swelling strata of impoverished agriculturists faced difficult economic circumstances. More generally, albeit in varying proportions, taxes, rents, dues, and tithes crimped rural demand.

If for no other reason than that few city residents were self-subsistent, urbanization boosted consumption of marketed goods. Admittedly, between 1650 and 1800 the proportion of city dwellers in Europe's population rose slowly (from 8.3 percent to 10 percent); only in 1750–1800, when it hit its early modern peak, did the rate of urban growth exceed the long sixteenth century's. In a time of accelerating overall demographic advance, however, even such a modest increase represented a near doubling of urban residents, a net addition of more than six million people as against fewer than half as many during the previous century and a half. The number of cities with at least 10,000 inhabitants rose 85 percent across the long eighteenth century (with again the steepest increase in 1750–1800), as against 28 percent in 1500–1650. Cities with 80,000 or more people, capitals, Atlantic ports and naval stations, and some new industrial centers posted especially consequential gains.

Urban expansion on that scale required considerable infrastructural investment, spurring output of construction materials and the many industries that outfitted hundreds of thousands of new residences and

businesses. Growing urban centers also fostered improvements in the means of transportation, and even though constructed primarily to move grain, bulky energy sources, or troops and matériel more efficiently, better roads and spreading networks of canals and canalized rivers also lowered the cost of shipping industrial raw materials and finished goods. Still, urbanization's quantitative effects were felt unequally due to marked variations in rates and levels of city growth. The number of British and Irish cities quintupled from 1650 to 1800, the number of residents jumped 4.6 times, and the urban percentage multiplied 2.4 times. At the other extreme, the number of cities and their residents stagnated in the Dutch Republic, and their proportion of total population fell; and as Belgium and Portugal deurbanized, their urban tallies increased but modestly and in Portugal the number of cities not at all.

No matter what their demographic history, cities generated novel consumption habits and expectations. In settings marked by social mixing and mobility, individuals sought to attain respectability, assert distinction, or identify with a group by acquiring and displaying sundry kinds of culturally significant material objects. An annual fashion cycle, though initiated by Lyon woven silk manufacturers and merchants and implemented by wealthy Parisians, caught on as well among prosperous middling groups throughout Western Europe as it incorporated a widening array of fabrics and clothing. By establishing change, novelty, and emulation of urban tastemakers as central components of the experience of consuming, the fashion cycle helped dynamize Europe's premier industries. Textile and dress fashions developed first and spread most rapidly; many other goods also became voguish and their consumption ritualized in carefully staged domestic settings that required additional expenditure. The practices surrounding tea, coffee, and chocolate drinking, for instance, called for appropriate room furnishings, tableware and linen, and participants' costumes.

New city-based media helped diffuse knowledge of modish goods and novel norms of consumer behavior. First posted in London in the seventeenth century, printed advertisements had appeared in Paris and elsewhere on the Continent by the eighteenth. Newspapers, which from the start prominently featured commercial messages for all sorts of products, were founded first in metropolitan centers and then, beginning in the early eighteenth century, in provincial and colonial cities, initially in British settlements, from the 1760s more widely. Around 1753, when Europe's population was no more than one hundred million, annual newspaper circulation likely surpassed seven million. Magazines prominently featuring fashion plates and reports proliferated, along with samples and carefully dressed dolls that made new styles tangible and easy to

copy far and wide. All these incitements to buying circulated more expeditiously within as well as across state borders, even if goods did not. Between the later seventeenth and later eighteenth centuries improvement of main routes cut travel time in half. Regular postal services linked many more cities by sea and by land than ever before. From 1660, for instance, mail boats shuttled between Amsterdam and London twice a week and riders joined Amsterdam with Hamburg; Paris already enjoyed semi-weekly service to several major provincial towns.

Urban luxury goods were often central to new consumption repertoires. Interest in novel goods and usages, and forces impelling and justifying greater consumption of all manufactures, were also widely found in the countryside, among ordinary people, and concerned quotidian items. Though most rural and urban consumers could not afford, or had no use for, fashionable wardrobes, they could participate in modish acquisition by purchasing accessories (such as bonnets, shawls, or handkerchiefs) or ornamentation like ribbons, braid, and trim. They might also choose from the proliferating array of cheap knockoffs – “populuxe” items like umbrellas, canes, watches, and fans, or “affordable luxuries” like copies of fashionable furniture made from standardized components. But most growing consumer expenditures, in country and city, were directed to lower-priced varieties of familiar goods, made – following a strategy innovated by lighter woollens manufacturers in the later Middle Ages – of less expensive materials and more summarily finished. Perhaps in combination with a smart item or two, they were assembled into diverse styles of dress and furnishing, forming, in a sense, fashions of the unfashionable.

No matter what motivated consumers, goods became more widely available thanks to the accelerating diffusion of retailing innovations outlined in Chapter 6. In many parts of Europe thickening networks of retail shops, itinerant peddlers, second-hand dealers and markets, regular and adventitious auctions, and many occasional intermediaries and sellers contributed to both the quantitative and qualitative growth of consumption. Their appearance provoked some resistance. For reasons of political order, social stability, and economic ideology, corporate bodies and town authorities even in parts of Britain and the Low Countries tried to rein in additional or alternative retail outlets, not only peripatetic peddling and casual auctions but also fixed locations like shops and market stalls. Their efforts slowed but did not stop the spread of aspirations for acquiring more material possessions among Europeans.

Though too little is still known about the speed and content of material culture innovation and diffusion outside western Europe, scholars' investigations of post-mortem (probate) inventories and other documents

demonstrate that as time went on clothing chests held more varied garments, dwellings became more solid and spacious and were furnished more elaborately, and tropical groceries were partaken more regularly. Real wages briefly reversed their long-post medieval decline in the second half of the seventeenth century (and even longer in great Atlantic ports, the maritime provinces of the Dutch Republic, and southeastern England). But in most of Europe they stagnated and then resumed their downward trajectory around if not before 1700, and the decline became general – not sparing the previously favored areas – around 1750. How, then, was consumption sustained, even extended, all across the long eighteenth century?

The historian Jan de Vries' hypothesis of an “industrious revolution” seeks to resolve the paradox. Beginning around 1650, he suggests, households entranced by new consumer goods, and influenced by a new view of consumption as beneficial both to individuals and to society as a whole, adopted conscious strategies to fulfil their acquisitive desires in the market. In particular, they sought to garner additional income by raising the amount of household members’ paid work through reallocation and intensification of their labor: slogging away for longer hours and during previously slack periods; jettisoning unpaid, largely female production of goods and services for household use, instead buying them; setting to work in industry or market-oriented agriculture previously unemployed family members. Some households thus motivated to augment their purchasing power were those of city artisans. But many more were found in the countryside, preeminently among smallholders, cottagers, and landless laborers. Such consumers seldom bought clocks and china, of course. The market for non-essential goods developed most among urban elites and middle classes and substantial commercial farmers. Poorer families did, however, buy a greater variety of clothing and household items, thereby ensuring that the manufacture of cheap fabrics, metalwares, pottery, and the like would be major growth sectors within European industry.

Subsequent research has uncovered shifting consumer preferences and increased participation in market-oriented paid work among family members, particularly in northwestern Europe, that by design or duress promoted goods and/or industries directed toward mass demand. But it also suggests that the reach of an industrious revolution was limited geographically and socially. The notion posits that women were the pacesetters in developing and carrying out the new household game plan. Yet in much of Europe, rules and norms established by guild and political institutions, as well as cultural expectations, constrained women’s ability to implement realigned family labor commitments and consumption

decisions. In the Low Countries and England, households of urban artisans and other middling types do seem to have adjusted their work and consumption in accordance with the novel model. Elsewhere, however, and especially after 1750, laborers' families – notably yet not only in the countryside – toiled harder not to consume more but simply to maintain their standard of living at a time of rising taxes, falling wages, and growing poverty. Rather than avatars of a choice-driven consumer revolution, they were drudges desperate to stay afloat. Certainly, the great majority of the slaves on colonial plantations who produced the comestibles that loomed large among newly desirable consumer goods had little say about work rhythms or consumption decisions; from all evidence, enslaved men and women who took on additional paid work to buy garments did so not to participate in a consumer revolution but to assert their human dignity – or just to clothe themselves at all.

Other scholars have pointed out another way to resolve the falling wage/rising consumption paradox: the long eighteenth-century decline in the relative prices of European manufactures as well as tropical groceries. Though post-mortem inventories listed ever-greater quantities and types of consumer goods as the long eighteenth century progressed, such goods typically formed a decreasing proportion of total assets. This fact suggests that many consumers redistributed rather than boosted their purchases, most importantly by substituting cheaper items for dearer: sugar instead of honey, for example, or tin tableware in place of silver. They also frequented second-hand shops and resold or pawned items when they needed ready cash.

Not only did overseas goods influence consumption in Europe, moreover, overseas markets – colonial American above all – helped raise demand for European products. Europeans remained the paramount customers for each other's manufactures: as late as the 1790s, three-quarters of European exports went to other Europeans, and even in 1801 Britain, after secular and increasingly pronounced commercial expansion, domestic consumers took twice as many goods as all export markets combined. As we learned in Chapter 6, however, more dynamic non-European markets were becoming ever more significant to European industry.

Colonial demand had a salutary effect on textile manufactures across Europe. To cite just one example, nine of every ten *bretañas* (linens) from Brittany went to Spain, whence most were re-exported throughout Spanish America. But the colonies bought much else besides cloth: everything from hats to hoes, paint to pewter, brass buckles to mirrors. The trade with Africa that preceded but with slaving was increasingly integrated with colonial commerce likewise directly benefited European

industries, especially metallurgy and textiles, and indirectly, by providing the coerced labor force that produced critical raw materials: not just tropical groceries for processing but dyestuffs and raw cotton. Asia, too, became a market for European manufactures, albeit never on the scale of the Atlantic.

Once more, however, the benefits were asymmetrically shared. Some east Elbian and Mediterranean products did appear on global markets. But economies along Europe's Atlantic littoral exported the lion's share of manufactures to overseas markets and imported the greatest share of raw materials. And among the dominant participants, northwestern Europe – and increasingly Britain – took the lead. Indeed, northwestern Europe ranked highest on most indexes tracking the forces that promoted consumption growth and shifts: unified markets, efficient transport, productive agriculture, rate of urbanization, indications of industrious behavior, stimuli from overseas markets. To discover precisely how these contributed to changes in manufacturing processes, we need to look at influences on production, consumption's conjoined twin, across diverse Europe. Governments figured prominently among them.

States and Industrial Change

For centuries, authorities throughout Europe had intervened in many aspects of industry to regulate quality, assure raw materials supplies, help control labor, and occasionally – in strategic sectors – direct production in state-owned workplaces like the Venetian Arsenal. Before about 1650, cities and the guilds located within them undertook most of these activities. Central governments might step in with general directives, but their attention was sporadic at best. From the mid-seventeenth century, however, rulers intruded much more frequently and systematically. Convinced that a state's wealth and power were intimately and mutually connected, they sought to promote both by means of economic development. In so doing, they borrowed from – and elaborated – a body of ideas, assumptions, and practices labeled, since the time of Adam Smith (who castigated them for obstructing the free play of market forces), “the mercantile system” or “mercantilism.”

No single mercantilism existed, and even in a single state such policies varied over time. But capturing a larger share of international trade, providing jobs, and amassing bullion supplies were common objectives; developing industry served all three. To do so, tariffs and outright bans were widely adopted to keep out manufactures from abroad while attempting to enhance the inflow of raw materials and create captive markets in which import-substitution industries could emerge. England

pioneered such policies to the advantage of its own woollens industry; with the Navigation Acts of 1651 and 1660 and subsequent laws it extended a system of monopolies across industries and across the Atlantic. The empire became an enormous state-protected free-trade zone for English manufactures and their prime source of raw materials.

Scotland's post-Union experience demonstrates the powerful impact of the British empire's protected markets on industries in the metropole. Previously limited by the poverty and small size of domestic demand, after 1707 Scottish textile industries thrived as the rapidly expanding American colonies became their chief overseas customers. As we have seen in Chapter 6, the Navigation Acts similarly helped funnel tobacco to Glasgow, which soon became the tobacco entrepôt and a leading processing center for all Europe. Even on the smaller scale available to other countries, barriers against imports proved helpful to home industries. In mid-eighteenth-century Belgium, for example, duties on Dutch, French, and Prussian goods were instrumental to the flowering of sugar refining, flannel making, and mixed cotton-linens weaving.

Through empire-building, market restrictions, and patent protections, the English state created an auspicious environment for essentially private initiatives. Governments elsewhere in Europe took similar steps: for example, states from Russia to Catalonia sought to shield nascent calico printers by import limits or outright interdiction. Still, though private entrepreneurs might play crucial parts, the advance of industry on the Continent usually entailed a more direct and active government role. States offered monetary subventions and tax concessions; awarded inventors prizes and monopolies; paid immigrant skilled artisans; abolished restrictive guild practices; and on occasion owned and operated enterprises. France under Jean-Baptiste Colbert (1619–1683), minister and advisor to King Louis XIV (reigned 1643–1715), and Sweden under Charles XI (ruled 1660–1697) were particularly energetic in the later seventeenth century; Frederick the Great's Prussia (1740–1786) and the Habsburg Empire of Maria Theresa, her husband Francis I, and their son Joseph II, whose reigns extended from 1740 to 1790, in the eighteenth.

Military, prestige, and luxury industries were most favored. Though compiling a mixed record, subsidized enterprises fared better than many subsequent commentators have acknowledged. Admittedly, some made overpriced, poor quality, or superfluous goods. The Prussian royal porcelain works, for one, had to resort to bizarre expedients to dispose of stock. Among other things, all Jews had to remit a lump sum when they were wed in return for whatever surplus products the factory wanted to unload. Moses Mendelssohn (1729–1786), silk merchant turned noted

philosopher, thereby acquired twenty life-sized porcelain apes. Swedish woollens and silks were so badly made that when prices rose as state support was reduced in 1756–1760, sales shriveled and the work force had to be cut in half.

Yet success stories are not hard to find. The Saint-Gobain (France) glassworks employed 230 workers at its foundation in 1665 but had 1,500 in 1700 and is today a major multinational corporation; Berlin's silk and velvet industry had 460 looms in 1767, 835 in 1771, 1,750 in 1778. Like numerous Continental states, Britain strongly supported innovations in silk-making, and Thomas Lombe's patent-protected if plagiarized silk-throwing factory and its mechanized successors diminished reliance on imports. In many German states, partial or complete government ownership gave mines access to the capital needed to sink deep shafts. The failure of some assisted industries does not indict all aid, only that which was undiscriminating or insufficient. Sundry industrial initiatives did founder because they clung to outmoded products or production structures. But many others came to grief when resources were diverted to warfare.

Such enterprises are most often faulted for their purported opportunity costs: for, that is, diverting resources that could have been employed more efficiently elsewhere. It is not, however, evident that other investments went begging for lack of capital, labor, or raw materials dedicated to state-assisted enterprises. Nor is it clear that losses outweighed gains in the industries that were established or reinvigorated. English industries benefited significantly from the imperial framework set up, enlarged, and defended by the state. In the heavily agrarian societies on the Continent, most of which not only lacked comparable empires but were burdened by narrow consumer demand, real or perceived shortages of capital, insufficient technical skills, and a paucity of entrepreneurship, nascent industrial enterprise seems often to have needed assistance on a scale that governments alone could provide.

Probably the best rewards came from quality regulations and certifications that were features of both English- and Continental-style government industrial intervention. At times initiated by merchants, they gained force when states took over and imposed sanctions-backed discipline. This was crucial in a time of expanding long-distance trade when buyers demanded assurance about products about whose manufacture they had insufficient information. Far from blocking innovation, moreover, quality regulations were likely to promote them, since manufacturers, merchants, and states wanted to ensure that their products remained competitive. Across the eighteenth century, for instance, governments supported experiments with processes designed to improve rather than cheapen notoriously difficult red dyeing.

Those who made government economic policy sought at once to enhance their states' military, financial, and political standing, and to reward (and maintain support from) substantial merchants whose capital was as critical for state finance as for commercial power. Yet through monetary support, market controls, regulatory structures, and industrial reconnaissance (including espionage, surreptitious copying, and outright bribery), they helped expand the scope of European industrialization beyond what market forces alone could have achieved. Ideologues might chafe at these measures, and reformers try to dismantle them, but manufacturers and merchants usually proved willing to embrace them. At the same time, entrepreneurs took steps apart from or even against authorities' projects. Most prominently, they greatly extended what are now known as proto-industries.

Proto-industry and Proto-factory

Though rural production was no novelty in Europe, across the long eighteenth century a rising proportion of the commodity cornucopia was made in the countryside. In contrast to the long sixteenth century, when the rhythms of Continental urban and rural crafts strongly correlated, rural industries now typically outdistanced their urban counterparts, often at the latter's expense. Milan had 600 silk reeling and twisting looms in 1635 but just 95 in 1781; in the countryside, their numbers shot up from 142 to 1,448. Linen production in villages around Valenciennes (northern France) doubled between 1730 and 1780, while the industry effectively disappeared from the city.

At least since Marx, who considered putting-out trades in the countryside during the period of what he called "manufactures" essential to capitalist industrialization, scholars have recognized the significance of this golden age of rural industry. But during the past several decades, the approach known as "proto-industrialization" has generated a wealth of new insights and interpretations. As initially formulated by the economic historian Franklin Mendels, production of goods for distant, often international, markets by peasant-manufacturers characterized proto-industrialization; it grew out of but was distinct from traditional cottage industries for local consumption. As agriculture no longer fully occupied their time, rural folk could combine farming with working up raw materials put out by merchant entrepreneurs, forming a cheap and elastic labor supply; because they did not have to abandon other remunerative work to take on industrial employment, the opportunity cost of their labor was low. As proto-industries spread, some districts specialized in manufacturing; others nearby focused on commercial agriculture. Dynamic and

symbiotic regional economies developed, organized and financed from towns, where rurally made proto-industrial goods were finished and sold. Rising labor, distribution, and supervisory costs eventually brought growth to a halt, but by then proto-industries had provided capital, technical knowledge, an expanding proletarianized labor force, entrepreneurs with marketing and managerial skills, and some of the consumer demand required for mechanized factory industrialization.

Every aspect of Mendels' theory has been subject to critique, elaboration, and reformulation. Little has emerged unaltered. Some commentators object to the evolutionary models and teleological premises underlying the concept: proto-industrialization was, Mendels proclaimed, "the first phase of the industrialization process."² More frequently, the hypothesis is faulted for squeezing diverse if related phenomena into too narrow a conceptual mold. While a new departure in many places, rural industrialization elsewhere was the renewal of a centuries-old cycle, albeit on a much bigger scale that drew the populations of entire districts into industrial work. Although the growth of international and interregional trade in manufactures is best documented, such industries often produced for nearby consumers as well: the critical issue was not the geography of demand but the fact that market-oriented putting-out satisfied it. Similarly, although more pronounced in the countryside, proto-industrialization was also urban, for a central dynamic was the search for cheap and docile labor, wherever it might be found. Such labor might be employed in producing downmarket varieties of established goods or inexpensive novelties. But cutting wage costs was not incompatible with the manufacture of goods able to compete on quality rather than price alone through product and process innovations, regulations, and improved merchant-producer information flows. Nor did proto-industries reign alone: in countryside as well as in town they co-existed with a variety of industrial structures, including the Kaufsystem and proto-factories. Finally, proto-industrialization bore a contingent rather than a necessary relationship with later industrial development; any specific region was as likely to return to an agricultural vocation as to see the rise of mechanized factories.

Despite criticisms and modifications, the concept has gained general intellectual currency and unleashed a torrent of research and reassessment that crucially informs our understanding of the reasons for and extent of the efflorescence of manufacture in the countryside, alterations

² Franklin Mendels, "Proto-Industrialization: The First Phase of the Industrialization Process," *Journal of Economic History* 32 (1972): 241–61.

in city crafts, and relations between rural and urban industries during the long eighteenth century.

Powerful incentives prompted entrepreneurs to initiate production in or relocate it to the countryside, particularly as relative prices for manufactures drifted lower. Villagers typically received dramatically lower pay than their urban counterparts: 45 percent less for weavers around Tilburg (Dutch Republic) than in Leiden, as much as two-thirds below Milanese rates for silk reelers outside the city. Wages were, of course, just one component of total costs; even so, evidence from the Cambrésis (northern France) suggests that lower pay alone made rural linen weaving 10–20 percent cheaper than urban. The rural labor force was not only less expensive, it was also abundant and growing, thanks, as we have seen, to population growth, landholding structures, and agrarian changes, together with a generally lower cost of living in the countryside and the availability of seasonal employment in agriculture. Then, too, employers could manage fluctuations in output by adding or laying off individuals, settlements, or even entire districts.

Not all the countryside proved equally hospitable to industry. Pastoral zones were often welcoming, since labor-extensive animal husbandry provided little work for many family members. But stock-raising areas did not enjoy a clear-cut labor-supply advantage: arable regions also supported proto-industrialization. This was partly due to the seasonality of most farm work: manufacturing helped fill slack periods. Soil quality also played a role: less fertile, usually poorer parts of predominantly arable regions tended to take up industry. The availability of local wool, flax, straw, iron, or wood could likewise stimulate industrialization, but even in such fortunate locations, output growth might necessitate importing raw materials. The linens of the Minho (Portugal) were initially made of flax from the region, but when the supply proved insufficient, Baltic flax was used. And in many villages – just as in towns – imported raw materials, whether from Europe or, like cotton, from further away, were crucial from the start.

Although agrarian environments created propensities, political or economic power and social institutions were likely to be decisive – if sometimes in a negative way. As far as possible, the Swedish state crushed rural weaving that threatened state-backed textile industries; fiscally dependent on urban crafts, authorities in the duchy of Württemberg (Germany) obstructed rural manufactures. Conversely, changed political circumstances could allow rural industry to blossom. Until 1638, residents of Gross Schönau in Saxony, ruled by the nearby city of Zittau, could make cloth only for local exchange. But when urban guild power waned during the Thirty Years' War, villagers quickly began to weave for markets in

Dresden, Hamburg, even France and England. By 1729, 782 looms were in operation, up from just 16 in 1647.

Landowners might discourage rural industrialization in order to maintain a large pool of inexpensive agricultural laborers or, as in Italy, to maximize their sharecropping income. Some English landlords, intent on preserving substantial commercial farms, prohibited division of holdings and strictly limited cottage building, effectively thwarting industrial development both by ensuring that holdings were large enough fully to employ tenants and by excluding the landpoor and landless who would need proto-industrial work.

Other landlords actively promoted village industrialization. In Ulster (Ireland), they permitted fragmentation of tenancies and established markets where flax and linens were sold. Scottish landowners favored rural linen production so they could raise rents and keep in the countryside the laborers needed for seasonal agricultural work. To demesne lords in Silesia and Bohemia, industry brought new revenues: permission fees owed by entrepreneurs and workers alike, and compulsory purchases of food, beer, and raw materials from the estates at stipulated prices. Rural crafts also provided a lucrative outlet for the flax, wool, and yarn that many east Elbian lords collected as in-kind payments, while tenants with additional income from industrial jobs could pay higher seigniorial levies. Some demesne lords themselves developed rural industries, employing tenants not needed in the fields. On occasion, Italian landowners encouraged women in mezzadria households to reel silk (extract filaments from cocoons, twist several together, and wind them on cylinders), since this work made cultivating mulberry trees more lucrative for both sharecropper and landlord.

Tenurial structures and communal regulations, too, affected industry's implantation in the countryside. England was not alone in harboring "open" villages, where fragmented tenancies and immigration furnished recruits for industry, nor "closed" settlements that limited their appearance. In the canton of Zürich, for example, proto-industry flourished in the uplands, which had few constraints on settlement or splitting up plots. It was virtually absent, however, from areas near Zürich, despite transportation and communications advantages. There, rules originally established to safeguard the livelihood of peasants practicing traditional three-field cultivation effectively barred entry to newcomers and restricted population growth among villagers by blocking the division of holdings. Consequently, no surplus labor pool formed and the countryside never industrialized; much the same held true in Holland, where family farms predominated.

Within villages, the poor and the landless often sought industrial jobs: in the Pays de Herve (Belgium), families survived on as little as a hectare

of land by joining nailmaking, weaving, spinning, and coal mining to dairying. Peasants in many places took up proto-industrial work rather than farm additional land from which only limited returns could be expected, or even entirely stopped cultivating inadequate holdings. Prosperous peasants also took on proto-industrial employment: linen weaving around Osnabrück (Germany), in fact, was dominated by the largest farmers, while in the Tierra de Campos (Castile), independent peasants enjoying high grain yields and farming income wove wool from their own herds. They may, as the industrious revolution thesis suggests, have aspired to a higher standard of living, to fuller participation in the budding consumer society. Or, like peasants in the Achterhoek district of Gelderland province (Dutch Republic), they may have sought to hold on to their land during periods of agrarian downturn.

Men and women, old people and children, were all drawn into rural manufacturing. Whole families might participate, as members of both genders and every age spun and wove or, as in the Dalarna region of Sweden, forged iron tools and implements. Divisions of labor based on gender and age were common, but not identical; local customs and opportunities determined the specific allotment of tasks. In the Pays de Herve, industry was a male preserve, dairying that of women and children. In Castile, on the contrary, wives wove and husbands undertook dry-soil farming; in parts of the Alentejo (Portugal), women and children made cloth while men cultivated grapes. In Italian mixed farming areas where male laborers found continuous agricultural employment, women and children made lace and plaited straw. On small independent Swiss farms, men cultivated the land and women wove textiles; yet in districts not far away, where such holdings were rare and entire families labored in proto-industries (as well as on tiny plots), gender distinctions were muted as men, women, and children all spun cotton. The forces determining the type and degree of involvement in proto-industry existed, in other words, not only at the levels of state, region, or village, but even within households.

Urban merchants were most often the catalysts for proto-industrialization: they had capital, commercial contacts and expertise, and were attuned to market conditions. Yet they were not the only city-based entrepreneurs. Despite guild taboos, artisans seeking to raise output might hire rural producers. It would be a mistake, however, to envisage the countryside as passively submitting to urban initiatives: rural entrepreneurs were active on their own behalf. Their numbers included peddlers, carters, and innkeepers, as well as commercial farmers knowledgeable about markets: in the Mora (Sweden), prosperous peasants sold clocks their poorer neighbors made. Village merchants were prominent in many linen industries. Some were former weavers who had

accumulated a little capital, others peasants who mortgaged their holdings to raise the necessary funds. In the English stocking trade could be found small-town tradesmen, farmers, even thrifty servants. Each bought a handful of knitting frames and, by leasing them out, became a petty entrepreneur.

No matter what their origins, entrepreneurs most frequently hired villagers on a putting-out basis, although, as in the past, many variations existed (see Chapter 2). Some in Sweden advanced money to independent iron fabricators in return for all their output of cutlery, files, locks, scissors, hammers, and guns. Yet at Eskilstuna, also in Sweden, other entrepreneurs (among them the Crown) supplied all raw materials and paid piece-rates on receipt of the finished goods. Bohemian linen putting-out included three approaches: cash advances to weavers who bought their own raw materials, the distribution of flax to wage-earners, and a much simpler method whereby merchants' agents placed orders with domestic weavers.

More often than usually imagined, corporate rules dictated rural industries' output, quality, terms of competition, and labor discipline; as in towns, regulations might be imposed by the producers themselves, by merchant-entrepreneurs, or by political authorities. But most proto-industrial workers toiled without any form of oversight save that of the market: final delivery to – and acceptance or rejection by – the entrepreneur. Once a Verlagssystem became large or business conditions deteriorated, however, entrepreneurs often found it expedient to hire supervisors. Belgian merchants, for instance, employed inspectors to oversee their very numerous rural nailmakers – by 1764, one such enterprise had 100 employees, another 310, a third 640 – as cutthroat competition and tiny profit margins pushed wages so low that workers embezzled as much iron as they could.

In the Verviers area, also in Belgium, the greatest textile merchant-manufacturers – in 1745, just twelve out of 204 accounted for half of all output – developed a more complex arrangement. They provided agents (*façonnaires*), who organized all stages of production, the necessary wool and instructions about the type of cloth they were to deliver. The entrepreneurs could calculate price and quality ahead of time – façonnaires absorbed all losses when production proved too costly or the goods unsatisfactory – without themselves having to hire or manage workers. Agents could profit as well by extending their putting-out networks deep into the countryside.

As in earlier centuries – but on a European-wide canvas – not technological change but incorporation of inexpensive, ample, largely rural labor into some form of Verlagssystem accounted for output growth in most

industries during the long eighteenth century. Proto-industry was a form of extensive growth that exemplified industrial production when entrepreneurs earned their profits by selling the products of labor with little if any involvement in the productive process and minimal investment of fixed capital.

Alongside the Verlagssystem – at times in the same location and/or industry – numerous village producers remained more independent, not just owning their implements, but working up raw materials that they raised on their farms or bought, organizing their own work schedules, and selling the items they made in the market. In part, this was due to wealth differentials. Better-off peasant-artisans were more likely to be autonomous, the poorer employed in putting-out. The availability of credit also mattered: a small-scale capital market allowed modest but independent peasant papermakers in the rural Veluwe district (eastern Dutch Republic) to draw upon the resources of functionaries, professionals, widows, merchants, and other people from nearby towns.

Location also played a role. Isolated areas' workers were more likely to be employed on a putting-out basis for merchants who linked them to distant markets than were those in districts with direct access to a variety of suppliers and buyers. In the countryside around Bielefeld in western Germany, for instance, a Kaufsystem persisted in the linen crafts into the nineteenth century. Every stage remained the bailiwick of an independent producer. Spinners purchased flax that growers had already steeped, bleached, crushed, and broken. After completing the preparatory process, they spun the flax into yarn, selling each week's output as soon as it was ready. Weavers who typically owned just a loom or two bought yarn directly from these spinners or from small dealers in local yarn markets, and after weaving a piece brought it to Bielefeld where numerous merchants awaited.

But whether rural producers worked in a Kaufsystem or in putting-out depended most of all on the structure of their local agrarian economy. In Ulster, tenants on surprisingly small holdings could set up as autonomous petty producers both because they enjoyed secure tenures and reasonable rents, and, because they grew much of their own flax or could buy direct from other peasants, were not dependent on merchants for supplies. The impact of specific agricultural arrangements was even clearer in the West Riding of Yorkshire, where the two production systems coexisted in adjacent districts: independent farmer-weavers manufactured traditional heavy woollens, whereas dependent landless or landpoor domestic workers employed by substantial merchant-manufacturers made lighter worsteds. Woollens producers practiced arable husbandry on viable middling-sized holdings in better soil areas and, with the aid of family

members and perhaps a few journeymen, used their own tools and raw materials to turn out good-quality cloth that they themselves often marketed. Worsteds, on the contrary, were woven in pastoral and infertile upland districts. There, weak landlord control, early enclosure, and parable inheritance resulted in polarization between a few big stockbreeders who also organized the putting-out systems and a mass of underemployed, impoverished cottagers who barely scraped by even with the aid of industrial outwork.

As in the Middle Ages, some rural trades never integrated agricultural with industrial work. Ironmaking in Vizcaya, a Spanish Basque province, although organized on a putting-out basis until the later eighteenth century, employed full-time workers and seasonal migrants rather than local farmers because here the grain harvest – when most agricultural labor was needed – coincided with the period when water to operate bellows and forges was most abundant. But even where agriculture and crafts had once been combined, the link typically grew more tenuous over time, and increasing numbers of villagers came to work only at industrial jobs. From Ulster to Austria, weaving, tanning, smithery, mining, tile-making, and many other trades that previously had provided by-employments for peasants had become the full-time occupations of landless artisans. The divorce between agricultural and industrial work both incorporated some peasants into the permanent, full-time labor force and excluded others.

Sometimes villagers were attracted to full-time industrial employment because it was more remunerative than stitching together an income from part-time craft employment and a hardscrabble farm. Proto-industry's demographic dynamic could also help generate its own labor force: with industrial jobs available, youths in proto-industrial areas no longer had to delay marriage until inheriting agricultural holdings that could support families, so they wed younger than their peers in purely farming districts. In the absence of effective birth control, a lower marriage age and its corollary, a longer span of fertile years for married women, inevitably raised the birth rate. Over time, fewer offspring could obtain viable plots, yet they remained in the villages – now as permanent industrial workers. Elsewhere, dense population and landlessness – perhaps due to weak controls on immigration – preceded proto-industrialization and in fact were major reasons for its implantation. Then, too, the presence of industries could heighten demographic growth both by attracting immigrants from and by discouraging emigration to places with fewer work opportunities.

Proto-industrialization was rooted in small, dispersed, usually household units, even when new technology was introduced. The frame for knitting stockings fitted easily into cottages, while Kay's flying shuttle

(1733) perpetuated domestic weaving by enhancing handloom productivity. Even such apparently archetypal cotton factory machines as Hargreaves' spinning jenny (1764), Arkwright's water frame (1769), and Crompton's mule (1779) were initially placed in the dwellings of domestic workers. Yet the cost of machines made it difficult for autonomous artisans to maintain their independence and allowed the extension of entrepreneurial control. Sometimes entrepreneurs also sought to enhance efficiency by clustering several stages of production in close geographic proximity. In the woollen drapery of Gloucestershire (England), for example, substantial clothiers began by moving finishing trades into the same villages as weaving; over time, some parishes came to house all production processes, and in their routinized discipline strikingly resembled later factories.

Occasionally, entrepreneurs took that next step, grouping together numerous workers in buildings specifically designed for manufacturing, whether to try to reduce embezzlement of raw materials or other types of fraud to which domestic workers resorted to raise their earnings, or to respond flexibly to consumer demand at a time when fashions were starting to change more frequently. Clothiers specializing in stylish textiles in particular found it hard to supply customers with up-to-the-minute fabrics of acceptable quality by relying on dispersed laborers, some of whom also left wheel or loom when harvest or other time-dependent and therefore well-paid agricultural work beckoned. The solution was to hire landless men and women. But because they usually lacked both premises wherein they could work satisfactorily and necessary tools, fully equipped workrooms had to be supplied.

Hopes of controlling labor force and production process more closely than was possible in dispersed proto-industry accounts, then, for the emergence of many of the centralized worksites that historians term "manufactories" or "proto-factories." Others were established for technological reasons. In the textile trades, where proto-factories were most common, entrepreneurs often sought to introduce water-powered machines to perform specific individual operations, usually those involved with preparing the raw materials or finishing the woven fabric. Among the earliest, largest, and most advanced were the "Bolognese" or "Piedmontese" silk-throwing mills of northern Italy. Combining the previously distinct processes of winding, twisting, and doubling, they employed an average of ninety-eight workers; the biggest provided 300 jobs. Mainly the property of merchant-artisans with their own raw silk supplies, these enterprises supplanted small hand-driven mills owned and operated by individual families. In England, the water frame moved into sizable water-powered factories after Arkwright, the inventor and

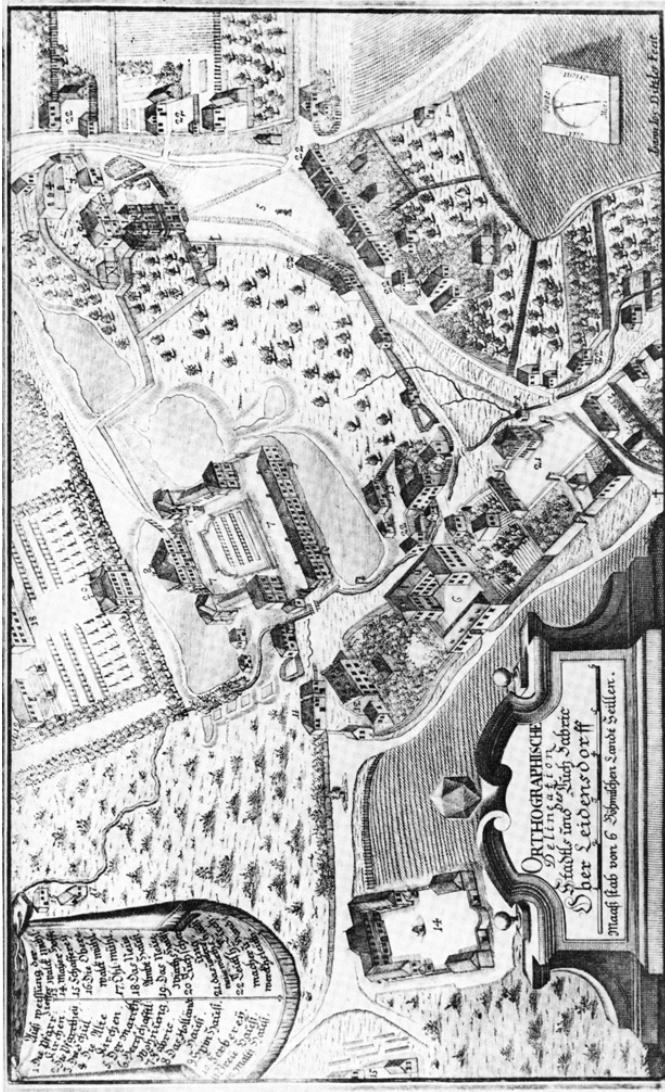


PLATE 3. Orthographic delineation of the little town and cloth factory Oberleinstorf. Scale: 6 Bohemian land ropes. 1. School. 2. Pastorage. 3. Church. 4. Old church. 5. Market place. 6. Lord's living quarters. 7. Factory. 8. Holland house. 9. Spinning house. 10. Dye house. 11. Brewery. 12. Malt house. 13. Fulling mill. 14. Farm buildings of manor. 15. Sheep run. 16. Upper fulling mill. 17. Oil mill. 18. New office building. 19. New inn. 20. Cloth shearing. 21. Lower new inn. 22. German clothmakers and craftsmen.

Fig. 8.1: This bird's-eye view of the Waldstein proto-factory places it firmly within its manorial setting. At the left are the manor farm buildings and fields, including sheep pasture, from which wool was obtained (unless imported from as far as Spain). In the center is the main factory complex, which included separate dye and spinning houses, fulling mills, and shearing building. Most of the buildings are arrayed around an enclosed yard with tentering frames on which cloth was stretched for drying. The village, with church, school, and marketplace, is on the right of the image; along the streets are located cottages for German weavers, with attached loom sheds. Ten Dutch weavers and their families lived and worked in the largest building of the complex around the tentering yard.

patentee, decided to license only units containing 1,000 or more spindles, thereby abruptly ending a promising domestic craft. Technological change also encouraged the emergence of proto-factories in the metallurgical trades. At Matthew Boulton's Soho works outside Birmingham, 600 men in five large buildings operated the most technologically advanced water-powered machines of the day (the 1760s) to make a sweeping array of small metalwares.

In the absence of managerial or technological imperatives, most entrepreneurs saw no compelling reason to tie up capital in fixed plant; the minority that did found their profits on average below those of their competitors who concentrated on putting-out, so numerous early manufactories soon closed. And even when some operations were performed in manufactories, others remained in the hands of domestic workers, the precise mix depending on labor costs and quality concerns. In the Vesdre district (Belgium), manufacturers had raw wool machine-carded in their proto-factories, put out for spinning and weaving, and the woven fabric fulled in a different part of their mills. Similarly, despite the presence of Bolognese and Piedmontese throwing mills, Italian silk weaving and finishing remained handicrafts.

A few manufactories housed several stages of production, including some that did not use a centralized source of energy. Such establishments were most common on estates in east Elbia, perhaps because the necessary physical plant could be built or converted at low cost using corvée labor. But even in these manufactories most workers, if not most production processes, remained outside the mill. The Osek (Bohemia) woollen company, which belonged to a Cistercian monastery, prepared wool and wove, fulled, dyed, and dressed cloth in proto-factory buildings. Yet of its 766 employees, 656 were women who spun at home. The light drapery manufactory opened in 1715 by Count Johann von Waldstein in the tiny village of Horní Litvinov (Bohemia) actually brought some spinners into the mill, although most continued to work in their homes. This establishment was noteworthy, too, for its far-reaching division of labor, designed to exploit economies of scale possible even in the unmechanized operations of a large manufactory. Divided into forty-five distinct procedures, production was carried on in separate workshops by several hundred specialized workers, including artisans who fashioned tools used by the clothmakers. In hindsight, the Waldstein mill presaged the factory of the future. But in its own time it was an anomaly. The typical manufactory was simply one element in a production system largely organized on a putting-out basis.

Neither putting-out nor manufactories were exclusively rural phenomena. Urban domestic systems which, as we have seen, had existed since

the Middle Ages, proliferated in the eighteenth century. New industries that developed outside corporate frameworks accounted for an increasing share of proto-industrial production. Even in established trades guild privileges and protests were ignored; ever more often, in fact, rich guild masters engaged in putting-out, although corporate rules usually did prevent them from opening sizable workshops. Entrepreneurs found cheap labor among towns' growing throngs of poor. Subsidized grain and organized urban provisioning moderated living costs, while improved charity systems – the urban equivalent of cottagers' small plots in the countryside – provided wage supplements. The thousands of male and female linen spinners working in Ghent, it was reported in 1738, relied on poor relief as much as their own labor. An urban Verleger could keep wages especially low by tapping the female labor pool, constantly fed by an inflow of single and widowed village women. In 1789, there were said to be some 13,600 poorly paid women and girls employed as domestic lacemakers in Lille, then a city of approximately 60,000 people.

A handful of proto-factories likewise made their appearance in the urban industrial landscape. Even before the mid-seventeenth century, some merchants and finishers in Leiden had begun to assemble weavers, shearers, and other artisans in single workplaces to supervise the production process more closely, obtain lower prices for raw materials bought in bulk, and speed up the turnover of working capital. These shops had seldom contained more than a couple of different trades, but in the eighteenth century, the scale of manufactories grew. On occasion, this was due to the introduction of new technology. Lombe's five-story 1718 Derby (England) silk mill, where a single enormous water-wheel drove all the machines (seventy-eight winding mills, eight spinning mills, four twisting mills), employed 200–300 workers. Mainly to enhance managerial control, a few manufactories also developed in luxury crafts that involved numerous intricate operations performed by highly skilled artisans using costly raw materials. But most made more mundane goods, usually textiles and metalwares.

As in the past, repeated attempts were made during the long eighteenth century to employ orphans, prisoners, vagabonds, and workhouse inmates to defray their maintenance costs while also teaching them work habits if not skills. Some schemes involved large and elaborate manufactories, nearly all of which turned out textiles. One in Cádiz (Spain) provided jobs to 850 workhouse residents, some operating spinning jennies, looms, and stocking frames. But even when tending machines, coerced workers proved unwilling and insubordinate. Plagued by low productivity and poor quality, most of these manufactories soon closed or saw their disdained goods pile up in storerooms.

Like its rural counterpart, the urban manufactory was typically integrated into a Verlagssystem that mainly employed country folk. Jacob de Heyder and Co. employed 100 weavers in their Lier (Belgium) flannel mill, another 100 in the weavers' own homes in that town and in Antwerp, 2,000 spinners in villages, and an unknown number of workers in their fully equipped Lier calendaring mill and dye works. In the late 1780s, Augsburg's "Calwer Zeughandlungskompanie" provided work to up to 4,000 combers and spinners and nearly 1,000 other workers performing every stage in woollens production, but only 168 of them – dyers, bleachers, pressers, and other finishers whose tasks were thought to require rigorous oversight – worked in central shops; the rest labored in their own cottages.

In the eighteenth century, antitheses between urban and rural production – already long blurred in England – lost force across the Continent as trades escaped city monopolies, village entrepreneurs took their place alongside their urban fellows, unregulated trades proliferated in bucolic and inner-city settings, the countryside came to harbor more and more full-time industrial workers: as, in short, proto-industrial enterprises engendered similar – often linked – work units and production structures in town and country. The upshot of the golden age of rural industry was the superseding of old dichotomies. Much more widely and successfully than in such sixteenth-century precursors as Córdoba, neither town nor country but region became the paramount industrial terrain. Concomitantly, reorganizing industrial production and space gave more power to entrepreneurs – especially merchants but wealthy artisans as well – who had the resources to animate proto-industries and proto-factories. As the century advanced, some of these work sites, in some regions, began to house the radically new machines emblematic of the Industrial Revolution.

Technology and Industrial Change

The invention or adoption of new technology was hardly unknown in medieval Europe or the long sixteenth century. The spinning wheel, horizontal loom, movable type, gravitational drainage pump, ribbon loom, blast furnace, stocking frame, and wind-powered fulling mill were among the most prominent. But in the late eighteenth century, novel machines in combination with the other forces that we have been examining initiated a transformation of production.

Histories of changes in industrial technology long emphasized the sudden appearance in eighteenth-century England of a cluster of breakthrough innovations developed by singular inventors that quickly remade Britain's

manufacturing and were subsequently copied by other Europeans. More recent interpretations, in contrast, postulate a protracted process involving a host of anonymous and well-known artisans, scientists, and inventors who built on pan-European and often global knowledge and skills that the English exploited and adapted. Not only did the new machines affect overall British economic growth more slowly than previously thought, but they proved less than optimal in many economic ecologies, so their slow diffusion – even in parts of England – was rational rather than a sign of backwardness.

Yet despite growing scholarly consensus on many points – symbolized by the renewed popularity of the concept “Industrial Revolution” – explaining the eighteenth-century upsurge of technological development, and its strong appeal to English industries, remains contentious. Two approaches are currently dominant. One privileges purely economic causes, the other institutional, intellectual, and cultural influences.

“Economic incentives led to the invention of the industrial revolution,” claims Robert Allen; specifically, relative factor prices that in Britain elicited innovations to economize on high wages in favor of inexpensive capital and even less expensive energy.³ The burgeoning popularity of Asian cottons and ceramics prompted entrepreneurs to seek ways to cut production costs in order to compete. Using factories rather than putting-out enabled innovative entrepreneurs to exploit proto-industries’ well-developed division of labor while employing centralized sources of power, coordinating manufacturing stages more efficiently, imposing more intense work rhythms, and enforcing quality standards. But the key innovation was new machines, fabricated out of prior technical progress, artisan skill, scientific knowledge and experimentation, and collective and individual learning by doing. Admittedly, the time-lag between invention, first commercial use, and wide utilization could be long: though Newcomen’s steam engine, which originated in 1709, powered coal-mine drainage pumps in the eighteenth century, only in the 1830s did steam engines become efficient enough to drive factory machinery. Nor did all industries benefit from technological advance. In the end, however, new machines in a few dynamic industries that also exploited England’s cheap coal and low borrowing costs sharply increased the capital:worker ratio, reducing labor costs and boosting productivity across the economy. On the Continent, different relative factor prices slowed or even blocked technological change.

To Joel Mokyr, belief in material improvement as desirable, cumulative, and possible that culminated in a post-1750 “industrial enlightenment”

³ Robert Allen, “Technology,” in *The Cambridge Economic History of Modern Britain*, 1: 319.

was the indispensable “cultural background to the industrial revolution.”⁴ Scientists and intellectuals comprising an informal European-wide “Republic of Letters” formulated, shared, refined, and diffused both the new ethos and empirical, utilitarian knowledge. The new technologically-minded culture had an international genesis. Britain, however, provided the most favorable environment not only for inventors but also for implementing their ideas: political stability, defense of property rights, protections for technical advances, as well as skilled artisans able to apply and perfect new machines and profit-minded entrepreneurs eager to deploy them.

Neither explanation has escaped searching critique. The cultural and institutional environment surely helped set the stage for technical change. But its connection with specific inventions has proven hard to establish, not only for epochal “macro-inventions” but even more their subsequent tweaking by artisans seeking to commercialize the initial breakthrough. Safeguards for property rights, patent-like protections for inventions, skilled artisans, and eager and monied entrepreneurs were not exclusive to England. The claim that high wages induced invention has been faulted for wage data problems and miscalculated international comparisons, as well as for ignoring evidence that technological improvements often occurred in low-wage areas and that many inventions did not and were not intended to save labor. Nor were labor costs the sole or even most important consideration at the time. The momentous cotton spinning inventions – jenny, mule, water frame – were innovated to produce twisted warp yarn of sufficiently high quality to be used in sought-after cotton-linens and pure cottons.

Both approaches slight the fundamental contributions of pre-eighteenth century inventions; spinning machines, for example, were based on medieval Italian silk-twisting technology. Most important, both resolutely supply-side explanations ignore the role of demand in promoting technological change. For Allen, Indian cottons represented price competition, which was indeed true in the nineteenth century. In the eighteenth century, however, European and colonial consumers bought Indian cottons not because they were cheap but because they were fashionable and their quality was superior to that of similarly priced European cottons. The 1730s precursors of the breakthrough spinning inventions of the 1760s–1770s thus drew upon the luxury fabric technology of Italian silks. As demand rose and, in the mid-eighteenth century, Indian supplies decreased, inventors and entrepreneurs successfully

⁴ Joel Mokyr, “An Age of Progress,” in *The Cambridge Economic History of Modern Britain*, 1: 271.

poured effort into developing machines that could spin yarn sufficiently good that European – in the event initially English – cottons could replace the imports.

Review of the long eighteenth century's new technologies, changes in manufacturing structures, government policies, and consumption reveals, then, that factors of production mattered for the era's industrial development – but so did factors of demand.

Varieties of Uneven Industrialization

Industrialization during the long eighteenth century was a more uneven process than in the past. Each area of Europe enjoyed differential access to new sources of demand, and each proved disparately receptive to new industries, forms of organization, and techniques, so each developed distinctive patterns and levels of industrialization. If Britain's performance was strongest overall, even in laggard regions there were conspicuous bright spots. Across Europe appeared new products, new industries, new ways of organizing manufacturing, and new relations among producers.

East Elbia and Scandinavia

In Europe's two least urbanized large regions – even in 1800 their proportion of city residents was less than half the level of Europe as a whole – structures and conditions of essentially agrarian economies largely impeded innovative industrialization. Admittedly, several areas east of the Elbe shared in eighteenth-century industrial advance. Their manufactures found customers mainly in the region or further east, yet some reappeared on western European markets or developed new ones in the Americas. Woollen and linen textiles most of all, but also metals and glass – industries dating back to the Middle Ages – remained the premier trades; areas with already established industrial vocations prospered the most, frequently thanks to local raw materials like flax, wool, ores, and glass sand; small artisanal units remained the norm. Still, some new departures were undertaken: state-sponsored industries (mainly of luxuries), manufacture of cotton-linen fabrics, establishment of proto-factories, and installation of modern machines; in addition, a few enterprises – old and new – became very large.

Mining, metallurgy, and glassmaking had always been rural crafts; as elsewhere in Europe, textile producers seeking to cut costs increasingly joined them. Most made woollens or linens, but beginning in the 1720s, Austria developed cotton-linen manufacturing around Vienna and in the

Vorarlberg. Thanks to textiles, several parts of east Elbia industrialized on a scale comparable to districts in western Europe. By 1798, textiles occupied 17.5 percent of Bohemia's labor force, and in some villages the proportion reached four-fifths. Not all industry was rural. At Brno (Moravia), cloth industries were founded that in the nineteenth century would make it the "Manchester of Central Europe," and several other towns duplicated some version of its experience. Luxury industries were also established in towns – typically political capitals – and numerous long-established urban crafts never relocated.

Export-orientated foreign merchants and their agents played a significant role in the rise of proto-industrial linen manufacturing: Cracovians in Silesia, Britons in Bohemia. East Elbian peasants and lords also promoted industrial development. Using capital accumulated in agriculture, peasant merchants organized putting-out systems that employed their neighbors, some of whom eventually abandoned farming entirely for full-time industrial work. Most Verleger operated on a very modest scale, carrying their petty output on their backs from village to village within a restricted area. But a few better-off peasants constructed extensive networks of domestic producers, formed companies with others of their stature to export to distant areas, and sometimes opened finishing shops. Even small production units could, when sufficiently dense, form impressive industrial districts. The mining and metallurgical trades of Austria's Alpine provinces ranked among Europe's leaders: in 1767, Styria alone turned out as much pig iron as England.

The great majority of those – employers as well as workers – who engaged in the rural cloth industry continued to owe obligations to demesne lords. But their lords (like other seigniors, noted in Chapter 7, whose estates remained wholly agrarian) were willing to accept cash payments in lieu of corvées because rapid demographic growth had given rise to an excess of peasant labor obligations relative to estate needs or because soil quality or inaccessibility to market made demesne-based commercial agriculture impracticable. Other demesne lords sought to profit from surplus peasant labor by establishing putting-out operations or centralized workshops on their manors or by leasing out the privilege to do so to merchants. Most of these enterprises, which made everything from glass to fine fabrics, were short-lived, falling victim to inadequate demand or inferior quality. But a few flourished; if the Waldstein light drapery manufactory was the best known, several other lordly estates in Bohemia received 10–15 percent of their total revenues from textile and iron enterprises.

Princes seeking to strengthen their states also encouraged east Elbian industry by implementing "cameralist" policies (as mercantilism was

known in German-speaking lands); as in agriculture, the Hohenzollern monarchs of Prussia and the Habsburg emperors were the most interventionist. As early as the reign of Frederick William, the Great Elector (1640–1688), Prussia banned both imports of numerous foreign manufactures and exports of vital raw materials to protect local producers. The War Commissars who managed the armed forces subsidized or otherwise supported some industries. In the eighteenth century, as the country increasingly militarized, the army took on a widening role in industrial development, establishing textile factories to supply uniforms, owning and operating numerous armaments plants, mines, and ironworks, as well as closely supervising private ones. Following the lead of Saxony – which in the 1670s founded silk and silk-woollens enterprises – and of Louis XIV's France, Prussia also set up silk, glass, faïence and other luxury manufactories to serve the court in Berlin.

Though the army was a much less important spur to industrialization in the Habsburg lands, the state did own some enterprises. Most impressive was the Linz woollens manufactory that in the late eighteenth century employed some 30,000 domestic spinners, many of whom lived some distance away in Bohemia, as well as 5,000 weavers and many more artisans engaged in other stages of production. Private entrepreneurs were also assisted. They were lent capital and equipment (much imported from western Europe), their businesses were exempted from guild regulations and privileges, state-sponsored spinning and weaving schools trained employees for them. And beginning as early as the reign of Emperor Charles VI (1711–1740), the government took a strong interest in improving transport throughout the far-flung Habsburg territories, so rivers were dredged, canals dug, roads rebuilt.

Government aid helped jumpstart certain east Elbian industries and areas. If less spectacular than the Linz manufactory, long-term support from the Hohenzollern monarchy, combined with sheltered and growing court and especially military markets – the army quintupled in size between 1713 and 1786 to become one of Europe's biggest – launched a Berlin-Potsdam industrial district boasting a range of prestige and utilitarian trades. It is less clear that state assistance promoted broad industrial development. Cameralist ideas were implemented sporadically and unsystematically, and the industries they spawned were rarely competitive. Most manufactories – even Linz – used traditional technology and putting-out modes of organization and production. Berlin-Potsdam industries failed to develop significant export markets, remaining dependent on official subsidies, monopolies, and contracts. Nearly all the dozens of faïence workshops established in the Empire for reasons of prestige rather than any rational economic calculus went under after

cheap porcelain was invented in the late eighteenth century; the exceptions in Thuringia survived by refocusing products toward a middle-class clientele, adopting some new technology, and using abundant local raw materials.

Yet if state assistance was often misdirected, ineffective, even detrimental, the major constraints on east Elbian industrial change lay elsewhere. Abundant cheap rural labor promoted proto-industries that turned out largely modest quality, low-margin goods, dampening interest in mechanization; moreover, many producers lacked the wherewithal to upgrade or reorganize. Tellingly, when some new textile and metals machines were introduced in the 1780s, they represented one-off introductions into otherwise unchanged production structures. Surviving guild monopolies, as well as the resources lavished on developing artisanal skills in luxury crafts, likewise militated against broad technological innovation.

Demand problems were yet more baneful. The great majority of east Elbian manufactures – 80 percent, by some estimates – were consumed within the region, yet levels of consumption remained modest. Though growing, cities housed only a small share of the population, testimony both to demesne lordship's limits on peasant mobility and to a generally unproductive agriculture. Customs duties, tariffs, and transit tolls impeded trade, raised prices, and fragmented markets, but many states, dependent on the revenues they provided, maintained them. High consumption taxes and landlord impositions not only lowered discretionary incomes but prompted the overwhelmingly peasant majority to make a portion of its textiles, household utensils, and farm implements. As the eighteenth century drew to a close, markets abroad began to be lost, some to Irish and Scottish linens and, increasingly, British cottons, others to tariffs and duties introduced in retaliation for east Elbian barriers; the Napoleonic Wars delivered a harsh blow by repeatedly interrupting exports to western Europe and the American colonies between 1803 and 1815.

At the end of the long eighteenth century, east Elbia boasted a handful of important proto-industrial enterprises and districts, but its dominant agrarian structure and state economic and fiscal policies restricted demand, reorganization of production, and technological change.

Scandinavia remained Europe's least industrialized region. Insofar as its essentially rural population had any engagement with industry, it came through the production of raw materials and semi-processed goods – notably ores, unprocessed and spun hemp and flax, timber and lumber, and, in Sweden, iron bars – though some Swedish peasants knitted woollen stockings and sweaters for a mainly military market. Country

folk wove most of their own cloth, tailored their own clothes, and fabricated their own tools; artisans producing for local custom filled the needs of the inhabitants of the mainly small towns of the region's tiny urban sector. Denmark did develop a few proto-industrial textile enterprises making woollens and linen-cottons for the kingdom's navy and army, and Crown initiatives founded earlier continued to turn out small metalwares in Sweden. After 1771, moreover, in Ekilstuna, Sweden, newly declared a free city where guilds were forbidden, some large manufactories employed proletarianized apprentices and journeymen to turn out weapons, knives, locks, and the like; a few linen manufactories, with 90 percent female labor forces, also opened in late eighteenth-century Sweden. Very few manufactures were exported, so there was scant interest in altering processes that served well enough for making low-quality goods.

Mediterranean Europe

Ruralization and regionalization, reformist government policies, Atlantic trade, and intensified domestic consumption promoted manufacturing growth in many parts of Italy and Iberia across the long eighteenth century; in the decades around 1800 a few regions experienced significant industrial development. As entrepreneurs most often preferred tried and true proto-industrial strategies, however, technological and structural change remained modest. As a result, estimates of per capita output and real wages indicate, the divergences manifest in Mediterranean Europe's agriculture encompassed its industrial sector as well.

Italy To counteract high urban costs, guild restrictions, and growing foreign competition, during the sixteenth century northern and central Italian entrepreneurs had reconfigured industrial production. Most luxury crafts, finishing stages, and mercantile functions stayed in cities, while lower quality manufacturing largely relocated to rural areas. This strategy remained in favor both during the crisis decades of the seventeenth century and – even more urgently – as competition intensified in markets at home and abroad after about 1670. Long-established, highly skilled artisan trades – glass, furniture, artworks, clothing – remained prevalently urban. They were eclipsed by renascent silk weaving, which benefited from redeployed capital as Italian woollens continued to lose market share to English and Dutch imports (Venice's volume, for instance, slumped further from 10,000 pieces a year in the 1650s to fewer than 2,000 in the 1710s). Thanks to rapidly expanding indigenous raw silk supplies – in the second half of the eighteenth century, nearly two-thirds of total European output –

a near monopoly of the best warp thread (organzine), the invention of desirable specialties (such as high quality but less expensive plain taffetas in Florence), and newly opened markets in central Europe, the Levant, and the Americas, the industry rebounded nicely.

The most notable industrial growth occurred in secondary urban centers and the countryside. In some cases, this resulted from reinvigorated rural trades like mining and metallurgy; in others, from a continued search for cost containment, aided by rural demographic revival that increased the supply of cheap labor. In yet other instances, smaller cities and towns, previously overshadowed by larger neighbors, emerged as centers of autonomous industrial districts once urban manufacturing monopolies lapsed, guild power eroded, and states granted tax and customs exemptions.

Italians – most of all those in the middling and lower strata – were the chief customers for the goods turned out by the mainly female and child rural and small-city labor force, buying items ranging from hats to tools, though with textiles always paramount, notably inexpensive woollens, linens, and mixed-fiber fabrics. Still, up to a third of output was exported, including straw hats, extremely popular in England; medium-range woollens for east Elbian Europe; Tunis-style fezzes for North Africa; firearms, paper, rope, and sails. Outside as within cities, however, silks proved the most dynamic industrial sector during the long eighteenth century. Some country producers worked within a complementary regional system, as in Liguria, where recovery set in after 1675: rural artisans wove black velvet – a runaway fashion success throughout the Atlantic world – their Genoese counterparts damask, satin, and *ormesino* (a very light women's clothing fabric). Elsewhere, rural weavers replaced urban, as when production of narrow *ormesino* left Venice for Alpine valleys. But thread was the primary product of rural silk manufacturing: part-time, poorly paid farm women reeled and prepared raw silk from cocoons they cultivated for full-time male workers to throw (spin) in large water-powered mills.

Whether growth registered in towns and rural areas compensated for decaying industries in major cities remains a matter of debate. Country production might replace city, as when Lombard peasants took up fine felt hatmaking and the craft disappeared from Milan. But rural/small-city industries themselves also registered mixed results: among textiles, for instance, silk throwing, mixed-fiber “cottons,” and some woollens weaving and finishing did well, while knitwear, hempen fabrics, and linens languished. Intensifying international competition was partly to blame, not just from cheaper producers, as with east Elbian linens: even silks, Italy's flagship export, encountered headwinds. French manufacturers not only copied Italian machines but moved to the forefront of

technological innovation, invented the annual fashion cycle, and capitalized on expanding exports of superior Italian raw and thrown silk. Concomitantly, the protective tariffs and related measures that multiplied across the period increasingly excluded many Italian manufactures from markets abroad.

Home markets therefore became more important, yet there, too, demand lagged. Urbanization stalled at levels little above – and in the north below – those attained during the long sixteenth century. Despite some instances of agricultural improvement, as we have seen peasant consumption was restrained even in the more favored north. In many states, tolls and tariffs hampered market integration.

Industrial adaptation in northern and central Italy's big cities, along with expanded manufacturing outside them, did achieve some significant results. Factors of production were more efficiently utilized. Capital was redirected to more profitable sectors, as from woollens to silks; new funding sources were tapped (many aristocratic landowners who backed agricultural innovation in Lombardy, for example, also invested in deep mines and rural manufactories, including water-powered mills for silk and paper); underemployed peasants found industrial jobs. Silk mills introduced technological and organizational innovations. Throwing equipment underwent constant improvements that greatly boosted speed, efficiency, and quality; the associated winding or doubling stage was mechanized and transferred from a domestic to a factory setting; after experimentation, mill size was optimized and production routines and outcomes standardized; a panoply of new machinists' skills were developed. Over time, increasingly sizeable firms concentrated control; vertically integrated production; relocated reeling plants next to spinning mills to reduce wastage and transport costs and time, enhance coordination, strengthen managerial oversight, and extend quality control; and developed and imposed model teams of laborers. Factory workers were forced to accept harsh labor discipline while entrepreneurs learned new management skills including how to operate successfully in demanding export markets. For their part, artisans-turned-entrepreneurs in industrial districts around small urban centers pioneered flexible production regimes to respond quickly to the demands of highly specific niche markets for quantitative, qualitative, and fashion changes; opened new domestic and foreign markets by exploiting novel commercial channels that bypassed once-dominant large cities; and adopted and often modified foreign techniques and equipment while also continuously upgrading autochthonous procedures.

For all that, Italy's industrial transformation was as ambivalent as the dimensions of its quantitative growth remain unknown. The peninsula

boasted manufacturing districts in which skills, technical knowledge, and incremental improvements were continuously generated and diffused among competing and cooperating individuals and firms. Northern Italian silkmaking was widely hailed by contemporaries for its modernity: Thomas Lombe copied Piedmontese technology and labor discipline for his celebrated Derby mill. Throwing machines substituted for human labor in the most labor-intensive and, in terms of quality, key stage of production. Like other peninsular industries, silk manufacturing adopted the structure that had proved viable throughout eighteenth-century Europe, combining a critical mass of specialized artisans in centralized manufactories performing crucial stages of production requiring specific skills, supervision and/or machines with putting-out that employed a growing throng of inexpensive less qualified workers. Yet a rising proportion of Italian manufactures comprised either semi-processed articles like silk thread sent to industries abroad that performed the most skilled and profitable final stages, or lower-end items destined principally for internal markets. Moreover, if silk, Italy's principal export industry, experienced a boom in the 1780s due both to crisis in Lyon and changes in fiscal and customs policies, competitors had long been gaining ground – notably, as the long eighteenth century drew to a close, European-made cottons.

Iberia During the long eighteenth century Spanish and Portuguese manufacturing experienced significant similar trends – which were akin as well to Italian. Textile proto-industries producing largely for home demand were primarily responsible for industrial revival; foreign markets proved hard to penetrate and maintain. In Iberia as in Italy, too, the extent of actual industrial growth remains difficult to gauge. Analogous as well were the modest degree of technological change in most manufacturing and the abiding prominence of industrial raw materials and semi-finished products among exports.

Villagers and inhabitants of small towns working up local wool, hemp, and flax into a variety of cheap and medium-priced fabrics accounted for a substantial proportion of eighteenth-century Spanish expansion. Most enterprises were small-scale, though a few became sizeable by joining abundant domestic labor with manufactories: in 1780s Guadalajara, woollens making employed some 15,000 spinners working at home, together with 2,000 weavers and finishers in the city. Rising population, greater labor intensity, and longer working years helped boost popular consumption, aided by marketing and trade improvements. But many of these positive effects were offset by taxes on commerce and consumption, by generally falling real wages, and by the peasant majority's low incomes.

In Portugal, where industries were likewise usually based on putting-out in farm districts, even the rare large operations relied on spinning and weaving in the countryside, with finishing carried out in town manufactories. As in most of Spain and Italy, rural demographic increase occasioned some consumption growth in Portugal. But even lower crop yields and agricultural productivity, and correspondingly higher rates of rural poverty – combined with poor communications and consequent mediocre inland trade – imposed yet stricter limits on interior demand.

European markets provided little succor: if anything, they became less friendly to Iberian manufactures as industrial production expanded abroad and mercantilist measures restricted access. Weak demand at home and abroad discouraged investment and innovation. As deforestation drove up the price of charcoal in Spain, for example, fuel came to comprise up to three-quarters of iron's production costs. More efficient blast furnaces would have cut the bill, making iron more competitive, yet most foundry owners would not or could not install the new equipment, and few acquired slitting mills, thus foreclosing the possibility of crafting high-profit wares. At the same time, the needs of growing industries elsewhere made Iberian raw materials and semi-finished goods more lucrative exports than manufactures. Little wonder that Spain continued to ship the greatest part of its raw wool abroad nor that colonial primary products such as indigo, cochineal, and raw cotton were major peninsular re-exports.

Yet state industrial policies, colonial markets, and Catalan cotton manufacturing demonstrate that Iberian industrial developments were not simply Italy's in a different idiom. To a greater extent than in Italy, governments in both Spain and Portugal actively sought to stimulate industry to provide employment and curb imports while enhancing mercantile wealth, national prosperity, and royal political and military power. In Spain, state assistance helped entrepreneurs produce fine fabrics, tapestries, porcelains, and other luxury items in both royal manufactories and other establishments. For instance, with protective tariffs, restrictions on raw silk exports, emphasis on middling quality fabrics, and adoption of new dyeing techniques, silk weaving expanded briskly: Valencia and its environs boasted 800 silk looms in 1721, 4,000 by the end of the century. Other manufactures likewise benefited from government favor, the military contributing by sizable purchases of domestically produced goods from ships to textiles.

Both quantitative and qualitative success often proved elusive, however. At its height in the 1780s, the Segovia Royal Cloth Works' woollens output was less than half of its predecessors' two centuries earlier. In the same years, big annual subsidies, preferential tariffs, prohibition of some

competing products, and provision of inexpensive raw materials notwithstanding, Guadalajara's weavers turned out such expensive and poorly made cloth that the army only accepted it under duress. Seeking a comeback through high-quality fabrics, and aided by new privileges and protections, Córdoba's woollen and silk enterprises opted to concentrate all stages – even labor-intensive spinning – in one location to facilitate close supervision. Yet the decision saddled the businesses with high fixed costs while making them unable to respond to downturns by shedding outworkers. Despite hiring foreign instructors to impart new techniques and purchasing specialized equipment, moreover, the firms could not produce cloth equal to imports and soon failed. Valencia's silk industry's rise coincided with Toledo's decline. Overall, recent studies suggest, government intervention did not significantly aid Spain's industrial growth, much less prompt organizational or technological change.

Portuguese governments likewise actively promoted industry, beginning in the 1720s with tax exemptions, preferential tariffs, and monopoly rights granted Portuguese merchants who attracted foreign artisans to launch a paper factory, leatherworking business, glassware production, and silkmaking. Haphazard, the initial efforts yielded few lasting results. More fruitful was the systematic approach implemented by the enlightened but autocratic reforming Marquis of Pombal (chief minister 1756–1777), when the state owned and operated factories as well as offering private entrepreneurs – who typically imported experts and processes – financial incentives, monopolies, and quality inspections. Some endeavors prospered: a new glassworks became Portugal's biggest industrial firm. As in Spain, however, none innovated either institutionally or technologically. After Pombal's departure, royal factories were privatized and financial assistance ended, and foreigners took advantage of liberalized licensing rules to open cloth printing shops, manufactures of items from silk stockings to combs, and tanneries; as before, none represented a new departure. Though many data are lacking, in capital-poor Portugal, with its weak industrial heritage, direct and indirect state aid and government encouragement of the inflow of foreign investments and expertise may have had greater significance than in Spain or Italy for promoting industrial growth – yet similarly failed to bring about modernized structures or techniques.

The two kingdoms' colonial empires were large and growing suppliers of primary materials and markets for manufactures, yet their benefits were not wholly – and often not much at all – reaped by Spanish and Portuguese Iberian industry. Already in the long sixteenth century, foreign goods satisfied a substantial part of Iberian colonial consumption needs; besides, as we have seen (Chapter 5), in Spanish possessions local

workshops made the cottons and woollens worn by the indigenous and enslaved majorities, and in Brazil plantations often wove their own cloth. Eighteenth century attempts to tighten royal control over colonial trade did yield some benefits, as did metropolitan industrial revival. Still, legitimate commerce and smuggling continued to inject significant amounts of foreign manufactures into Spain's colonies – increasingly so after late eighteenth-century trade reforms. As a result, colonial markets took less than 5 percent of Spanish manufacturing output, though they may have been critical for Catalan cottons.

As noted in Chapter 6, the Brazilian market became increasingly important for Portuguese manufactures – but did not dethrone imports' dominance either there or in the metropole. In addition, colonial raw materials were primarily worked up elsewhere in Europe: instead of underpinning a metropolitan industry, most Brazilian cotton was spun and woven in English mills. And even when Portugal's small cottons proto-industry managed to post some growth from the later 1780s, as dropping Brazilian gold exports put imported manufactures out of reach, it soon succumbed to the upheavals of the Peninsular War (1808–1814) and imports of cheap machine-made English cloth.

Catalonia's cotton industry was the one clear Iberian industrial success story of the long eighteenth century. No single factor explains its burgeoning; rather, it was fashioned from the region's distinctive agrarian structure, previous textile manufacturing experience, government interventions, product and process innovation, and – late in the century – expanding colonial demand. Laborers were accustomed to alternating agriculture and manufacturing; the numerous family farmers and substantial urban middle classes had the means to purchase manufactures; landlords and commercial farmers as well as merchants, urban bourgeois, and artisans provided investment capital; trade and distribution links had long been established throughout Iberia and overseas. In ways positive and negative, intentional and not, the state supported cotton printing, weaving, bleaching, hand and eventually mechanized spinning: by progressively prohibiting Asian and then all imported cotton fabrics, clothing, and accessories; weakening guilds' ability to restrict novel procedures and machines; instituting preferential tariffs; promoting then blocking the import of Maltese raw and spun cotton; encouraging the growing and trade of American cotton; and investing enormous sums in the commercially unsuccessful Ávila Royal Cotton Manufactory that nonetheless effectively diffused important technical knowledge. Already in the 1780s, thousands of mainly urban workers were employed in, or as outworkers for, over a hundred cotton spinning mills and printed calico factories; soon thereafter, as fashions came to favor fabrics woven from high-quality yarn, cotton spinners acquired jennies,

carding machines, and Arkwright's water frame. Even economic problems in the 1790s and wars in the early nineteenth century did not halt Catalan cottons' progress.

Innovation moved not only cottons but other Catalan industries to the Iberian forefront. More than any others Catalans could supply markets in Spain and its colonies with both inexpensive and good-quality manufactures. They did so in part by importing technology and skills pioneered in England and France, by closely attending to changing fashions and structures of demand, and by cutting shipping, trading, and other transaction costs. Catalonia's trades also succeeded because they flexibly adopted both proto-industrial and proto-factory forms of production that allowed them to match their competitors' costs and prices. But if Catalonia was becoming a more industrialized region, the rest of the peninsula was not, apart from scattered, small, and often technically retrograde enclaves. Like Italy, Iberia took its place among the laggards in the little divergence: predominantly a source of primary and semi-finished products and a consumer of manufactures from abroad.

Western Europe

The movement of Europe's economic center of gravity to the Atlantic coast states was consolidated during the long eighteenth century, and within that area the primacy of the northwestern quadrant. Yet even there not all territories progressed in equal measure. The Dutch Republic lost its commanding position, whereas Belgium recovered smartly. Britain's performance was strongest overall, but France's was comparable or even superior in some important respects.

Western Germany and Switzerland Divisions and diversity persisted among German states, so industries existed in a great variety of institutional, fiscal, and political environments, making generalizations hazardous. Nevertheless, two interlocked common trends can be discerned, although they held least true in the northwest, especially the lower Rhineland. First, urban industries both survived and stagnated but rarely thrived behind corporate walls; second, rural production – already a favored response to seventeenth-century problems – expanded more vigorously yet faced powerful obstacles to full development. The ravages of decades of warfare were repaired, yet most western German industries retained tried and true methods.

Institutional arrangements complicated industrial change. Artisan and merchant guilds that remained considerably more powerful than

elsewhere in Europe continued to control a great deal of production (perhaps half of output in 1800), limit competition, obstruct innovation. They blocked attempts at organizational and technological innovation in Württemberg's worsted industry, stymied the introduction of ribbon factories in Alsace, and impeded many other new departures. Imperial ordinances in 1731 and 1772 authorized individual states to end corporate monopolies, remove shop-size limits, and open crafts to all who wanted to practice them. But many governments failed to implement the legislation; some defended corporate producers against rural competitors or imposed guilds on village artisans. Rich, privileged, politically powerful institutions that paid substantial taxes, guilds were widely deemed essential to a proper political and economic order as well as to policing and discipline. Despite increasing challenges – including by journeymen's revolts in the 1790s – many guilds survived into the mid-nineteenth century.

Though states – particularly their armies – helped sustain textile, leather, and metals trades, fragmented markets, internal tariffs, customs, and transit tolls, and mercantilist barriers elsewhere hampered German industrial growth. So did restrained private consumption. Urbanization rates remained modest and peasant demand restricted by low productivity, heavy rents, and state levies. Often with government backing, proto-industries did develop, providing jobs and creating some local wealth. But nearly all relied on putting-out to un- and under-employed rural inhabitants; together with corporate restrictions and somnolent demand, the vigorous expansion of this cheap labor force discouraged further innovation.

Like Catalonia or parts of northern Italy, the lower Rhineland and Westphalia stood apart. Trades that in the nineteenth century would make the Ruhr Europe's leading mining and metallurgy district were already making their appearance, but textiles for European and American markets were the major growth industry. The heartland of agricultural change in western Germany, this area benefited as well from a general absence of guilds, noteworthy government assistance, and a talented cadre of entrepreneurs, many of them immigrant Mennonites from the Dutch Republic with valuable commercial contacts. At Krefeld in the Rhineland, they developed a flourishing silk and velvet industry; by 1791, nearly half the town's workforce specialized in ribbons and light fabrics. Earlier, French calico printers had brought their industry to the area after a 1686 royal decree had forbidden the import, manufacture, or use of cottons in France.

Though these businesses retained the dominant proto-industrial and craft structure, some also adopted new technology. In the 1770s, water-

powered ribbon looms were installed in Barmen; in the next decade, a five-story cotton spinning mill equipped with water frames, jennies, and mules modeled on English prototypes was built near Düsseldorf; and soon thereafter mechanized knitting frames were in operation. Hence, although the great majority of German states was barely touched by industrialization, and mechanization remained widely controversial for some decades into the nineteenth century, northwestern districts began to display many of the characteristics of the nearby Low Countries, northern France, and England.

Swiss rural production expanded impressively across the long eighteenth century, above all watchmaking in the Jura and around Geneva (where it largely supplanted unyieldingly and fatally conservative silk crafts), cotton spinning and weaving around Geneva and Zurich and in more easterly German-speaking areas. Road-building that had helped cheesemakers sell in distant markets also proved a boon to industry. The nascent cottons industry benefited from skilled French immigrants fleeing the 1686 cottons ban following hard upon the 1685 Revocation of the Edict of Nantes that ordered Huguenots to convert or emigrate. It expanded smartly as a lively contraband cottons trade developed with France, Europe's largest market by far, as well as licit commerce – developed by enterprising Genevan merchants – with American colonies. Growth intensified from the 1780s: already by 1790, the livelihoods of one-fourth of Swiss depended on industrial work; textiles – notably lighter varieties of cottons and mixed cotton-linenens that were both more easily smuggled and in vogue overseas – accounted for three-quarters of the total. Initially accommodated by extending rural putting-out, the dynamic cottons industry soon began to move into factories. While enhancing labor discipline and quality control, the change was also encouraged by mechanization – pioneered by spinning in the 1780s – increasingly driven by sharpening English competition. Rather than a particular area, in Switzerland a specific industry stood at the forefront of industrial innovation.

The Dutch Republic During the long eighteenth century, as in the past, Dutch industrial trends ran counter to those prevailing generally in Europe; this time they turned down as others began to improve. Problems first appeared during the 1660s in Holland's urban textile crafts – the very trades that had initiated Golden Age industrial expansion. Already by 1700, Leiden's output had fallen by half from its 1664 peak; even focusing on cheap, rough fabrics such as bays and warps for military clients did not halt the inexorable slide. By

1795, totals were about the same as in 1584, on the eve of the industry's explosive growth. Statistics from Haarlem's linen weaving and bleaching, Amsterdam's silkmaking, and virtually every other urban textile trade tell the same story: from the late seventeenth century, increasing challenges met by product and market adaptations that nevertheless did not prevent ongoing decline that by the end of the eighteenth century had reduced them to shadows of their former greatness – if they had survived at all.

Aside from a handful of luxury trades – book printing and publishing, Amsterdam diamonds, Utrecht and Naarden velvets, and Hilversum carpets – which attained modest prosperity at best, urban or periurban industries experienced similar long-term atrophy, though the specific sequence differed by industry and place. Zaan shipyards launched 306 ships in 1708, barely five in 1790; if not quite so catastrophic, conditions were bad enough in related crafts like sawmilling – the number of Zaan mills shrank from 256 in 1731 to 144 in 1795 – and the manufacture of sailcloth, where production dropped by three-fourths between 1725 and 1770. Delft pottery, which supported thirty large businesses between 1670 and 1720, barely kept ten afloat in 1795. Beer brewing, in the Middle Ages and again in the Golden Age one of Holland's major employers and export industries, experienced a three-quarters drop in output across the eighteenth century. A few new industries did emerge, but after initial success in the late seventeenth–early eighteenth century fared little better. Tobacco processing and sugar refining endured, but at much reduced levels; cotton printing disappeared. Rural industries such as linens in the Twente district of Overijssel, in the Achterhoek (Gelderland), and in Friesland; woollens and mixed linens and cottons in North Brabant, small water-driven papermills in the Veluwe – all held out until the 1740s, then joined the common slump. There were rare success stories such as gin distilling at Schiedam and Zaan papermaking. But these were now the exception rather than the rule, and neither in quantity nor in value did any of these industries match those that had decayed.

Depressed domestic demand and the loss of markets abroad were the primary causes of Dutch industrial decline; evolving consumption choices and difficulties obtaining raw materials contributed. At home, prosperous agriculture and high disposable incomes of rapidly growing urban populations had together fostered the Republic's trades during the Golden Age. These foundations crumbled during the eighteenth century. A somnolent agrarian sector with stagnating productivity, shrunken investment, and rising poverty no longer provided the dynamic demand of earlier years. While remaining Europe's highest, the proportion of

Dutch people living in towns contracted after 1700; many cities lost inhabitants. Wars with Britain and France left the country an enormous debt serviced mainly by raising sales taxes that cut into popular consumption or – in concert with changing preferences and costs – altered it to the detriment of the Republic's industries. Thus heavy beer excises encouraged drinking lightly taxed tea and coffee, a switch facilitated by these beverages' falling prices; neither provided industrial jobs to match those lost among brewers. Industrial decline also entailed widespread under- and unemployment as well as exerting downward pressure on the wages of those who still had jobs in what nevertheless remained the largest employment sector.

The Republic's colonies could not rekindle demand. Dutch possessions in the Americas were modest in size and population, and the East Indies bought few European manufactures. Unlike English or French domestic and colonial markets, moreover, the Republic's were unusually open to imported wares. Customs duties were generally quite low except when it came to goods from Belgium. The few protective measures on the books were poorly enforced, because the Holland merchants who controlled the Republic's commerce and government generally opposed restrictions that might have limited their business. Identifying their interests with those of the country as a whole, merchants and their publicists argued that import tariffs would ruin the Dutch economy, founded as it was on trade.

Despite or because of the merchants' obstinate defense of free trade, in the first half of the eighteenth century the Republic lost its European commercial primacy established during the Golden Age. The rising tide of protectionism proved especially harmful to Dutch industry. As other countries slapped export duties or prohibitions on raw materials vital to many industries in the resource-poor Republic, as well as high tariffs on Dutch manufactures, these became uncompetitive. At times, too, Dutch goods were subject to outright exclusion, as when England flatly forbade its traders and shippers to use boats made abroad (meaning, essentially, the Dutch Republic), or France made tobacco processing a state monopoly to profit from snuff-taking's skyrocketing popularity. Smuggling, at which Dutch merchants excelled, provided some relief but also inevitably raised prices. Amsterdam's calico-printing industry demonstrates the severe impact of mounting barriers. The first shop opened in 1678, and cottons printing quickly became the city's major industry, reaching a peak about 1750 when eighty works were in operation. But the subsequent closing of foreign markets – including those in Spain, once a leading customer – caused most to fail. By 1770, only twenty-one remained; all vanished over the next decade.

Whether state-assisted or not, indeed, industrialization in other lands was as detrimental to the Dutch in the eighteenth century as it had been to the Italians in the sixteenth, since both had achieved much of their growth by selling manufactures that less advanced countries did not produce. In both instances, too, the diffusion of techniques from the earlier leader allowed once-backward lands to catch up. As Belgium and Westphalia developed their own Dutch-style bleaching crafts, for example, Haarlem received less unfinished linen. Foreign ceramics, glassblowing, sugar refining, papermaking, and other trades similarly adopted Dutch procedures or adaptations – often under the tutelage of Dutch artisans – and then used them to build competing industries. Though the government banned machinery exports and foreign recruitment of skilled workers in 1751, the step came too late, and in the event failed to stop emigration in search of better opportunities.

In the Republic, technological innovation largely ceased. Admittedly, novel “Hollander” pulpers allowed bigger and faster Zaan mills to produce the finer fibers required by more lucrative white paper, raise overall output considerably, and remain competitive across the eighteenth century. But they were anomalies. Many merchants shifted their capital into finance and real estate, and even those who kept funds in industry invested in existing technology. Very likely, they were reacting to weak demand. Yet they also seem to have been heavily committed, attitudinally as well as in terms of capital, to Golden Age technology – and for good reason. Compared to a labor-intensive strategy such as putting-out, Dutch technology saved on labor in a high-wage country while making excellent use of wind and peat, the country’s most abundant energy sources. The advantages of Dutch technology were not lost on producers abroad, who often imitated it. But they also turned massively to putting-out, radically new machines that provoked ongoing innovation, water power, and eventually steam, and these gave them the edge.

Like their counterparts elsewhere, some Dutch entrepreneurs tried to cut costs by relocating production to the countryside, especially to the interior provinces where agrarian change was generating a surplus labor pool. Ruralization kept some industries afloat, like Tilburg-area woollens or eastern Netherlands linens. But moving to the countryside proved no panacea: by the mid-eighteenth century many rural industries were also suffering from market closures, foreign competition, and changing tastes.

According to some historians, the Dutch economy overall remained stable across the eighteenth century; it may even have expanded modestly after about 1750. Yet if this was accomplished – and other scholars strongly disagree – it resulted from the growing strength of the country’s financial sector, the extension of commercial agriculture into the interior

provinces, and the ability of some branches of commerce (notably imports and re-exports of colonial groceries) to hold their own. Now Dutch merchants were selling fewer domestically made goods, however, for both relatively and absolutely Dutch industry had deteriorated badly. Some branches held on: not just luxury goods but cheaper items benefiting from military supply contracts, focus on local and regional markets, niche markets (ironically, Zaan sawmills sold lumber to English shipyards), even (as with sugar refineries) direct government subsidies. Still, by 1800, the value of manufactures imported into the Republic was nine times that of industrial exports. A new transformation of the Dutch economy led it away from industrialization as its days of dynamism and technological primacy faded from memory.

Belgium By the mid-seventeenth century, many Belgian industries had overcome the severe disruption attendant upon the early years of the Dutch Revolt and recovered their enviable position of a century earlier – only to face warfare and foreign occupation that ravaged much of the country between the 1670s and 1713. Despite having developed new products, won new markets, and kept costs low thanks to extensive putting-out, the trades of these provinces labored under significant handicaps well into the eighteenth century. As in the Dutch Republic – although for reasons of military weakness rather than commercial strength – the domestic market long remained accessible to competitors.

High duties and outright bans abroad excluded many Belgian products, while the Dutch Republic, England, and France insisted on free entry for their manufactures yet prevented Spain, which ruled the provinces until 1713, from instituting effective retaliatory measures. After pushing up duties from 5 to 15 percent in 1690–1704, Britain took just 2,000 pieces of Belgian linen in 1711 as against 30,000 in 1660, while English cloth owed but 4–6 percent when imported into Flanders and Brabant. Then the Treaty of Rastatt (1714), which transferred the provinces to the Austrian Habsburgs, forbade them to set their own tariffs, keeping their doors open to foreign goods. State-assisted industrialization elsewhere also took a toll. Though Belgium continued to be a leader in tapestry weaving well into the eighteenth century, increasingly the finest pieces were made in the Paris royal Gobelins workshops that Colbert reorganized in the 1660s. Whether lacking imagination, confidence, or capital, many urban industries clung to established practices, but to little avail. Antwerp trimmings makers, for instance, rejected ribbon mills; nevertheless, their numbers plummeted from 4,800 in 1650 to fewer than 300 in 1738. Some rural trades also collapsed: after meteoric rise,

wartime devastation, and remarkable rebirth, Hondschoote's woollens slid into final oblivion and the village's remaining residents became full-time farmers.

From the early 1700s, however, proto-industries revived in country and (on a smaller scale) city. Population growth concentrated in already crowded inland rural Flanders created ever less viable small-holdings and a more numerous class of landless laborers, while in towns the collapse of corporate crafts threw many workers onto the labor market. At the same time, highly productive agriculture in nearby coastal Flanders and wide adoption of the potato long kept food prices relatively low and, together with abundant labor, wages as well.

Initially, entrepreneurs profited from Europeans' taste for lighter woollens and from the growing Spanish and American markets to which Belgian goods continued to enjoy ready access across the period: whereas England, France, Germany, and Italy took two-thirds of the provinces' woollens around 1600, Spain and its colonies one-third, by 1648 the proportions were reversed and by 1655 85 percent went to Hispanophone Europe and America. When that strategy faltered in the early eighteenth century due to protectionism, subsidized industrialization abroad, a change in consumer preference toward lighter fabrics – and domestic wool supplies soared while prices dropped as heavy export taxes took effect – Belgian manufacturers took up felted woollens and wool-linen mixtures like flannel and *molleton*, winning new customers at home and in Germany and east Elbia. Manufacturers like de Heyder (cited above) assembled impressive putting-out networks and centralized finishing plants started to appear.

Likewise benefiting from sales to Spain and its overseas possessions (as well as Portugal and Brazil), linens came to employ more people than any other industrial sector. Flemish output rose by nearly two-thirds between 1700 and 1785 as up to half of all Flemings came to engage at least part-time in making linens; bleaching, too, was now performed domestically rather than in the Dutch Republic. Many European lace centers went under when a fashion for plain muslin took hold after 1700. But the very large Flemish industry thrived by developing a new variety matching muslin in softness while incorporating complex patterns to complement the French silks worn with it. And as before, large mining and metals industries centered around Liège and Namur produced mainly for European and American markets.

When the political and diplomatic climate changed, moreover, the emperors Maria Theresa and Joseph II were quick to intervene and entrepreneurs to respond. After the 1748 Peace of Aachen at the end of the War of the Austrian Succession failed to restate the injurious Rastatt

clauses, and France and Austria entered into closer relations, protective tariffs were introduced, subsidies and monopolies granted to a variety of industries, and the transportation infrastructure improved. Sugar refineries opened in Brussels and Ghent grew considerably once favorable excise treatment arrogated by the Dutch in 1715 was revoked in 1749, and other processing industries like salt and tobacco likewise displaced Dutch products. Charleroi coal supplanted previously large-scale English imports; it also promoted the growth of metallurgical industries in surrounding districts. Fine woollens, woven in and around the eastern towns of Verviers and Eupen, not only took away business from Leiden but soon became European leaders in quality and levels of output.

Import-substitution fabrics now enjoying protections like those of their English and French rivals recorded the fastest growth. Fabrication of cheap, multi-hued cotton-linen *siamoises*, initially copied from Rouen in the late 1720s, flourished at Antwerp: by 1764 no fewer than 1,250 looms wove them. A twenty-five-year monopoly prompted the 1753 opening of a calico printing works at Dambrugge outside Antwerp, employing nearly 600 workers; additional works sprang up after 1778. Finally, cotton spinning began in the 1780s in many Flemish and Brabant towns. Already in 1789 Antwerp alone boasted 4,000 male, female, and child spinners, and their ranks continued growing thereafter. To be sure, from the 1770s woollens, linens, tapes-tries, and lace faced mounting difficulties. Yet Belgium had reaffirmed its industrial vocation in industries that proved springboards to mechanized factories. Coal mines in Mons and Charleroi had started using steam engines as early as 1727; spinning jennies began to hum in Ghent in 1797 and Verviers the following year. Building on these foundations, mushrooming demand for textiles, coal, and iron during the Napoleonic Wars, when the Continental System excluded most English goods, ushered in a British-style industrial revolution, the first on the Continent.

France Following a prolonged and severe downturn that in many places persisted after 1700, across the long eighteenth century France became the Continent's foremost industrial power. Luxury goods like fine textiles, porcelain, and mirrors played a significant role. As French silks came to dominate European fashion markets, for example, employment in Lyon climbed from 3,000 in 1660 to 14,000 in 1739 (and continued to advance, albeit less dramatically, until the 1780s), production quadrupled between 1730 and 1767 in the Dauphiné and grew 5.7 percent annually in Nîmes from 1730 to 1789. Products for middling and popular markets were quantitatively much more

consequential, however, not only long-familiar woollens and linens and newer fabrics like cottons and cotton-linens, as throughout Europe, but also regional specialties ranging from knitted stockings to woven straw hats.

Manufacturing expanded apace in the countryside, mostly putting-out to the growing multitude of rural residents eager for proto-industrial labor. Established rural industries also revived. Late eighteenth century French paper output (between 11,500 and 20,000 tons) far outstripped English (5,000 tons) and Dutch (2,000–3,000 tons); coal production rose seven- or eight-fold between 1700 and 1789; iron from 40,000 tons in 1740 to perhaps 140,000 tons in 1789. As elsewhere, many established urban crafts faded as village manufacturing extended, yet vigorous new town industries also appeared, often in the same cities and often incorporating rural production under urban direction. Regional shifts also occurred within a context of overall expansion: pronounced advances in northern, center, and southwestern textile manufacturing, for example, more than offset slowing growth in eastern and western districts.

Demand abroad and at home promoted perhaps four-fold growth in gross industrial output. Both elite and less expensive French products did well on foreign markets. The Levant consumed more industrial goods from France than from any other European country, and French manufactures enjoyed a strong position in Italy, Spain and its possessions, Germany, and east Elbia. Cloth to purchase slaves in Africa was central to the development of France's cottons industry, and the kingdom's American colonies took increasing amounts of manufactures, especially after 1763 when Caribbean production of tropical groceries soared. For all that, the internal market absorbed at least three-quarters of French industrial goods. Accelerating demographic growth – strongest in the countryside – rising labor productivity, the spread of proto-industrial jobs, and (if modestly), the appearance of new products stimulated demand among France's substantial rural majority. Fashion and fresh goods boosted urban middle-class and popular consumption: fewer than a tenth of Paris artisans owned cotton clothing in the early eighteenth century, two-fifths in 1789. Besides winning affluent customers throughout much of the Atlantic world, French luxury trades monopolized the large internal market for high-quality goods.

French manufacturing growth was neither unbroken nor homogeneous. Besides repeated wartime downturns, demand slowed in key markets during the last third of the century. Peasants' rents and taxes rose faster than incomes, reducing their purchasing power. Disorder in the Ottoman Empire, and its government's attempts to develop import-substitution industries, curbed exports there. Spain and its American

possessions, long the leading outlets abroad for linens, France's biggest textile craft, took fewer as incomes stagnated and less expensive producers entered the market. Across Europe, a late eighteenth-century shift to simpler, lighter fashions cut into sales of French silks and other luxury goods. Even in French colonies, an increasing share of industrial imports came from elsewhere in Europe, like linens for the enslaved majority sourced from cheaper producers in Silesia, eastern Germany, and Ireland.

Still, French industrial output grew, it has been calculated, by 1.9 percent per year between 1701–1710 and 1781–1790, as against 1.1 percent in Britain. While at the beginning of the century industry accounted for only about a quarter of France's total output, in comparison to a third in Britain, in the 1780s the figure was up to two-fifths in both countries, perhaps even a little higher in France. With thriving textiles, metallurgical, glass, ceramics, paper, and chemical industries – many of them involving integrated urban-rural production – along with sugar refining and leather processing, and with mechanization affecting ever more trades, Normandy bore much resemblance to advanced industrial zones elsewhere, including Lancashire, England's emerging industrial heartland. Yet it was Britain rather than France that first experienced an industrial revolution, and the first Continental state to emulate Britain's achievement was not France but Belgium. Well into the nineteenth century, moreover, French manufacturing retained a predominantly proto-industrial cast. How are these outcomes to be explained?

Government and guild policies are frequently cited. Beginning earlier, most determinedly during Colbert's ministry (1665–1683), and continuing long after, French royal administrations deployed a panoply of commercial, legal, and financial inducements to build up domestic industry. Like contemporary critics, many historians have condemned these schemes for misallocating resources to create excessively regulated production structures that raised costs, prevented quick adjustments to changing consumer tastes and market opportunities, and blocked the inflow of fresh ideas, capital, and procedures. There is some truth in these claims. Not all recipients of assistance put it to good use; nor were all government interventions well formulated or consistently implemented.

Yet if state involvement was no guarantee of industrial development, neither did it necessarily preclude important change and growth. State-owned enterprises like Sèvres porcelain, Saint-Gobain glass, and Gobelins tapestries used advanced techniques, earned healthy profits, employed sizable workforces, and set the standard for luxury trades throughout Europe. In a time of imperfect information, government-

mandated regulations and inspections enforced consistent quality that won and kept consumers' favor, as Breton linens and Languedoc woollens bore witness in the Iberian Atlantic and the Levant respectively. Attempting to emulate or at least copy England's advances, the French state supported initiatives from scientific societies to industrial espionage, not to mention introduction of new products and technological innovations. Royal manufactories (state-aided but privately owned) made first use in France of machines like spinning jennies, water frames, and coke furnaces. Government policies could also promote industrial reorganization, as in Languedoc drapery, where costs associated with state-mandated regulations, fees, and inspections favored substantial merchant-manufacturers at the expense of small producers.

Guilds or *jurandes*, which remained important institutions in French urban trades until the Revolution, are often alleged to have obstructed technological and organizational innovation, clung obdurately to over-priced, outmoded products beyond the reach of most customers, and driven up transactions costs, depressing profits and investment throughout the industrial sector. Assuredly, numerous guilds determinedly resisted anything new. But in contrast to Germany, many – perhaps most – accommodated change, often because richer masters sought to exploit new possibilities. Thus jurandes permitted employers to subcontract even across guild boundaries, hire free (non-corporate) laborers to work alongside guild artisans, and redefine hours, workplace conditions, and methods of production at the expense of long-sacrosanct practices. Such innovations cut costs; they likewise facilitated concentrated ownership of the means of production. Willingly or not, guilds also did not thwart the advance of either work outside corporate jurisdiction – often in the manufacture of new products like cottons – or rural industries, which proliferated long before receiving explicit authorization in 1762. In sum, while guilds might impose costs and rigidities on industrial production, as elsewhere their privileges increasingly masked and facilitated the power of employers to undertake innovations if they wished to do so.

Some did. New techniques appeared in textiles, clockmaking, glass, and paper. With investments in new plant and equipment, fixed capital became more important in a wide range of industries including cottons weaving and printing, shipbuilding, metallurgy, and glassmaking. Some entrepreneurs built proto-factories: nearly all were integrated into largely putting-out systems, but a few housed most laborers in single sites to enhance control of a full-time proletarianized workforce, raise efficiency by coordinating stages of production, and facilitate mechanization. Yet for all France's attraction to and attempted imitation of its cross-Channel

rival's development, it did not match English mechanization, per capita output, or overall level of industrialization.

John Styles has persuasively argued that the oft-quoted 1790 estimate of 900 spinning jennies in France, as against 20,070 in 1788 England, seriously undercounts French jennies (many had been destroyed in a wave of machine-smashing the year before) and likely at least doubles the actual English figure.⁵ Nevertheless, machine installations lagged in that as in other branches of France's cottons industry, where hand work and proto-industrial organization remained the norm well after 1800. Similarly, if in 1789 French ironmakers turned out nearly two-and-a-half times the tonnage of British, they relied to a much greater extent on traditional charcoal-fueled, low-capacity furnaces, reflecting (while also contributing to) the fact that French miners hewed 600,000 tons of coal in that year, while England mined 5 million tons in 1750, and 15 million about 1800. At that date, per capita English coal output was sixty-five times that of the French. By the eve of the Revolution only a fifth of France's working population was employed in industry, as against more than two-fifths in England.

Several long-term factors both constricted French industrial growth and directed its structural evolution along a distinctive route. Poor transportation and tolls between regions that hampered internal market integration and kept final prices high within the kingdom, consumption taxes that depressed popular demand, and the appeal of noble status that drained entrepreneurial capital were among them. More significant was the nature of the kingdom's export markets, the demand sector that proved so important to European industries in the eighteenth century. As seen in Chapter 6, France's external commerce focused on Europe, where across the eighteenth century industrial competition heightened and protectionism progressively closed markets to foreign manufactures. Equally salient, French colonies had very small populations of the free settlers who were far and away the main overseas consumers of European manufactures, while non-French producers increasingly provided linens, slaves' main consumption good. As a result, whereas manufactures made up two-thirds of English foreign trade, they accounted for just two-fifths of French.

For critical decades, moreover, cottons, the industry that both typified and drove the first industrial revolution, labored under uniquely unfavorable conditions. As in other European countries, France's government answered pleas from woollens and silks manufacturers by progressively

⁵ John Styles, "Fashion, Textiles and the Origins of Industrial Revolution," *East Asian Journal of British History* 5 (2016): 164.

outlawing cottons. But not only was the French prohibition imposed earliest (1686). It became the broadest, forbidding all imports and much domestic spinning, weaving, dyeing, printing, and wearing of cotton fabrics, including mixed cotton-linens. Over time, the ban was loosened: enterprises in several ports were permitted to produce for export (notably for slaving and the colonies, but Germany was also an important destination), Normandy was authorized to weave mixed siamoises (also for export), and some calico printing works were tolerated before the ban officially ended in 1759. Nevertheless, Europe's first cottons printing industry, founded at Marseille in the mid-seventeenth century with the aid of Armenian artisans, had been destroyed. More important, the development of skills, information, and technology had been disrupted during the pivotal period for cottons industries operating under less stringent regulations elsewhere – most significantly in England. From the 1760s, aided by import-discouraging duties, French cotton manufacturers made valiant efforts to catch up: a large joint-stock enterprise in Orange turned out probably Europe's highest-quality printed cottons; experiments to mechanize spinning were keenly pursued. But never again was France's cottons manufacturing in the vanguard of industrial transformation: though introduced in 1760, copper plate printing – much more productive though also very costly – remained embryonic; even in 1780 most printers continued to use wood blocks. And neither – despite scattered initiatives – were the kingdom's other industries trailblazers.

Modest farm incomes, surging population growth after about 1740, and ongoing land division, which made rural residents employed in putting-out the largest, fastest-growing, and cheapest component of the industrial workforce, had much to do with this. Employers in the many industries oriented to middling and popular consumption felt little wage pressure to alter established proto-industrial production methods or introduce new machines. Because of the preponderantly small scale and limited turnover of their operations, moreover, such entrepreneurs generally lacked the means to introduce innovations. Industries based on skilled, typically urban labor likewise invested little in new technology or reorganizing production. Instead, they maintained the artisanal methods and structures that had made them successful through ongoing product innovation and the flexibility to react quickly to changes in fashionable demand as well as maintain production of more traditional items for other markets.

When the Anglo-French Eden Treaty (1786) sharply lowered tariffs, resulting in a surge of textiles, hardware, and ceramics imports, the downsides of these decisions became patent. In time, this free-trade pact might have strengthened French industry by weeding out inefficient producers, spurring knowledge transfers, and encouraging technology

adaptations and improvements. Indeed, fine cottons manufacturers eventually learned to imitate English goods and make them more cheaply. But the treaty was widely disruptive in the short run, especially to the many industries already facing sluggish markets at home and abroad. Fast on its heels, moreover, came a decade and a half of revolution and war, which led successive regimes fearful of stoking disorder to slow potentially unsettling industrial changes, notably including labor-displacing mechanization. Worse, it badly disturbed both raw materials imports and manufacturing exports, while impeding access to and competition with technological progress abroad. As French linen exports slowed, then reversed, for instance, Britain's industry widely installed modified cotton spinning machines to produce flax yarn that vaulted them to European leadership.

As Table 8.1 reveals, some French industries managed to cope. Woollens exports rose substantially both in value and relative to British shipments, silks did even better, and even linens eventually held their own though losing market share to their cross-Channel rivals. But all French textile exports were forced into heavy dependence on sales in Europe and the Levant, yielding primacy to Britain in the dynamic Atlantic and Asian markets. For no industry was this turn of events more harmful than for cottons. Just in the years that English output and exports were growing exponentially, the French industry – which had begun to overcome the retarding effects of the 1686–1759 cottons ban – fell disastrously behind. Not only were exports essentially unchanged in value in 1816–1820 compared with 1787–1789 (after halving during the war decades), while English exports had jumped twenty-fold; they fell from half Britain's total to just 3 percent. In addition, whereas Atlantic and Asian customers had taken four-fifths of French exported cottons in the late 1780s, as against half of British, by 1816–1820 the French sent but 4 percent of their exports to those markets, the British still half of theirs.

Before the war years – and in some cases even during them – eighteenth-century French industry realized substantial secular growth. It occurred, however, in great measure with time-honored technologies and within existing organizational structures. As silk textile exports show, this combination could enable skilled industries to do very well, frequently by focusing on quality and fashion to broaden their customer base. France was also home to some proto-factories, notably for spinning cotton and printing calico, and the enforced isolation of the Revolutionary-Napoleonic years fostered some admirable technological adaptations and innovations. But its entrepreneurs made much greater use of one of the kingdom's leading resources: expansive, largely rural low-wage populations. Although cottons already formed an exception, and much was to change under the impact of more mechanized

Table 8.1 *British and French Textile Exports, 1787–1789 to 1816–1820*
 (Top Rows = Values in Thousands of Pounds Sterling; Export Markets = Percentages of Total Exports)⁶

Textiles exported to specified markets	1787–1789		1797–1812, 1814–1815		1816–1820	
	Britain	France	Britain	France	Britain	France
Woollens	£6,318	£768	£9,165	£1,406	£8,487	£2,089
All colonies, Africa, Asia	30.6	21.6	42.9	1.6	40.8	6.0
United States	15.5	0.3	33.5	1.6	28.7	2.9
Europe and Levant	53.9	78.1	23.6	96.8	30.5	91.1
Linens	£991	£1,221	£1,122	£1,557	£1,667	£1,332
All colonies, Africa, Asia	71.3	49.0	78.0	5.1	59.2	17.4
United States	23.9	0.2	16.7	3.3	27.7	7.7
Europe and Levant	4.8	50.8	5.3	91.6	13.1	74.9
Cottons	£1,629	£837	£17,135	£424	£32,162	£875
All colonies, Africa, Asia	30.8	79.6	44.3	4.0	40.1	3.9
United States	22.4	0.4	19.2	1.2	12.5	0.1
Europe and Levant	46.8	20.0	36.5	94.8	47.4	96.0
Silks	-	£1,142	-	£2,244	-	£2,934
All colonies, Africa, Asia	-	9.1	-	1.1	-	3.2
United States	-	0.3	-	9.6	-	20.7
Europe and Levant	-	90.6	-	89.3	-	76.1

competitors, France's industrialization was long dualistic, emphasizing small-scale, labor-intensive production along with a strong high-quality artisanal sector.

Britain The mainsprings of England's notable industrial development during the long sixteenth century (and superior performance, relative to its neighbors and rivals, during the subsequent crisis) were both exogenous and endogenous to the secondary sector: increasingly productive agriculture that enabled pronounced urbanization and a shift in the country population from farming to non-agricultural occupations, notably in steadily expanding rural industries; strong internal demand coupled with substantial exports; dominance of woollen textiles as the country's

⁶ Source: J. Cuenca Esteban Javier, "Comparative Patterns of Colonial Trade: Britain and its Rivals," in *Exceptionalism and Industrialization: Britain and Its European Rivals, 1688–1815*, ed. Leandro Prados de la Escosura (Cambridge, UK, 2004), 42–43.

major industry and leading export; constant product diversification; and rise of new trades, often to supplant imports. Nearly all continued to be central to Britain's industrial fortunes during the long eighteenth century.

Britain's most dynamic industries were primarily found in the countryside. Some had long been predominantly rural, others relocated urban trades, often less skilled aspects of production transferred to lower-wage counties. Entrepreneurs not wedded to traditional goods, organizations of production, and London-centered commercial networks made the north and west the center of England's textile industries, metallurgy, and mining. The regions' attractions included new sources of energy (water and coal) and, with the exhaustion of southern deposits, raw materials (iron, lead, and copper ores). But the main appeal of this chiefly pastoral region was abundant labor, a very large proportion of which came to work outside agriculture. On its side, though increasingly specialized in arable farming that employed full-time male labor, the rural south and east did not deindustrialize: women and children worked in new dispersed cottage trades like straw-plaiting, lacemaking, and button fabrication.

Some industrial expansion occurred in towns and cities across Britain. New drapery revived at Colchester, Exeter, and Norwich in the later seventeenth century, a time when urban sugar refining and tobacco processing also developed, as did clock, watch, and fine silk and linen trades brought by Huguenots who arrived in sizable numbers after 1685. Though south and east English woollens and worsted towns faced some difficulties in the eighteenth century, new urban industrial centers grew up, notably places like Birmingham, Leeds, Manchester, and Sheffield in the Midlands and the West Riding of Yorkshire. There they stood at the center of and helped direct booming and increasingly specialized industrial districts. In addition, many small "country towns" were born or reborn throughout the country, their prosperous artisans serving well-to-do local gentry and merchants. Many luxury trades, however, remained in and around London, close to an enormous clientèle and – critical for those based on responsiveness to fashion changes – on the spot when a new style suddenly swept the capital's trend-setting scene.

Still, throughout most of the period British industry was distinguished neither by uniquely high rates of growth – in some respects, we have seen, France's performance was superior – nor by dramatic structural change; as in the past, gains were realized by more effectively utilizing land, labor, and capital with existing techniques and production methods. From the 1760s, however, a few industries experienced rapid growth, introduced radically new machines, and reorganized the production process. To be sure, several decades went by before living standards improved much,

and in most industries change occurred slowly while productivity advanced at a moderate pace. But because the innovations introduced in Britain set off a profound transformation of the kingdom's economy – which over time ramified globally – eighteenth-century British industrial history has been intensively analyzed and debated to uncover the roots of that epochal Industrial Revolution.

Some factors invoked were not specific to Britain. Enlightened culture, which emphasized applied science, was a European-wide movement that encouraged technological experimentation in many lands; while Britain's parliamentary government guaranteed property rights and contracts, so did many absolutist states. Other suggested causes contributed to industrial change but in ways different than usually proposed. Taxes were instrumental not by stimulating consumption because low – they were considerably higher than often assumed and rose quickly during the eighteenth century, probably curbing purchasing power among those below the “middling sort” – but by underwriting the construction and defense of Britain's large imperial protected market and securing privileged commercial access to Spain, Portugal, and their colonies. Again, commercial profits were only a small part of industrial investment (though probably larger than in France or the Dutch Republic); British trade's signal importance lay in greatly enlarging protected markets.

According to careful recent estimates, home demand took about three-quarters of Britain's industrial output in 1700, two-thirds in 1801. The internal market benefited most obviously from accelerating demographic growth, Europe's highest by far in 1750–1800; continuous, vigorous urbanization that set it apart from even its northwestern neighbors; and large, prosperous, expanding (if amorphous) middling groups in country and city. Notable infrastructure improvements – turnpikes extended exponentially between 1720 and 1770, setting off a burst of advances in carting and related services, and 3,000 miles of canals dug in 1757–1800 alone – cut transport costs while enhancing efficient regional specialization: northern and western England, for instance, geographically endowed for water-powered mills, had much easier access to customers in the populous south and east.

Improved or novel machines played a role in a few industries predominantly oriented toward domestic markets. Already in the later seventeenth century, tape and ribbons were woven on Dutch (or double) engine looms and stockings on knitting frames; reverberatory furnaces burned coal to smelt lead, tin, copper, and brass; innovative techniques drastically cut clockmaking costs. Soon after the new century dawned, coked coal replaced wood in salt boiling and sugar refining, then in beer brewing and the manufacture of bricks, pottery, and glass; Abraham

Darby devised the coke-fired blast furnace for smelting iron; Thomas Newcomen constructed a usable steam engine for draining mines and pumping water.

Yet if more pronounced, these phenomena were much like those found in much of Europe. What distinguished Britain was its hegemony in key markets. Domestic and foreign demand interacted through formal and informal links. In the second half of the eighteenth century, for example, as simple linen and cotton dresses became all the rage for women and unadorned woollen garments for men – helping English textiles at the expense of French – books, magazines, and samples disseminated the fashions not only throughout provincial England but across the Continent and far into the New World. Markets abroad and at home also spelled one another: when export growth slowed in 1710–1730, and again during the 1760s and 1770s, domestic demand took up the slack. Continued growth meant that productive capacity did not sit idle for long. As a result, producers felt confident enough to embark on specializations, divisions of labor, and individually minor but cumulatively important technical innovations – such as the stamps, molds, and simple rolling and boring machines devised by metal artisans – that cheapened their wares and allowed them to attract yet more customers. Particularly after about 1750, when grain prices rose more than wages, falling industrial goods prices kept demand from being choked off. Middle-income households, whose numbers rose from 15 to 20 or even 25 percent of the rapidly growing population just between 1750 and 1780, bought ever more everyday wares from pottery to iron pots to linens and printed goods – precisely the goods in which British industry specialized. Artisans, workers, and farmers likewise began to wear manufactured stockings, tell time on clocks, and deck their hats with ribbons.

From the late seventeenth century – long before yet crucial for the Industrial Revolution – Britain’s most consistently dynamic markets lay abroad. Foreign consumers took an ever larger share of British manufacturers’ expanding output: half to three-quarters of additional industrial output was exported in 1700–1770. As the overall export index octupled between 1700 and 1801, manufactures’ share nearly doubled from 22 percent to 39 percent. The concurrent reconfiguration of Britain’s external trade geography, discussed in Chapter 6, was fundamental to this advance: it paralleled and interacted with the ongoing reshaping of the kingdom’s internal industrial geography. With lower-cost producers and rising trade barriers taking a toll, barely an eighth of the output increase went to Continental Europe, traditionally the leading destination by far for British goods but of declining significance across this period. In particular, English manufactures disengaged more than their French

counterparts from troubled southern Europe and the Levant: Mediterranean demand, crucial to English industrial growth from the long sixteenth century until about 1700, thereafter played a much reduced, if never negligible, part.

Britain's vigorous export markets lay elsewhere, in regions barely tapped before the mid-seventeenth century: British and Iberian American colonies, which already in the early 1770s took manufactures worth eight times as much as in 1700; Ireland (sexupled industrial exports); Africa and Asia (manufacturing exports to both regions also registered six-fold gains). British colonial markets (including Ireland) were especially valuable: mercantilist laws and military force not only closed them to foreign imports (effectively so, since goods smuggled in amounted to much less than those smuggled out) but sharply limited the emergence of competing industries. Whereas in the early eighteenth century Continental Europe took 84 percent of all exported British manufactures, on the eve of the American Revolution it took less than half. Conversely, North America and the West Indies' share jumped from 10 percent to about 47 percent, Ireland's from 2 to 6 percent, Africa, Asia, the Levant, and Latin America's from 3 to 8 percent. Manufacturers – textile makers most of all – likewise encountered inspiration for fresh product development (as well as new competition) as trade with Asia intensified.

The major new markets served metalwares well, notably the broad miscellany of brass, steel, and iron objects referred to as “toys” (instruments and tools used in the workplace, small weapons, locks, jewelry, buckles, buttons, and similar items for the home or personal adornment). Atlantic consumers consistently took nearly two-thirds of metalware exports, by 1800 boosting them to 15 percent of total manufacturing exports, as against 3 percent a century earlier. Overseas markets proved especially valuable for the collectively much larger textile industry. They also prompted substantial changes within and among its constituent elements, with fundamental consequences for industrialization.

Before the early eighteenth century, England sold woollens essentially to Europeans, but when these markets began to close up, sales in North America took up the slack, allowing now-British output of woollen cloth to increase two and a half times across the eighteenth century. The ballooning popularity of colorful patterned silks, linens, cottons, and mixed-fiber fabrics provoked the invention (and adaptation) of brightly dyed light draperies like calimancoes. The fortunes of heavier old draperies were revived by sales in upland areas in the Ottoman Empire and the Americas: just a fourth of cloth exports in 1700, they accounted for two-fifths in 1795. Some manufacturers installed new machines, notably the

flying shuttle that sped up weaving, scribbling (carding) machines, and spinning jennies adapted from cotton, initially in domestic settings but from the 1780s and 1790s in water-powered and eventually steam-driven factories. These innovations long maintained woollens as the leading English textiles and foremost export. Yet – eloquent testimony to both the monumental expansion of overall English cloth output and the even greater advance of fabrics woven from other fibers – woollens steadily lost foreign market share despite the rising value of the quantities dispatched abroad. Worth a third more in the early 1770s than around 1700, woollens' part of cloth exports had nonetheless fallen from 97 percent to 78 percent; it dropped below half by the mid-1790s and the relative decline hastened thereafter (Table 8.2).

For most of the 1700s, linens were the most formidable group of fabrics challenging woollens. They were also a prime instance of import-substitution industrialization promoted by government policies, and of the role of colonies as integral components in the production and consumption of English manufactures. In constant values, British linen exports multiplied 30 times from their first, minimal appearance in the statistics in the early 1720s until 1772–1774. This was a much greater increase to a much larger total in a shorter time than exports of domestic cottons, up eleven-fold from 1699–1701 to 1772–1774, when they were valued at less than a third than domestic linens exports. In the early 1770s, linens comprised two-thirds of Britain's non-woollens textile exports.

Colonial America and the interconnected west African slave trade took nine-tenths of linens exports, for they had multiple uses in homes, on farms, and in the clothing of enslaved and free inhabitants, and figured importantly in trade with indigenous peoples. English linens represented only a minor part, though they enjoyed a large if undeterminable demand within England itself. Rather, Irish and Scots manufactures drove the export expansion, supplementing and increasingly supplanting the foreign linens that had heretofore monopolized both Britain and, as re-exports, Atlantic custom. Over the period of explosive British linen growth, imports rose just 38 percent; the rate of increase slowed noticeably as production ramped up in Ireland and Scotland and virtually ceased from the 1750s. Re-exports of linens, always considerably smaller, grew slightly more (44 percent), but fell after mid-century.

Government policies strongly promoted the emergence of the Irish and Scottish linen industries and their particularly colonial export orientation. Laws in the 1690s that banned Ireland's lucrative live cattle trade and export of raw wool and woollens cloth created a large labor force available for and often trained in proto-industrial labor. Other legislation granted

linen yarn and cloth duty-free entry into England and, in 1705, its colonies, while progressively higher tariffs radically curbed imports. After 1707, Union conferred the same benefits on Scotland, along with access to British capital for expensive bleaching fields. Linen Boards (founded in Ireland in 1711, Scotland in 1727) established and enforced standards, organized research trips (“missions”) to learn superior foreign techniques such as scutching (beating flax in preparation for spinning), encouraged immigration of skilled workers, and on occasion provided funds. From 1743 export bounties gave an added fillip. Shipments of Irish linen rose steadily from virtually none in 1700 to 55.1 million yards in 1825; Scottish output, 2.2 million yards in 1728, reached 32.1 million in 1815.

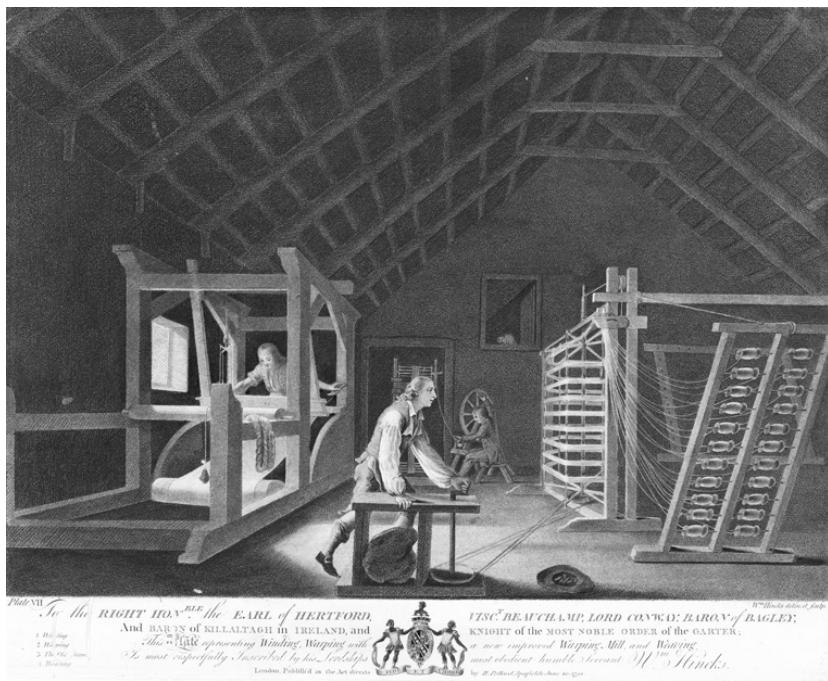


Fig. 8.2: In the later eighteenth century, the Irish linen industry began to incorporate improved machines such as the warping and winding mill shown to the right, which greatly increased productivity. As the image also reveals, spinning and weaving were slower to adopt new technology. The engraving should not be taken as an accurate depiction of the linens labor force, however, since women as well as men were typically employed.

Merchants organized regional putting-out systems: flax and hemp were spun by rural women and children, while linen weaving – typically a male preserve – might be a by-employment in the countryside or a full-time urban job. Entrepreneurs furnished working capital to purchase imported French or Flemish yarn used in finer varieties; some also owned lint mills (which separated fibers in preparation for heckling or combing) and bleaching fields. In late 1780s Scotland, a few modified cotton mules were introduced to spin coarse yarn; after switching to water power, they proliferated in the next decade, in the early nineteenth century spreading to Ireland.

Aided by the 1700 “Calico Act” that also forbade import of most Asian silks into Britain, together with a 1766 prohibition on French, English silks benefited from Atlantic as well as domestic demand. Yet if Thomas Lombe’s famous 1718 Derby mill threw (twisted and wound) thread on water-powered machines copied from the best Italian devices, English silks, predominantly woven in household settings, were never able to match superior French varieties made in supervised workshops. Nevertheless, like linens – and equally inadvertently – silks contributed to the crucial mechanization of English textiles, the spinning of cotton yarn.

As Giorgio Riello and John Styles have recently demonstrated, that mechanization – which made cottons synonymous with the early Industrial Revolution – resulted from entrepreneurial responses during interrelated mid-eighteenth century crises to perceived opportunities for import-substitution industrialization. Producers across Europe faced these problems and possibilities, but specific British textile industry laws, markets shaped by mercantilist policies, and several decades of experimentation with Italian silk twisting technology enabled English manufacturers to respond first and most successfully.⁷

During the sixteenth century, Portuguese merchants had created a fashion for using printed Indian calicos in home furnishings, though after the 1630s imports had diminished along with Lusitanian trade. But after years of EIC and VOC marketing efforts touting calicos as material for garments as well, demand recovered smartly in the later seventeenth century. Only a few thousand pieces around 1650, English imports surged to 860,000 pieces in the early eighteenth century, Dutch to 100,000.

⁷ Giorgio Riello, *Cotton*; John Styles, “Fashion, Textiles and the Origins of Industrial Revolution”; John Styles, “What Was Cotton? Fibers, Markets and Technology in the British Industrial Revolution” (unpublished paper, 2017); Giorgio Riello, “Trade, Consumption and Industrialization: Cotton Textiles in the Long Eighteenth Century” (unpublished paper, 2017).

Reacting to pressure from domestic woollens, silks, and linens producers – seconded by denunciations of calicoes' nefarious effects on public and private morality, established socio-sartorial ranking, and bullion supplies – many countries progressively restricted, or banned outright, imports of calicoes. In France, as already noted, cottons prohibitions became sufficiently broad to hobble domestic production for decades. In England, however, Calico Acts (1700 and 1721) permitted printing and exporting for sale anywhere outside Britain, including its colonies, both imported plain cottons and (from 1734) domestically woven cotton-linens (known generically as fustians, most comprised a higher proportion of linen than cotton yarn); if unprinted, they could also be sold in the home market (whereas similar French siamoises could not). Re-export of Indian calicoes also remained authorized; in the eighteenth century their largest sales were in Germany, the Dutch Republic, and (before the late 1740s) Belgium; after mid-century, British American demand nearly tripled in just two decades despite rising prices.

Dutch and Swiss printed cottons competed successfully with British cottons in some European markets; protectionist measures barred them from others. But the Navigation Acts (and wars against the Dutch and French) created a great and growing protected market: colonial America and the interconnected west African slave trade, destinations of four-fifths of domestic British cotton-linens' exports, proportionately just behind linens, though quantitatively much smaller. Shipments jumped 4.6 times between the early 1720s and mid-century, another 2.7-fold by 1772–1774. The existing fustian industry expanded and a vigorous printing industry emerged, initially in England, subsequently in Scotland and Ireland; as elsewhere in Europe, it both learned from Indian techniques and innovated new ones. Initially woodblocks incised with designs were used; after 1752, the copper plate process (invented in Ireland but quickly and widely copied) permitted much finer detail. Each color required a separate, manually wielded woodblock or copper plate, so while the more capital-intensive copper plate process gave rise to sizeable proto-factories, they were not mechanized until roller technology, capable of simultaneously printing multiple colors, came into use starting in the 1790s. The linen industry also profited handsomely from the growing taste for printed light fabrics, as linens printed by the same methods became quite popular thanks to their lower price and nearly equal quality. As late as 1769–1771, in fact, British North America imported twice as many pure linens printed in Britain as cotton-linens.

Both were long overshadowed, however, by Indian plain cottons printed in Britain – from the 1750s the North American colonies comprised “the largest single market for Indian [plain white] calicoes printed in

Britain”⁸ – and re-exported Indian calicoes. Notwithstanding higher and rising prices, as well as East India companies’ difficulties in securing cloth of acceptable standard, consumers of every nationality preferred printed and painted pure cottons. For despite European printers’ growing expertise, protective laws and/or Europeans’ inability to produce usable cotton warps forced printers using domestic fabrics to print on mixed cotton-linens or even pure linens – and linen yarn did not take and retain the available dyes as well as cotton. British cotton-linens and pure linens did relatively better in West African markets from the 1750s, though before the early nineteenth century Indian cottons were close behind. West Africans, however, bought not printed cloths but considerably less expensive yet equally colorful striped and checked varieties with woven patterns; over time, stripes and checks also became popular among moderately affluent North American and West Indian consumers.⁹

Starting in the 1740s, supplies of thread and Indian cottons tightened considerably, and raw cotton prices jumped and then became volatile. Shortages and price instability were exacerbated by fashionable new products: pure cotton hose (exempt from because unforeseen by the Calico Acts) and a variety of velvets, which achieved softness by increasing the cotton to linen ratio. Moreover, in the 1750s the cost of linen yarn also climbed, and linen remained the main component of British plain, printed, and patterned-loom light fabrics. Finally, chronic war in India, which since the 1730s had periodically disrupted cloth exports, caused a prolonged and severe shortfall between 1756 and 1763, just as North American demand swelled. The resulting higher prices and lower margins (merchants absorbed some of the extra costs to retain customers), hastened efforts to supplant Indian imports, plain and printed, with domestic substitutes, which required matching the quality of Indian cotton yarn.

To the incentives of soaring demand over a long period for a widening array of products, that is, the mid-century crisis added the urgent search for ways to overcome supply constraints and cost pressures. British entrepreneurs and inventors – and, even before the 1759 repeal of France’s anti-cotton laws, their counterparts across the Channel, subject to very similar impediments and, though more oriented to domestic and European markets, consumer stimuli – focused on mechanizing cotton yarn spinning. Improved yarn quality would decrease wastage. More importantly, the cotton ratio could be raised; in fact, once the Calico Acts were abrogated in 1774 after lobbying by Richard Arkwright and his partners, cotton yarn

⁸ Styles, “What Was Cotton?,” 47.

⁹ Riello, “Trade, Consumption and Industrialization,” 15–16; Robert DuPlessis, “Socio-cultural Geographies of Cottons Consumption” (unpublished paper, 2017), 6–7.

Table 8.2 *British Manufacturing Exports and the Rise of Cottons, 1772–1774 to 1814–1816 (Percentages of Total Exports)*¹⁰

Export product	1772–1774	1784–1786	1794–1796	1804–1806	1814–1816
Cottons	2.3	6.0	15.6	42.3	42.1
Woollens	42.5	29.2	23.9	16.4	17.7
Other textiles	9.4	10.6	10.6	7.4	8.2
All textiles	54.2	45.8	50.1	66.1	68.0
Other manufactures	31.9	38.3	37.4	23.8	17.5
Total exports (£000)	9,853	12,690	21,770	37,535	44,474

wholly replaced linen as warp thread in many previously mixed fabrics. This allowed better printing, enabling calicoes woven and printed in Britain increasingly to compete successfully with Indian cloth and, over time, with other European cottons. At the same time, mechanization cut labor costs – the one cost that entrepreneurs could reasonably hope to control. Greatly enhanced labor productivity offset the rising price of raw cotton.

In the 1730s, Lewis Paul had devised a circular spinning machine using rollers that drew on Lombe's Italian-model silk twisting mill. Paul's machine failed to overcome some key technical problems but at least one factory used it for nearly two decades. During the mid-century crises, when mechanization of cotton spinning took on greater urgency, Richard Arkwright tweaked Paul's problematic invention by mounting the rollers horizontally – and cotton spinning was revolutionized both technically and structurally. Hargreaves' earlier spinning jenny, which increased spinners' productivity but did not yield strong twisted warps, was initially installed in small domestic workshops. Arkwright's much more productive (and much more expensive) water-powered frame produced viable warp yarn at a cost that ensured its broad and quick adoption – but required a factory. The effects for the British cottons industry were both immediate – output of British woven and printed calicoes rose from zero to nearly ten million yards between 1774 and 1783 – and prolonged, particularly in the foreign markets that took 60 percent of cottons output between 1780 and 1815. Shortly after 1800, cottons not only took woollens' place as Britain's main textile export but became the kingdom's main export *tout court* (Table 8.2). With output shooting up 7 percent a year (as against 3 percent for iron, 2.5 percent for coal), cottons accounted for 21 percent of all GDP gain in 1780–1815.

¹⁰ Sources: Davis, "English Foreign Trade, 1700–1774," 302; Ralph Davis, *The Industrial Revolution and British Overseas Trade* (Leicester, UK, 1979), 15.

In the late eighteenth century, other British industries mechanized. Woollens and linens, as noted, started installing spinning machines in the 1780s and 1790s. Watt's innovations drastically reduced coal consumption, making steam engines commercially viable for factory power generation; even more important, replacing water by steam made energy supplies more regular, raising the productivity of machines that previously had often lain idle and thereby encouraging fixed capital investment. Coke-fired furnaces accounted for 20 percent of iron smelting output in 1765, 90 percent in 1790. Puddling and rolling, invented in the 1780s, ended Britain's long reliance on imports of semi-processed bar iron required for metals fabrication; by the early nineteenth century, the country was a net bar iron exporter. These industries remained outliers for decades and even within them innovations spread slowly: water still powered most industry into the 1830s, even textile mills; the early 1830s were also the heyday of handloom weavers in England as in France. But in retrospect – to clear-eyed observers throughout Europe no later than those 1830s – technological innovations in British cottons had launched the Industrial Revolution.

Proto-industry and Industrial Revolution

The long eighteenth century saw proto-industry's apogee – and the emergence of the productive system that would first expand proto-industry, then supplement it, and in time increasingly supplant it. Even in the least industrialized and least prosperous areas, proto-industrialization built on labor supply and consumer demand consequent on agrarian change, while also speeding alterations in urban manufacturing. The activities, workplaces, and production relations of industrialized country districts and manufacturing towns came to resemble one another. Centers of regional putting-out systems were among Europe's fastest growing cities, most of them previously little more than villages.

Proto-industry fostered entrepreneurial control over manufacturing well before mechanization and the rise of the factory system. A greater proportion of producers became dependent on those – most often merchants – who could advance funds for purchasing raw materials and paying living expenses and (if any) assistants' wages, and who had privileged access to distant market segments. Although entrepreneurs generally contracted with individual workers, on occasion they organized putting-out systems using *Zunftkauf*, by which a guild agreed to sell its members' entire output to a single merchant. Over time, some proto-industrialists began to acquire productive equipment, occasionally gathering it into big workplaces but much more often dispersing it into

domestic systems that linked together numerous individually modest units. And not merely were such entrepreneurs coming to dominate industry; a smaller number of them controlled productive property from looms to forges.

Across Europe, more areas, and a greater proportion of their people, engaged at least part-time in industrial work. This trend extended even beyond Europe's boundaries – onto its fishing boats and into its slave colonies. For several months each year, thousands of men and boys from struggling farms along Europe's littoral labored on North Atlantic cod ships, catching and processing fish according to a specialized division of labor that resembled nothing more than proto-factories at home. In the colonies, the bulk of slave labor was tightly integrated into the needs of industries in the metropoles: the plantation's *raison d'être* was providing raw materials for European manufacturing. Moreover, field labor was often organized in gangs subject to discipline that presaged the factory order. The union of agriculture and manufacturing went yet further on many West Indian estates: during sugar processing, skilled enslaved laborers toiled in crushing mills, boiling and curing houses, and distilleries; skilled slaves processed indigo as well.

Yet the trend toward increasing involvement in industry was far from irreversible: some individuals abandoned manufacturing, and whole areas deindustrialized. Often this fate was imposed by entrepreneurs who transferred capital to lower-cost areas: thus worsted making, present in East Anglia since at least the mid-thirteenth century, was moved to Lancashire and the West Riding of Yorkshire. It was also a decision that workers themselves might take. In the Dutch Achterhoek, weaving allowed small farmers to keep their land during a century of agricultural depression. Even so, when farming activity picked up after 1750, many people left their looms and returned to the fields full-time.

Changes in production structures, too, were neither unidirectional nor irrevocable; a shifting constellation of market conditions, product type, entrepreneurial objectives, and artisanal resources repeatedly rearranged organizational forms. When Russian and Swedish competitors pushed Vizcayan iron out of its main English market, merchants withdrew their capital from forges and bloomeries, leaving remaining production to small masters who could eke out a living using simpler technology and oriented to nearby clients. Similarly, as urban-based clothiers pruned their putting-out systems during the late seventeenth century depression, rural weavers around Clermont-de-Lodève in France became independent producers specializing in lower quality fabrics that used less skilled labor and cheaper materials. When recovery subsequently took hold, however, Verlagssystems were rebuilt: able to buy expensive raw



Fig. 8.3: The integration of a sugar plantation and its mill is well illustrated by this illustration from a 1667 book on the French West Indies. After canes are cut in the field on the far left (5), they are carried to the mill by the enslaved men shown center right and fed into vertical roller presses (1) driven by oxen. Once the juice is squeezed from the canes, it runs through a gutter to boilers for purification (2); thereafter, the raw sugar is packed in clay pots (3) to drain off the remaining liquid and crystallize into “loaves.” The huts of the enslaved (10) stand in sharp contrast to the planter’s substantial house in the upper right.

materials in bulk and pay specialized workers, as well as dominate entry to international markets, Clermont merchant entrepreneurs hired formerly autonomous producers to make high-quality cloth. Changes in demand in the later eighteenth century resulted in yet another reversal: petty artisans weaving rough fabrics once again became preponderant. In Antwerp silkweaving, in contrast, autonomous small masters proliferated in prosperous times, when merchants were eager to buy their goods, whereas in downturns large artisan entrepreneurs got control of impoverished petty producers unable to sell what they had manufactured. The cod fisheries also changed. In the later eighteenth century, they adopted a version of putting-out, whereby European merchants extended credit to fishers settled in isolated hamlets along the New World coast, collecting payment in processed fish.

Not even centralized proto-factories necessarily proved permanent. In 1756, Count Joseph von Kinsky set up a linen cloth manufactory on his

Bohemian estate, later adding one for barchent (fustian) and another for cottons. By 1764, the barchent mill alone employed some 400 people. Soon after, however, von Kinsky closed the manufactories and put out the looms previously housed there to domestic weavers, after calculating that the overhead associated with buildings cut into rather than contributing to his profits. The Count's artificial-pearl business was also conducted on a putting-out basis, the workers (trained in a special school) using tools that he sold to them. But he kept open a large glassworks, having decided that it was more efficient than smaller ones previously used. Finding the most profitable use of his capital, rather than any commitment to a determinate industrial structure, guided the Count's endeavors.

Proto-industry appealed to entrepreneurs because it combined an attractive cost structure with flexibility. They could employ labor cheaper than corporate and/or urban, and relatively easy both to hire when scaling up production and to dismiss during downturns. They operated with fewer rules because of overt or de facto guild concessions or because they located in places where guilds or other authorities were weak or absent. Technological change was not necessarily precluded, but it tended to involve small-scale, inexpensive adaptations, because entrepreneurs' profits derived less from production than trade and credit. Entailing little fixed investment, proto-industries enabled quick deployment and redeployment of capital to areas and products promising the greatest returns. Yet proto-industry was not without complications. As a system expanded in size and complexity, coordination and supervision became problematic and more expensive; quality control became a major concern. Labor costs rose when work became full-time rather than supplemented by farm produce and income and when most available workers engaged in the labor-intensive production characteristic of putting-out. In northern England, competition for hand spinners of all fibers in this booming textile area drove cotton spinners' wages in the second half of the eighteenth century much higher than in the south.¹¹ Technological limitations, of less salience when labor was abundant and cheap and manufactures were targeted to middling and lower markets, became more pressing as labor supply tightened and more lucrative markets for higher quality goods beckoned.

Even as the long eighteenth century drew to a close, the advantages of proto-industries outweighed their drawbacks in most places and trades. Reserves of low-cost labor remained throughout Europe, and most demand was for low and middling-quality goods, obviating the need for technical change or reorganizing the production process, even in Britain.

¹¹ Styles, "What Was Cotton?"

In a few areas and industries, however, healthy domestic and export demand induced technological and organizational experimentation. And besides catalyzing Europe's transitions to mechanized factory industrialization, these forces prepared the way for capitalism's hegemony.

Suggested Reading

Many works cited in Chapters 2 and 5 have relevance for subjects treated here. For consumer demand, consult also Daniel Roche, *A History of Everyday Things: The Birth of Consumption in France, 1600–1800* (Cambridge, UK, 2000); Raffaella Sarti, *Europe at Home: Family and Material Culture, 1500–1800* (New Haven, 2002); *Luxury in the Eighteenth Century. Debates, Desires and Delectable Goods*, eds. Maxine Berg and Elizabeth Eger (Basingstoke, UK, 2003); *Production and Consumption in English Households, 1600–1750*, eds. Mark Overton, Jane Whittle, Darren Dean, et al. (London, 2004); Maxine Berg, *Luxury and Pleasure in Eighteenth-century Britain* (Oxford, 2005); John Styles, *The Dress of the People: Everyday Fashion in Eighteenth-century Britain* (New Haven, 2007); Victoria López Barahona and José Nieto Sánchez, "Dressing the Poor. The Provision of Clothing among the Lower Classes in Eighteenth-century Madrid," *Textile History* 43 (2012): 23–42; Robert DuPlessis, *The Material Atlantic. Clothing, Commerce, and Colonization in the Atlantic World* (Cambridge, UK, 2016); *Fashioning the Early Modern: Dress, Textiles, and Innovation in Europe, 1500–1800*, ed. Evelyn Welch (Oxford, 2017). Commentary on Jan de Vries, *The Industrious Revolution: Consumer Behavior and the Household Economy, 1650 to the Present* (Cambridge, UK, 2008), includes Elise van Nederveen Meerkerk, "Couples Cooperating? Dutch Textile Workers, Family Labour and the 'Industrious Revolution,' c. 1600–1800," *Continuity and Change* 23 (2008): 237–66; Sheilagh Ogilvie, "Consumption, Social Capital, and the 'Industrious Revolution' in Early Modern Germany," *Journal of Economic History* 70 (2010): 287–325; Craig Muldrew, *Food, Energy, and the Creation of Industriousness* (Cambridge, UK, 2010); Robert C. Allen and Jacob L. Weisdorf, "Was There an 'Industrious Revolution' before the Industrial Revolution? An Empirical Exercise for England, c. 1300–1830," *Economic History Review* 64 (2011): 715–29; Paolo Malanima and Valeria Pinchera, "A Puzzling Relationship: Consumptions and Incomes in Early Modern Europe," *Histoire & Mesure* 27 (2012): 197–222. On government policy, see *Cameralism in Practice: State Administration and Economy in Early Modern Europe*, eds. Marten Seppel and Keith Tribe (Woodbridge, UK, 2017).

For proto-industrialization, see *European Proto-Industrialization*, eds. Sheilagh Ogilvie and Markus Cerman (Cambridge, UK, 1996); Liana Vardi, *The Land and the Loom. Peasants and Profit in Northern France 1680–1800*. (Durham, NC, 1993); Claude Cailly, "Contribution à la définition d'un mode de production proto-industriel," *Histoire & Mesure* 8 (1993): 19–40; Harald Deceulaer, "Between Medieval Continuities and Early Modern Change: Proto-industrialization and Consumption in the Southern Low Countries (1300–1800)," *Textile History* 37 (2008): 123–48; Julie Marfany, *Land, Proto-*

Industry and Population in Catalonia, c. 1680–1829. An Alternative Transition to Capitalism? (Farnham, 2012).

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9 Transitions

Increasing agricultural and industrial output, burgeoning trade volumes, proliferation of new products, adoption of novel processes, extension of proto-industry, shifts in occupational structure, rising population and urbanization levels: multiple benchmarks demonstrate that, *pace* neo-Malthusians, early modern European economies were capable of growth and – albeit unevenly, unsteadily, and diversely – often achieved it. Intensive methods contributed: more systematic application of commercial, agrarian, and manufacturing best practices; adoption of more productive equipment; more efficient layout of property or closer integration of workshops; heightened specialization and division of labor. Extensive measures were of greatest significance: additional land plowed or grazed, more rural manufacturing within Europe, and the increasingly vigorous and expansive increments to supply and demand thanks to the creation of global trading networks, overseas settlement colonies, armies of coerced primary-product laborers. Multiple forms of merchant enterprise were instrumental: private merchant networks, state-sanctioned chartered companies, fashionable city shops, village general stores, peddlers, smugglers. Nor did a single production structure predominate. Peasant proprietorship, landlord-tenant-laborer estates, demesne lordship; Kaufsystems, putting-out, subcontracting, proto-factories, and combinations of these – all were deployed.

This eclecticism reflected both the predominance of petty artisans, farmers, and traders in early modern economies and the emergence of entrepreneurs who exploited the era's expansive but little integrated, unpredictable, and often restricted markets at home and abroad; burgeoning throngs seeking to labor for the wages needed to purchase much of their subsistence; and increasing masses of circulating capital, much in the form of credit. Early modern entrepreneurs organized, coordinated, and financed production, thereby gaining control of inputs and output, but had little reason or inclination for direct involvement in the labor process. Rather, their profits were essentially commercial, earned by

dominating access to and transactions in commodity and product markets. Late medieval Italian merchant-entrepreneurs had pioneered this strategy as policies edicted by state and corporate bodies they commanded gave them mastery over local markets while their invention of Europe's most advanced commercial techniques enabled them to integrate prime transalpine and Mediterranean trade routes and then dominate the most lucrative market segments. Their early modern successors elaborated it by linking expansive global, diverse European, and productive regional farm and artisanal economies at entrepôts along Europe's Atlantic littoral.

The heterogeneous European economies were hardly immune to fluctuations, even severe downturns – witness the seventeenth-century crisis – but with widespread, generally extensive growth, petty production and commercial entrepreneurship retained hegemony late into the eighteenth century. Yet both largely disappeared thereafter, supplanted by new relations and forces of production that grew out of but differed radically from their antecedents. The interaction of early globalization with developments within European economies accounts for this revolution. Merchants operating within protected empires made available both raw materials and fashionable overseas manufactures that stoked and satisfied broad, steadily expanding demand, while also encouraging repeated efforts by metropolitan entrepreneurs, over an extended period, to imitate and then supplant some imported manufactures using largely colonially-sourced raw materials. Overlapping supply problems with both goods and raw materials and quality inadequacies of existing European techniques severely complicated that endeavor. The ultimately successful search for a solution relied on traditions of international technology adoption and adaptation and habits of mechanical tinkering. The prior emergence of large numbers of wage laborers, many with proto-industrial experience, of proto-factories that could house machines and facilitate labor discipline, and of entrepreneurs with capital to put them both to work, enabled the implementation and rapid proliferation of cotton spinning. Britain enjoyed a unique combination of these resources, making the initial Industrial Revolution and the appearance of capitalism more likely there. But the presence of such prerequisites and of cottons industries facing the same problems elsewhere in Europe meant that Britain's advantage was slight. It proved sufficient, nevertheless – especially in conjunction with the political and military upheavals that shook Europe for several decades around 1800 – to allow its economy to achieve and then sustain global dominance across much of the nineteenth century.

This interpretation sustains Smith's emphasis on the productivity gains that specialization and division of labor driven by market expansion –

notably including the world market that Marx and world-systems analysis foreground – would bring. As Spain and Portugal learned most acutely, however (and the post-Golden Age Dutch Republic found anew), market growth did not suffice on its own to induce ongoing growth, much less change; in England and France, the visible hand, materialized in chartered companies, restrictive laws, and overseas empire that Smith excoriated, turned out to have been vital. The processes that Marx fused into the concept of original accumulation, significant causes of change within the commercial economy, provided crucial elements to its capitalist replacement. Expropriation and proletarianization went on apace both on the land and in crafts; correlatively, a heterogeneous class that concentrated ownership of capital resources came into existence. Slaving and colonial trade took on growing importance, most of all for those states that built protected markets. Yet American treasure and booty mattered less for European development than colonial raw materials for new industries, while capital from trade within the new world-system that Wallerstein nicely described was less important for capitalist industrialization than greatly expanded mercantilist markets and the demonstration effects of overseas imports. Again, proto-industries played a more major role in the emergence of capitalism than Marx thought, proto-factories a lesser one. As Brennerians have argued, agrarian change was also necessary if agriculture was to become sufficiently productive to boost demand while releasing labor for employment in other sectors. Yet if cottons rapidly became items of mass consumption the demand that triggered transformation came not from consumers seeking inexpensive quotidian products, as is often proposed, but from middling groups insistent on fashionable, good-quality manufactures. It was merchants' and manufacturers' inability to supply that dynamic demand that disposed them to abandon long-dominant arrangements that emphasized extension of existing technical, organizational, and commercial practices for the radically new system in which profits were pursued in competitive markets by means of regular and systematic investment in cost-reducing technologies. Entrepreneurs had to become, in short, capitalists.

To be sure, neither the new forms of industry nor the new mode of production quickly or wholly displaced their predecessors. Some, like small peasant farms or tiny shops producing for impoverished local customers, were too marginal to attract interest; others survived by carving out niches, like the metal shops that introduced cheap new wares made from less costly raw materials. In many places, moreover, producer resistance, social and political institutions, property-holding patterns, or market conditions prolonged rather than transformed existing structures. The early nineteenth-century Luddites who tried to limit textile machines

and at times broke them, as well as the Captain Swing rebels who destroyed threshing machines, were English, after all. On the Continent, France was far from the only place where regimes fearing dangerous disruption slowed or blocked change, or where abundant cheap labor weakened entrepreneurial interest in redeploying capital from operating expenses to fixed investment. Machines themselves were partly at fault as well. Many early models were expensive and prone to break down; before the 1830s, moreover, steam engines were not sufficiently efficient to power them, leaving production at the mercy of water supplies.

Paradoxically, factory industrialization itself could also put the brakes on wider change. Mechanizing some production often generated new or expanded handicrafts. Some entailed highly skilled artisans who jealously guarded their independence, but many involved low-skill activities that did not justify the cost of mechanizing or transferring them into a factory. Hence home-based workforces associated with manufactures might rationally proliferate when other operations began to be performed on machines in factories, perpetuating a mix of centralized and dispersed labor, the former typically carried out by a small nucleus of well-remunerated full-time male employees, the latter by a much larger penumbra of miserably paid seasonal, temporary, or part-time often female and/or child workers. Just as mechanized factory production developed unevenly within and between trades, so its advance was irregular among regions. This was so even in Britain, where in 1841 the proportion of all male workers holding jobs in capitalist industries approached two-fifths in Lancashire and the West Riding of Yorkshire but was a tenth or less in twenty-three of the fifty-one counties or districts tabulated. Nevertheless, once underway, the capitalist Industrial Revolution did not give out, thanks to the quality and productivity gains achieved first in spinning – and augmented by continuous improving “micro-inventions” – which then increasingly affected other branches of industry, and to the advent of reliable and decreasingly expensive steam power. For all that the transitions were protracted, the industrial capitalism that crystalized in Europe at the end of the early modern era survived to become, for good and for ill, the dominant economic form of the modern world.

Appendix A

Appendix A *Population of Europe 1500–1800, in Millions*

Territory	1500	1550	1600	1650	1700	1750	1800
Europe	59.40	70.05	78.80	75.60	84.05	97.90	122.55
Northwestern	7.60	9.50	11.00	14.25	15.10	17.40	25.30
Belgium	1.25	1.65	1.30	1.75	1.90	2.30	2.90
Dutch Republic	0.95	1.25	1.50	1.90	1.90	1.90	2.10
England and Wales	2.30	3.10	4.20	5.50	5.20	5.90	8.70
Scotland	0.80	0.90	1.00	1.00	1.20	1.30	1.60
Ireland	0.80	0.90	1.00	1.50	2.00	2.40	5.00
Scandinavia	1.50	1.70	2.00	2.60	2.90	3.60	5.00
Mediterranean	16.80	20.20	23.20	20.75	23.35	27.30	31.55
Italy	9.00	11.50	13.25	11.50	13.50	15.50	18.10
Spain	6.80	7.40	8.10	7.10	7.50	9.30	10.50
Portugal	1.00	1.30	1.85	2.15	2.35	2.50	2.95
Central	29.00	33.75	36.90	33.50	38.20	43.80	53.50
France	16.40	19.00	20.00	20.50	22.00	25.50	27.30
Germany*	12.00	14.00	16.00	12.00	15.00	17.00	24.50
Switzerland	0.60	0.75	0.90	1.00	1.20	1.30	1.70
East Elbian	6.00	6.60	7.70	7.10	7.40	9.40	12.20
Austria and Bohemia	3.50	3.60	4.30	4.10	4.60	5.70	7.90
Poland	2.50	3.00	3.40	3.00	2.80	3.70	4.30

*Includes some German-speaking east Elbian territory

Sources: Jan de Vries, “Population,” in *Handbook of European History, 1400–1600*, eds. Thomas A. Brady, Heiko A. Oberman, and James D. Tracy, 2 vols. (Leiden, 1994), 1:13, Table 1; Giovanni Federico and Paolo Malanima, “Progress, Decline, Growth: Product and Productivity in Italian Agriculture, 1000–2000,” *Economic History Review* 57 (2004): 446, Table 4; Carlos Álvarez-Nogal and Leandro Prados de la Escosura, “The Decline of Spain (1500–1850): Conjectural Estimates,” *European Review of Economic History* 11 (2007): 330, Table 5; Nuno Palma and Jaime Reis, “From Convergence to Divergence: Portuguese Economic Growth, 1527–1850,” University of Manchester, Economics Discussion Paper Series EDP-1811 (2018): 10, Table 1.

Appendix B

Appendix B *Urban Percentage of Total Population, 1500–1800*

Territory	1500	1550	1600	1650	1700	1750	1800
Europe	5.6	6.3	7.6	8.3	9.2	9.5	10.0
Northwestern	6.6	7.2	8.2	10.9	13.1	13.6	14.9
Belgium	21.1	22.7	18.8	20.8	23.9	19.6	18.9
Dutch Republic	15.8	15.3	24.3	31.7	33.6	30.5	28.8
England and Wales	3.1	3.5	5.8	8.8	13.3	16.7	20.3
Scotland	1.6	1.4	3.0	3.5	5.3	9.2	17.3
Ireland	0.0	0.0	0.0	0.9	3.4	5.0	7.0
Scandinavia	0.9	0.8	1.4	2.4	4.0	4.6	4.6
Mediterranean	9.5	11.4	13.7	12.5	11.7	11.8	12.9
Northern Italy		15.1	16.6	14.3	13.6	14.2	14.3
Central Italy	12.4	11.4	12.5	14.2	14.3	14.5	13.6
Southern Italy		11.9	14.9	13.5	12.2	13.8	15.3
Spain	6.1	8.6	11.4	9.5	9.0	8.6	11.1
Portugal	3.0	11.5	14.1	16.6	11.5	9.1	8.7
Central	3.7	4.0	5.0	6.0	7.1	7.5	7.1
France	4.2	4.3	5.9	7.2	9.2	9.1	8.8
Germany	3.2	3.8	4.1	4.4	4.8	5.6	5.5
Switzerland	1.5	1.5	2.5	2.2	3.3	4.6	3.7
East Elbian	1.1	1.2	1.4	1.7	2.6	3.5	4.2
Austria and Bohemia	1.7	1.9	2.1	2.4	3.9	5.2	5.2
Poland	0.0	0.3	0.4	0.7	0.5	1.0	2.5

Source: Jan de Vries, *European Urbanization 1500–1800* (Cambridge, MA, 1984), 39, Table 3.7.

Appendix C

Appendix C.1 *Enslaved Africans Shipped to the Americas, 1501–1875 (Nearest 100)*

Period	Total	Average per year
1501–1525	13,400	500
1526–1550	50,800	2,000
1551–1575	61,000	2,400
1576–1600	152,400	6,100
1601–1625	352,800	14,100
1626–1650	315,100	12,600
1651–1675	488,100	19,500
1676–1700	719,700	28,800
1701–1725	1,088,900	43,600
1726–1750	1,471,700	58,900
1751–1775	1,925,300	77,000
1776–1800	2,008,700	80,300
1801–1825	1,877,000	75,100
1826–1850	1,771,000	70,800
1851–1875	225,600	14,100
Total	12,521,300	34,200

Source: Voyages: The Trans-Atlantic Slave Trade Database, www.slavevoyages.org/assessment/estimates (last accessed 26 May 2019).

Appendix C.2 Shippers of Enslaved Africans by Nation, 1501–1875

Period	Portugal/ Brazil	Great Britain	France	Spain/ Uruguay	Dutch Republic	United States	Denmark/ Baltic	Total
1501–1525	7,900	0	0	6,363	0	0	0	13,363
1526–1550	25,387	0	0	25,375	0	0	0	50,762
1551–1575	31,089	1,685	66	28,167	0	0	0	61,007
1576–1600	90,715	237	0	60,056	1,365	0	0	152,373
1601–1625	267,519	0	0	83,496	1,829	0	0	352,844
1626–1650	201,609	33,695	1,827	44,313	31,729	824	1,053	315,050
1651–1675	244,793	122,367	7,125	12,601	100,526	0	653	488,065
1676–1700	297,272	272,200	29,484	5,860	85,847	3,327	25,685	719,675
1701–1725	474,447	410,597	120,939	0	73,816	3,277	5,833	1,088,909
1726–1750	536,696	554,042	259,095	0	83,095	34,004	4,793	1,471,725
1751–1775	528,693	832,047	325,918	4,239	132,330	84,580	17,508	1,925,315
1776–1800	673,167	748,612	433,061	6,415	40,773	67,443	39,199	2,008,670
1801–1825	1,160,601	283,959	135,815	168,087	2,669	109,545	16,316	1,876,992
1826–50	1,299,969	0	68,074	400,728	357	1,850	0	1,770,978
1851–1875	9,309	0	0	215,824	0	476	0	225,609
Total	5,848,266	3,259,441	1,381,404	1,061,524	554,336	305,326	111,040	12,521,337
Percent of Total	46.71	26.03	11.03	8.48	4.43	2.44	0.89	100.01

Adapted from Voyages: The Trans-Atlantic Slave Trade Database, www.slavevoyages.org/assessment/estimates (last accessed 26 May 2019).

Appendix C.3 Disembarkations of Enslaved Africans by Atlantic Region, 1501–1875

	Brazil	British Caribbean	Spanish America	French Caribbean	Dutch America	Mainland North America	Danish West Indies	Africa	Europe	Totals
1501–1525	0	0	8,923	0	0	0	0	0	452	9,375
1526–1550	0	0	35,534	0	0	0	0	0	0	35,534
1551–1575	2,461	0	40,671	0	0	0	0	0	0	43,132
1576–1600	26,814	0	84,242	0	0	0	0	0	188	111,244
1601–1625	156,468	567	117,709	0	0	0	0	0	85	274,829
1626–1650	163,398	26,639	61,482	545	0	100	0	172	0	252,876
1651–1675	204,575	86,770	32,292	16,746	52,190	3,970	0	2,457	1,281	400,281
1676–1700	259,475	196,501	14,021	21,394	71,967	11,077	18,146	493	1,615	594,689
1701–1725	423,161	280,470	37,856	82,147	53,413	39,303	8,059	0	158	924,567
1726–1750	468,690	357,150	17,435	212,325	73,051	106,671	4,515	516	3,968	1,244,321
1751–1775	476,010	580,824	21,030	309,733	118,145	118,822	18,271	428	1,090	1,644,353
1776–1800	621,156	594,879	69,212	390,929	50,606	30,687	37,763	1,373	23	1,796,628
1801–1825	1,012,762	183,701	254,777	63,517	25,355	77,613	17,223	32,334	0	1,667,172
1826–1850	1,041,964	10,751	333,781	22,880	0	91	5,021	99,908	0	1,514,396
1851–1875	6,899	0	163,947	0	0	413	0	17,998	0	189,257
Total	4,864,373	2,318,252	1,292,912	1,120,216	444,727	388,747	108,998	155,569	8,860	10,702,654
Percent of Total	45.45	21.66	12.08	10.47	4.16	3.63	1.02	1.45	0.08	100.00

Adapted from Voyages: The Trans-Atlantic Slave Trade Database, www.slavevoyages.org/assessment/estimates (last accessed 26 May 2019).

Index

- Acapulco (Mexico), 56, 57, 60, 61, 73
accumulation
 of capital, 46, 88, 227, 239, 246, 291, 302
 original, 6, 7, 54, 112, 347
 See also capital; capitalism; Marx
Act of Union, xiv
 economic effects of, 211, 270, 284, 333
 See also Scotland
advertisements, 212, 221, 279
 See also consumption
agriculture
 convertible husbandry in, 112, 113, 118, 126, 236, 239, 249, 267
 late medieval, 14, 19–24
 levies on, 19, 97, 107, 120, 129, 179, 256, 278
 plantation, 42, 64, 65, 66, 68, 193, 200, 201, 203, 204, 205, 206, 207, 208, 210, 211, 216, 224, 226, 228, 261, 339
tenurial systems in, 14, 19, 23, 24, 97, 106, 107, 114, 115, 120, 121, 123, 125, 129
yields in, 22, 108, 110, 113, 116, 118, 120, 179, 180, 183, 199, 236, 240, 243, 243, 245, 251, 260, 261, 266, 268, 269, 270, 309
See also children, agricultural work of; common lands; crops; Dogana; enclosure; grain; industry, raw materials for; land; landowners; latifundia; maize; mulberry trees; oats; peasants; potatoes; productivity; rice; sugar; wheat; wine, production of; women, agricultural work of; individual countries/regions, agriculture in
alcabala. *See* Spain, taxes in; taxes, consumption
Americas. *See* individual countries/regions, colonies of
Amerindians
 coerced labor of, 65, 66, 67, 147, 170, 188, 202, 204
 consumption by, 66, 210, 225, 311
Amsterdam (Dutch Republic), 280, 315
Beurs, 74, 75
commerce in, 194
commerce of, 53, 59, 77, 81, 84, 86, 124, 154, 214, 215, 216, 218, 264
industry in, 77, 154, 158, 160, 315, 316
See also cottons, printing of; entrepôts
Antwerp (Belgium), 153
commerce in, 42, 53, 58, 59, 79–80, 81, 150, 151
industry in, 42, 150, 151, 152, 154, 164, 167, 168, 169, 171, 172, 298, 318, 320, 340
See also entrepôts
apprentices
 training of, 31, 32, 34
work of, 29, 33, 34, 36, 166, 305
See also guilds; laborers
aristocrats. *See* nobility
Arkwright, Richard, 294, 312, 336, 337
See also cottons, technological innovations in
artisans
 as entrepreneurs, 26, 165, 168, 290, 294, 298, 307, 340
 autonomous, 35, 164, 348
 capitalism and, 6
 definition of, xiii, 3
 innovations by, 28, 46, 300
 non-corporate, 32
 pressures on, 133, 164–66, 294
 rural, 30, 33
 shops of, 24, 29
 urban, 29, 281, 282, 305, 328
See also credit, to artisans; guilds; Kaufsystem; putting-out; women
asiento. *See* slave trade, Spanish

- Austria
 agriculture in, 125, 235
 industry in, 145, 301, 302, 303
 population of, 349
 urbanization in, 350
 Azores, 13, 42, 56, 64, 94, 98
- baldíos. *See* common lands
- barchents. *See* cottons, mixed-fiber
- Basque provinces (Spain), 277, 293, 339
 industry in, 68, 141, 142
- Bauernschutz. *See* peasants, government policies toward
- beer brewing, 24, 38, 134, 145, 155, 158, 160, 171, 235, 275, 315, 329
 hops cultivation for, 22, 108, 261, 269
- Belgium
 agriculture in, 22, 119, 121, 238, 247, 259–60, 264, 265, 272
 commerce of, 220, 319
 economic policies of, 152, 284, 319
 exports of, 151, 152, 235
 imports of, 215, 335
 industry in, 138, 146, 150–53, 160, 291, 296, 298, 317, 318–20, 322
 population of, 182, 319, 349
 protectionism and, 316, 318, 319, 320
 taxes in, 259, 319
 urbanization in, 151, 159, 182, 279, 350
See also Antwerp; beer brewing; coal, Belgian; Dutch Revolt, effects on Belgian economy of; glassmaking, in Belgium; grain, Belgian trade of; Industrial Revolution, Belgium and; ironmaking, in Belgium; Liège; linens, Belgian; Low Countries; metallurgical industries, Belgian; woollens, Belgian
- Bengal (India), 189, 192, 193, 195, 197, 199
- boats. *See* ships
- Bohemia
 agriculture in, 125, 233, 234, 235
 industry in, 27, 127, 145, 289, 291, 295, 296, 302, 303, 341
 mining in, 140, 171, 174
 population of, 349
 urbanization in, 350
- Brabant. *See* Belgium; Low Countries
- Brazil
 commerce of, 56, 70, 86, 189, 224
 exports of, 64, 66, 68, 203, 204, 224
 imports of, 204, 224, 241, 311, 319
 plantation agriculture in, 66, 68, 204
 slaves landed in, 66, 67, 68, 204, 353
See also coffee; cotton, growers of; gold, Brazilian; slave trade, Brazilian; sugar, Brazilian; tobacco, Brazilian
- Brenner, Robert
 theory of agrarian capitalism of, 7, 8, 91–92, 112, 347
See also capitalism
- Britain
 agriculture in, 270–71, 271
 Asian commerce of, 188, 200, 208, 331
 Atlantic commerce of, 208, 209, 228, 331
 colonies of, 199, 203, 208, 210, 211, 218, 226, 228, 279, 327, 331, 335, 353
 commercial trends of, 185, 212, 213, 214, 218, 219, 326, 329, 330
 domestic demand in, 280, 282, 329, 330, 334
 exports of, 186, 188, 209, 210, 212, 213, 217, 218, 219, 220, 225, 227, 228, 327, 330, 331, 332, 334, 335, 336, 337, 338
 imports of, 194, 203, 209, 211, 213, 218, 219, 220, 225, 228, 332, 334, 338
 industrial trends of, 312, 322, 327, 328, 331
 re-exports of, 209, 210, 218, 219, 332, 336
 technological innovations in, 285, 298, 299, 300, 326, 329, 337, 338, 346
 urbanization in, 182, 279
See also cottons, British; England; grain, British trade of; Industrial Revolution, Britain and; Ireland; Levant, The, British trade with; Navigation Acts; Scotland; slave trade, British; woollens, British
- broadcloth. *See* woollens, broadcloth
- bullion
 and inflation, 63, 87, 143, 239
 supply of, 43, 62, 63, 73, 197, 283, 335
 trade of, 54, 61, 72, 75, 81, 82, 84, 85, 188, 189, 190, 192, 195, 197, 200, 202, 203, 204, 212, 216
- Cádiz (Spain)
 commerce of, 72, 203, 213, 214
See also Seville
- calico. *See* cottons, calico
- Calico Acts, 334, 335, 336
See also cottons, government policies regarding
- cameralism. *See* mercantilism
- Cape Verde Islands, 42, 64, 67

- capital
 availability of, 45, 105, 110, 121, 160, 161, 217, 258, 285, 303, 311, 333
 commercial, 71, 72, 74, 77, 86, 213, 223, 347
 fixed, xii, 24, 28, 29, 31, 34, 35, 36, 38, 82, 164, 166, 167, 171, 175, 267, 292, 296, 323, 338
 industrial, 171, 173, 223, 224, 241, 271, 334
 markets for, xii, 75, 121, 292
 merchant, 8, 44, 55, 70, 73, 78, 140, 142, 286, 290
 mobility of, 26, 69, 136, 143, 144, 147, 148, 159, 246, 305, 307, 317, 322, 324, 339, 341, 348
 urban, 25, 101, 141, 243, 256
 working, xii, 18, 19, 21, 24, 29, 32, 34, 35, 36, 45, 82, 145, 167, 168, 170, 175, 241, 249, 297, 345
See also credit
- capitalism, xi, 24
 debates about, 6–8, 55, 181
 definition of, xiii, 6, 7, 38
 Industrial Revolution and, 8, 112, 286, 346, 348
 origins of, xiii, 6, 7, 8, 10, 54, 91, 112, 181, 225, 347
See also capital
- Caribbean
 commerce of, 57, 66, 77, 81, 84, 86, 205, 210, 226
 exports of, 63, 65, 193, 201, 203, 209, 211, 226, 228, 321
 slaves landed in, 67, 353
See also Wild Coast
- Carreira da Índia, 56, 58, 61, 71, 189
See also Portugal, Asian commerce of
- Casa de contratación, 72
See also Spain, commercial institutions of
- Catalonia (Spain), 41
 agriculture in, 98, 240
 industry in, 103, 141, 312
See also cottons, Catalan
- ceramics, 139, 143, 155, 158, 159, 222, 299, 317, 322, 325
See also porcelain; pottery
- cereals. *See* grain
- chartered companies, 58, 73–74, 76, 186, 187, 189, 197–98, 345, 347
See also Dutch United East India Company; Dutch West India Company; English East India Company; French East India Company
- children
 agricultural work of, 111, 290
 industrial work of, 116, 153, 161, 166, 167, 169, 170, 172, 290, 306, 320, 328, 334, 348
- China
 silver imports of, 62
 trade with, 41, 56, 57, 59, 61, 188, 189, 190, 194, 197, 198, 199, 200
See also Guangzhou; silk, trade of; tea trade
- CI. *See* French East India Company
- CIO. *See* French East India Company
- coal
 as new energy source, 157, 171, 174, 299, 320, 328, 329, 338
- Belgian, 150, 151, 166, 290, 320
- English, 134, 154, 157, 299, 324, 328, 337
- French, 321, 324
- trade of, 216, 217
See also mining, coal
- coffee, 64, 214, 279, 316
 growers of, 193, 199, 201, 205, 207, 226
 trade of, 75, 188, 189, 191, 192, 194, 195, 196, 203, 207, 208, 209, 268
See also tropical groceries
- Colbert, Jean-Baptiste, 198, 284, 318, 322
See also France, economic policies of colonies. *See also* agriculture, plantation; Azores; Brazil; Cape Verde Islands; Caribbean; industry, colonial; migration, to colonies; slave trade; slaves; sugar; tobacco; Wild Coast; individual countries, colonies of
- commerce
 contraband, 58, 63, 68, 71, 77, 78, 81, 85, 86, 194, 197, 204, 206, 211, 222, 225, 311, 314, 316
 intra-Asian, 57, 59, 60, 62, 63, 74, 76, 81, 87, 189, 190, 192, 195, 196, 199
 late medieval, 38–45
See also bullion, trade of; chartered companies; entrepôts; fairs; Hanse; Levant, The; markets; mercantilism; retailing; rice, trade of; salt, trade of; skins and hides; slave trade; spices, trade of; tea trade; trade routes; trading posts; individual cities/colonies/countries/regions, commerce
- common lands, 266
 access to, 16, 96, 108, 115, 116, 120, 265
 innovations on, 117, 129, 255, 267

- loss of, 20, 95, 96, 97, 103, 105, 112, 113, 114, 115, 144, 235, 254, 258, 260, 265, 270
practices on, 97, 117, 119, 255
regulation of, 16, 107, 123, 125
resources of, 16, 96, 117
commons. *See common lands*
consumer goods. *See consumer revolution; consumption*
consumer revolution, 277, 282
See also consumption
consumption
auto, 111, 124, 144, 146, 252, 260
changes in, 37, 84, 87, 95, 120, 135, 151, 209, 211, 264, 268, 271, 280, 282, 309, 316
conspicuous, 46, 101, 106, 108, 109, 141, 143, 239, 240, 256, 267
credit and, 45, 255
fashion and, 221, 226, 277, 279, 294, 300, 312, 321, 330, 347
luxury, 39, 61, 134, 278, 280
mass, 25, 136, 143, 149, 155, 278, 280, 347
middling, 25, 38, 61, 149, 155, 220, 226, 282, 347
new goods for, 4, 38, 55, 57, 87, 94, 98, 136, 182, 193, 227, 280
new habits of, 25, 155, 214, 222, 228, 279
obstacles to, 54, 95, 96, 126, 144, 147, 180, 195, 239, 304, 308, 313, 316, 324
See also Amerindians; consumption by; industrious revolution; markets; slaves; consumption by; sumptuary laws; taxes; consumption; Portugal, domestic consumption in; Spain, domestic consumption in
corporations. *See guilds*
corvée. *See labor services*
cotton
sources of, 64, 69, 170, 192, 201, 207, 208, 210, 225, 311
trade in, 59, 203, 208, 209, 211, 212, 219, 268, 283, 309, 311, 336
cotton-linens. *See cottons, mixed-fiber cottons*
British, 228, 304, 327, 332, 335, 337
calico, 61, 195, 334, 335, 336, 337
Catalan, 225, 284, 309, 311–12
English, 193, 197, 219, 301, 326
French, 227, 321, 323, 324, 325, 326, 327
government policies regarding, 193, 199, 222, 313, 325, 335
Indian, 42, 57, 300, 335, 336
mixed-fiber, 25, 26, 46, 79, 141, 148, 150, 154, 167, 300, 301, 305, 306, 314, 315, 320, 325, 335, 336, 341
other European, 300, 311, 335, 337, 341
printing of, 195, 320, 325, 335
Swiss, 314, 335
technological innovations in, 294, 314, 324, 334, 335, 336, 337, 346
trade of, 41, 59, 61, 198, 210, 211, 217, 327, 337
West African, 42, 64
See also Bengal; cotton; Dutch United East India Company; English East India Company; French East India Company; Industrial Revolution, cottons and
country trade. *See commerce, intra-Asian craft. See industry*
credit, 45
commercial, 43, 44, 69, 78, 85
sources of, 108, 168, 245, 292
to artisans, 36, 45, 164, 345
to peasants, 97, 244, 255, 260
trade, 29
See also capital; debt
crops
arboreal, 15, 20, 241
fodder, 22, 107, 118, 243, 248, 259, 268, 272
horticultural, 15, 44, 102, 107, 119, 120, 249
industrial, 15, 18, 20, 102, 107, 112, 119, 120, 125, 243, 259
de Vries, Jan, 54, 87, 182, 186, 281
debt
communal, 96, 102
consumer, 45
landlord, 98, 109
merchant, 43, 74, 78, 85
peasant, 45, 97, 100, 115, 144, 244, 245, 253, 255, 262, 270
state, 6, 79, 94, 96, 147, 181, 223, 316
See also capital; credit
demesne, 15, 126, 233, 250
cultivation on, 15, 96, 109, 123, 124, 125, 126, 232, 251, 302
leasing of, 15, 18, 19, 97, 126, 236, 251
See also demesne lordship
demesne lordship, xiii
and industry, 126, 127, 144, 145, 173, 237, 273, 289, 302
attributes of, 124–28, 146

- demesne lordship (cont.)
 changes in, 127, 233–35
 labor in, 125, 126, 233, 234
 levies on peasants in, 125, 126, 127, 145,
 233, 234, 236, 302
See also seigniorialism; proto-industry;
 serfdom, second
- Denmark
 agriculture in, 106, 109–10, 233, 250–51
 Asian trade of, 76, 198
 industry in, 146, 251, 305
 taxes in, 251
See also chartered companies; China, silk
 trade of; Scandinavia; slave trade, other
 European and American; tea trade
- Dogana, 21, 98, 100, 183, 245
See also wool
- domestic system. *See* putting-out
- Dutch Republic
 agriculture in, 22–23, 119–23, 238, 247,
 260–64, 272
 Asian commerce of, 58, 74, 81, 84, 188,
 189, 200, 206, 215, 225
 Atlantic commerce of, 76, 78, 85, 86,
 187, 188, 200, 202, 204–6, 215
 Baltic commerce of, 41, 80, 81, 214,
 215, 216
 colonies of, 194, 195, 203, 205, 206, 212,
 225, 316, 353
 commercial practices of, 81, 86, 160,
 205, 215
 economic trends in, 54, 91, 146, 159,
 162, 176, 247, 263, 281, 312, 314,
 315, 317
 financial services in, 53, 75, 161, 215, 217
 Golden Age of, 9, 138, 158, 181, 216,
 261, 262, 262, 314, 315, 316, 347
 industry in, 158–63, 176, 314–18, 335
 innovations in, 82, 160, 161–62, 317
 occupational structure of, 120, 162,
 263, 265
 other European commerce of, 82, 83,
 212, 213, 215, 216–17
 population of, 159, 182, 261, 349
 protectionism and, 193, 206, 217, 218,
 225, 227, 278, 316
 re-exports of, 160, 215, 216, 225, 318
 taxes in, 121, 261, 316
 technology in, 28, 161, 163, 172, 317
 urbanization in, 3, 86, 93, 159, 182, 262,
 279, 316, 350
See also Amsterdam; beer brewing; Dutch
 United East India Company; Dutch
 Revolt; Dutch West India Company;
 grain, Dutch trade of; Haarlem;
- Leiden; Levant, The, Dutch trade
 with; papermaking, in Dutch Republic;
 peat; pepper, Dutch trade of;
 shipbuilding, Dutch; ships; slave trade,
 Dutch; tea trade, Dutch; traffics; wine,
 Dutch trade of; woollens, Dutch;
 Zaamstreek
- Dutch Revolt
 effects on Belgian economy of, 79, 119,
 151, 153, 259, 318
 effects on Dutch economy of, 120, 121,
 133, 260
 effects on Iberian economies of, 58, 70,
 85, 86, 94, 96
 effects on other economies of, 83, 154
- Dutch United East India Company, 60, 74,
 76, 77, 190–95, 196, 197, 198, 334
See also bullion, trade of; Dutch Republic,
 Asian commerce of; tea trade, Dutch
- Dutch West India Company, 77
See also Dutch Republic, Atlantic
 commerce of
- dyestuffs, 29
 cultivation of, 18, 20, 22, 260, 268
 trade of, 39, 64, 66, 82, 98, 191, 192, 219,
 268, 283
See also indigo; textiles, raw materials for;
 woad
- East Africa, 56, 59, 71, 189
- East Elbia
 agriculture in, 15, 123–28, 179, 232–37
 commerce of, 213, 214, 219, 301
 exports of, 124, 125, 144, 145, 214, 226,
 232, 233, 235, 237, 261, 302, 304
 imports of, 144, 145, 154, 306, 319
 industry in, 144–46, 173, 296, 301–4
 population of, 182, 234, 349
 urbanization in, 144, 235, 301,
 304, 350
See also Austria; Bohemia; demesne
 lordship; Germany, population of;
 Germany, urbanization in;
 glassmaking, in East Elbia;
 ironmaking, in East Elbia; labor
 services, East Elbian; linens, East
 Elbian; metallurgical industries, East
 Elbian; Poland:Prussia; seigniorialism;
 serfdom, second; Silesia
- economic concepts
 definitions of, xii–xiii
- EIC. *See* English East India Company
- enclosure, 96, 239, 251, 252
 in England, 113–17, 119, 265–67, 293
 in France, 254

- encomienda, 66, 170, 187, 204
See also Amerindians, coerced labor of England
agriculture in, 111–19, 238, 264–69, 270
Asian commerce of, 58, 188, 189, 198, 200
Atlantic commerce of, 75, 76, 81, 86, 200, 202, 209, 217
colonies of, 206, 217
economic policies of, 42, 156, 213, 217, 219, 261, 265, 283, 284, 285, 300, 316, 318, 333, 335
economic trends in, 4, 46, 91, 146, 154, 155, 264
European commerce of, 73, 83, 149, 151, 213, 216–17, 220
exports of, 42, 76, 153, 154, 185, 217, 218, 219, 264, 324, 331
imports of, 152, 153, 196, 200, 217, 241, 246, 261, 264, 268, 270, 319, 334
industry in, 153–57, 272, 289, 294, 298, 299, 322, 324, 327, 328, 338
occupational structure of, 157, 265, 268, 269, 271, 324, 348
population of, 113, 154, 264
re-exports of, 185, 217
taxes in, 42, 197, 329
urbanization in, 3, 113, 155, 182, 268, 350
wages in, 155, 183, 270
See also beer brewing; Britain; chartered companies; coal, English; cottons, English; English East India Company; glassmaking; Industrial Revolution; Levant, The, English trade with; London; metallurgical industries, English; mining; Navigation Acts; pepper, English trade of; slave trade, English; spices, English trade of; tea trade, English; wool, English exports of; woollens, English
English East India Company, 74–76, 189, 191, 192, 194, 195–97, 198, 199, 334
See also Bengal; Britain, Asian commerce of; bullion, trade of; China, trade with; England, Asian commerce of; silk entrepôts, 56, 59, 78, 165, 205, 216, 346
See also Amsterdam; Antwerp; Goa; Hamburg; Lisbon; London; Manila; Seville
entrepreneurs
agricultural, 101, 249
social origins of, 173, 174, 290, 298, 340
strategies of, 4, 36, 37, 46, 55, 148, 150, 160, 165, 169, 171, 172, 174, 176, 294, 296, 300, 305, 307, 317, 323, 328, 334, 339, 345, 347
See also artisans, as entrepreneurs; landowners, investments by; proto-industrialization; putting-out; subcontracting
Estado da Índia, 56, 71, 189
See also Portugal, Asian commerce of factories. *See* proto-factories; trading posts faïence. *See* porcelain fairs, 13, 43, 44, 45, 79, 81, 202 farmers. *See* peasants farming. *See* agriculture feitorias. *See* trading posts feudalism. *See* seigniorialism fish
sources of, 16, 56
trade of, 41, 82, 214, 228
fishing, 23, 110, 252
organization of, 251, 253, 339, 340
Flanders. *See* Belgium; Low Countries Florence (Italy)
woollens industry in, 37, 133, 139, 140, 168
France
agriculture in, 19, 102–6, 238, 253–59
Asian commerce of, 76, 189, 198, 200, 217
Atlantic commerce of, 76, 81, 86, 201, 202, 208, 217, 226
colonies of, 186, 187, 203, 206, 207–8, 211, 212, 216, 218, 226, 227, 256, 322, 324, 340
domestic demand in, 149, 150, 227, 321
economic policies of, 43, 216, 226, 277, 284, 303, 322, 323, 325, 348
economic trends in, 149, 212, 226, 253, 320, 322, 328
economic trends in, 103
European commerce of, 212, 216, 217–18, 324
exports of, 103, 142, 149, 164, 185, 208, 218, 225, 226, 227, 238, 256, 321, 324, 326, 327
imports of, 152, 185, 199, 208, 209, 246, 319
industry in, 135, 138, 146, 148–50, 258, 320–27
occupational structure of, 324
population of, 103, 149, 180, 182, 253, 256, 321, 349
re-exports of, 185, 216, 218, 225, 226

- France (cont.)
 silk industries in, 148, 149, 279, 320
 taxes in, 103, 105, 106, 149, 253, 256,
 321, 324
 transport in, 105, 258
 urbanization in, 103, 106, 149, 180,
 256, 350
 wages in, 149
See also coal, French;
 cottons, French; enclosure, in France;
 French East India Company;
 glassmaking, in France; grain, French
 trade of; Industrial Revolution, France
 and; ironmaking, in France; Levant,
 The, French trade with:linens, French;
 Lyon; metallurgical industries, French;
 mercantilism; papermaking, in France;
 Paris; shipbuilding, French; slave
 trade, French; Wars of Religion; wine,
 French trade of; woollens, French
 French East India Company, 198–200
 fustians. *See* cottons, mixed-fiber
- GDP. *See* Gross Domestic Product
- Geneva (Switzerland), 43, 172, 314
 economic policies in, 136, 148
 industry in, 136, 168, 314
- Genoa (Italy)
 merchants of, 41, 72, 73, 83, 213
- Germany
 population of, 349
 urbanization in, 350
See also East Elbia; Western Germany
- glassmaking, 144, 147, 153, 158, 171,
 310, 317
 in Belgium, 151, 152
 in East Elbia, 27, 145, 173, 301, 302,
 303, 341
 in France, 285, 322, 323
 in Venice, 25, 134, 214
 innovations in, 157, 323, 329
 organization of, 27, 174–75
- globalization
 definitions of, 87
- Goa (India), 56, 59, 60, 71
See also entrepôts; Portugal, Asian
 commerce of
- gold
 Asian, 59, 62, 190, 192
 Brazilian, 185, 189, 200, 202, 203, 204,
 224, 225, 311
 Spanish American, 62, 63, 84, 95,
 190, 202
 West African, 41, 42, 44, 62, 64, 84, 187
See also bullion, trade of
- grain
 Baltic trade of, 41, 73, 80, 83, 109, 120,
 124, 159, 214, 233, 235, 263
 Belgian trade of, 22, 79, 235, 260
 British trade of, 213, 214, 217, 219, 233,
 235, 264
 cultivation of, 16, 19, 22, 30, 68, 96, 245
 Dutch trade of, 80, 81, 82, 216
 French trade of, 86, 87, 218, 238, 256
 organization of trade of, 21, 39
 other trade of, 39, 68, 97, 110, 235, 242
 prices of, 18, 37, 51, 113, 128, 243, 244,
 249, 249, 330
 Sicilian trade of, 24, 39, 98
 yields of, 21, 93, 94, 96, 98, 107, 112,
 118, 128, 239, 242, 252, 254, 261,
 264, 266, 290
- Great Divergence, 9
- Gross Domestic Product, 4, 44, 46,
 162, 337
 definition of, xiii
- growth
 debates about, 4–6, 8, 51, 54, 227,
 345, 347
 definition of, xii
 Schumpeterian, 6n6
- Guangzhou (China), 56, 189, 194
- guilds
 and innovation, 136, 147, 150, 157, 165,
 280, 304, 311, 323
 and politics, 31, 34, 141, 148, 152, 168,
 288, 313
 debates about, 31–32
 divisions within, 34, 168
 functions of, 24, 31–32, 37, 45, 167, 283
 limits of, 32, 36, 37, 150, 156, 161, 167,
 168, 173, 284, 290, 297, 303, 305,
 306, 341
 merchant, 30, 44, 69, 72, 86, 167,
 312
 origins of, 30
 putting-out and, 35, 143, 297, 338
 regulations of, xii, 29, 31, 35, 36, 37, 149,
 165, 277, 291, 313, 323, 346
 women and, 33–34, 281
See also apprentices; artisans;
 journeymen; laborers
- Haarlem (Dutch Republic)
 linen industry of, 158, 159, 161,
 315, 317
- Habsburg Empire
 attempts to reform seigniorial system in,
 233, 236
 commerce of, 81, 198, 213, 278

- economic policies of, 284, 303, 319
See also Austria; Bohemia; East Elbia
- Hamburg (Western Germany)
commerce of, 154, 214, 216, 289
industry in, 151, 154, 216
- Hanse, 41, 80, 83, 214
organization of, 41, 80
- hides. *See* skins and hides
- Hobsbawm, Eric, 181, 182
See also seventeenth-century crisis
- Holland. *See* Dutch Republic
- Iberia. *See* Portugal; Spain
- India. *See* Bengal; cottons, Indian; Dutch United East India Company; English East India Company; French East India Company; Goa; individual countries/regions, Asian commerce of indigo, 61, 64, 66, 195, 196, 201, 203, 207, 208, 226, 254, 309, 339
See also dyestuffs
- Indonesia
European trade with, 57, 58, 76, 190, 192, 194, 198
See also pepper; trading posts
- Industrial Revolution
Belgium and, 320
Britain and, 328–38
cottons and, 334–37
France and, 322–27
interpretations of, 298–301
See also capitalism
- industrious revolution, 281–82, 290
- industry
colonial, 94, 142, 170, 210, 224
definition of, xiii
import substitution, 4, 87, 153, 283, 320, 321, 332
late medieval, 24–29, 37–38
luxury, 33, 46, 139, 140, 149, 151, 152, 155, 163, 284, 297, 302, 303, 304, 305, 309, 315, 318, 320, 321, 322, 328
mobility of, 25–26
raw materials for, 4, 141, 156, 165, 171, 214, 215, 228, 244, 247, 263, 268, 271, 272, 301, 326, 328, 346, 347
See also beer brewing; cottons; glassmaking; Industrial Revolution; ironmaking; knitting; lacemaking; leather; linens; machines; mercantilism; metallurgical industries; mining; papermaking; porcelain; pottery; printing; proto-factories; proto-industry; putting-out; salt, processing of; shipbuilding; silk; sugar, refining of; textiles; woollens; individual cities/countries/regions, industry in
- Ireland
agriculture in, 156, 269, 271, 332
commerce of, 211, 220, 226, 268, 331
industry in, 156, 332, 334, 335
population of, 182, 349
urbanization in, 269, 279, 350
See also Britain; linens, Irish
- ironmaking, 147
blast furnaces in, 28, 145, 150, 157, 164, 171, 309, 330
bloomeries in, 28, 157, 277
capital requirements of, 145, 164, 171
forges in, 141, 147, 152, 174, 293
foundries in, 145, 150, 309
in Belgium, 150, 152, 174
in East Elbia, 127, 145, 302, 303
in England, 33, 153, 157, 337, 338
in France, 135, 149, 275, 321, 324
in Spain, 141, 142, 277, 293, 309
in Sweden, 146, 291
markets for, 63, 153, 210, 211, 217
organization of, 33, 290, 291, 339
products of, 141, 145, 152
- Italy
agriculture in, 19, 20, 21, 98–102, 238, 242–47
commerce of, 41, 44, 72, 83, 213
commercial practices in, 43, 44, 82, 346
economic policies in, 100, 141, 309
economic trends in, 139, 237, 242
exports of, 214, 306, 307, 308
imports of, 149, 152, 214, 319
industry in, 26, 100, 139, 305–8
population of, 140, 180, 349
silk industries in, 44, 134, 139, 140, 246, 275, 286, 305, 306, 307, 308
taxes in, 100, 101, 139, 140
urbanization in, 39, 93, 100, 140, 181, 350
See also Florence; Genoa; glassmaking, in Venice; ironmaking, in Italy; Levant, The, Italian trade with; Lombardy; metallurgical industries, Italian; papermaking, in Italy; silk, technology of; spices, Italian trade of; Tuscany; Venice; woollens, Italian

- Japan
 copper of, 190
 trade with, 56, 57, 59, 60, 63, 76, 188, 189, 190
See also silver, Japanese; individual countries/regions, Asian commerce of
- journeymen, 313
 work conditions of, 31, 32, 34, 36, 37, 166, 174, 175, 293, 305
See also guilds; laborers
- Kaufsystem, 35, 164, 287, 292
See also artisans; industry; putting-out
- knitting
 frame for, 137, 157, 168, 291, 293, 297, 298, 314, 329
 of stockings, 136, 156, 172, 304, 321
- Koppelwirtschaft. *See* agriculture, convertible husbandry in; East Elbia, agriculture in
- labor *see* agriculture; artisans; apprentices; children; guilds; industry; journeymen; labor services; laborers; proto-industry; putting-out; subcontracting; women
- labor services, 66
 commutation of, 15, 18, 19, 24, 125, 127, 233, 234, 236, 251, 270, 302
 East Elbian, 124, 125, 126, 127, 145, 233, 234, 235, 236, 296
 in western Europe, 101, 108, 248, 270
 medieval, 15, 25
 Scandinavian, 251, 252
See also demesne; demesne lordship; seigniorialism; serfdom, second
- laborers
 day, 21, 97, 98, 100, 101, 103, 106, 112, 120, 240, 243, 245, 249, 251, 252, 264, 271
 part-time, 30, 109, 271
 wage, 18, 24, 29, 30, 33, 36, 173, 265, 346
See also apprentices; artisans; children; journeymen; peasants; slaves; women
- lacemaking, 153, 297, 328
- land
 reclamation of, 13, 23, 93, 98, 99, 101, 102, 107, 112, 115, 117, 121, 122, 183, 262
- landlords. *See* landowners
- landowners
 bourgeois, 20, 21, 99, 104, 105, 122, 173, 250, 254, 260, 263
 divisions within, 19, 109, 128, 239, 266
- ecclesiastical, 14, 20, 96, 104, 107, 170, 242, 246, 251, 254, 263
 incomes of, 14, 19, 24, 44, 97, 124, 135, 243, 245, 245, 247, 258, 267, 270
 innovation by, 20, 93, 101, 115, 117, 119, 235, 243, 246, 255, 260, 265, 267, 270, 289
 investment by, 20, 46, 101, 129, 173, 236, 244, 246, 268, 271
 levies by, xiii, 17, 97, 100, 101, 103, 105, 107, 108, 111, 125, 128, 246, 249, 251, 258, 304
 mentalities of, 108, 115, 119, 238, 246, 256, 262
 noble, 3, 14, 20, 96, 104, 105, 109, 111, 117, 127, 173, 239, 242, 250, 252, 254, 260, 263, 269, 307
 peasant, xiii, 22, 104, 110, 111, 121, 243, 248, 250, 251, 252, 263
 royal, 109, 250, 252
 strategies of, 96, 105, 106, 107, 109, 118, 237, 244, 246, 248, 289
See also debt, landlord; demesne lordship; East Elbia; seigniorialism
- latifundia, 21, 96, 129, 245, 251
- leather
 industry, 24, 134, 144, 155, 158, 310, 313, 322
 trade of, 25, 142, 203, 210
See also skins and hides
- Leiden (Dutch Republic)
 textile industry in, 133, 134, 158, 159, 160, 161, 297, 314
- Levant, The
 British trade with, 327, 331
 Dutch trade with, 82, 83, 140, 214
 English trade with, 74, 80, 140, 214
 French trade with, 83, 140, 149, 200, 208, 214, 321, 323, 326, 327
 Iberian trade with, 41, 54, 141, 142
 Italian trade with, 41, 54, 140, 142, 214, 306
 overland trade with, 84
- Liège (Belgium)
 industry in, 152, 319
 mining near, 140, 150, 166, 319
- light drapery. *See* woollens, light drapery
- linens
 Belgian, 46, 79, 134, 150, 152, 318, 319, 320
 East Elbian, 145, 301, 306, 322, 340
 French, 134, 148, 226, 282, 321, 323, 326
 Irish, 185, 211, 219, 220, 289, 304, 322, 332, 333, 333

- manufacture of, 30, 148, 150, 152, 165, 168, 260, 275, 286, 288, 290, 291, 292, 297, 334, 336, 338
other European, 46, 141, 143, 224, 261, 288, 305, 306, 315, 317, 328
Scottish, 185, 219, 220, 223, 289, 304, 332, 333
trade of, 41, 42, 63, 68, 73, 79, 134, 146, 149, 200, 210, 214, 216, 219, 220, 275, 282, 322, 327, 332
See also Haarlem; linens industry of; Silesia, linens industry of
- Lisbon (Portugal)
commerce of, 53, 56, 61, 64, 70, 79, 81, 83, 85, 213
See also entrepôts
- little divergence, 9, 126, 232, 237, 242, 312
- Lombardy (Italy)
agriculture in, 20, 98, 101, 243, 307
industry in, 139, 167, 306, 307
- London (England)
commerce of, 42, 73, 75, 214, 218, 328
industry in, 155, 163, 328
population of, 114, 155, 268
- long eighteenth century, 182, 312
agricultural trends during, 183, 272
commercial trends during, 55, 186, 189, 212, 222, 228
industrial trends during, 182, 183, 286, 301, 338
- long sixteenth century, 9, 51
agricultural trends during, 91, 128–29
commercial trends during, 53, 61, 69, 84, 87, 88
debates about, 51–52
industrial trends during, 133, 138, 146, 163, 166
- Low Countries
agriculture in, 22, 91, 119, 120, 129, 259
commerce in, 53, 81, 216
industry in, 26, 150, 151
See also Belgium; Dutch Republic
- machines
breaking of, 324, 347
maize, 87, 94, 105, 130, 185, 235, 238, 240, 243, 244, 254
- Malthus, Thomas Robert
demographic theory of, 5, 179, 180
- Manila (Philippines)
as trade hub, 57, 59, 60
galleons, 56, 57, 61, 63, 72, 85, 94, 134
See also entrepôts; Spain, Asian commerce of
- manorialism. *See* seigniorialism
- manors
attributes of, 14–15
changes in, 19, 24, 109, 111, 302
See also demesne; demesne lordship
- manufactories. *See* proto-factories
- manufacturing. *See* industry
- markets
definitions of, xii
efficiency gains in, 4, 268, 269
expansion of, 38, 54, 112, 139, 154, 160, 269, 346
integration of, 46, 87, 222, 239, 258, 269, 307, 324
regulation of, xii, 34, 147, 286
restrictions on, 3, 24, 32, 37, 54, 69, 127, 165, 198, 240, 283, 284, 345, 347
See also capital, markets for
- Marx, Karl
theory of rise of capitalism of, 6–7, 54, 276, 286, 347
- Mediterranean Europe
agriculture in, 16, 20, 92, 237
industry in, 139, 305
population of, 349
urbanization in, 350
See also Italy; Portugal; Spain
- mercantilism, 186, 206, 210, 218, 225, 226, 227, 283, 302, 303, 309, 313, 331, 334
See also commerce, regulation of; Navigation Acts
- merchants
nations of, 69, 78, 81, 85
networks of, 4, 44, 45, 57, 59, 64, 69–70, 78, 80, 84, 140, 160, 187, 213, 214, 242, 345
subnetworks of, 69, 78, 80, 87
See also capital, merchant; chartered companies; commerce; debt, merchant; Dutch United East India Company; Dutch Republic, commercial practices of; Dutch West India Company; English East India Company; French East India Company; Genoa, merchants of; guilds, merchant; Italy, commercial practices in; markets; monopolies, merchant; putting-out, merchants and; slave trade
- Mesta, 21, 42, 95
See also wool, Spanish exports of
- metallurgical industries, 24, 26, 170, 173, 223, 283, 297, 305
- Belgian, 135, 150, 151, 319, 320
East Elbian, 145, 301, 302, 304

- metallurgical industries (cont.)
 English, 155, 156, 296, 328, 330,
 347
 French, 135, 148, 149, 322, 323
 Italian, 135, 139, 140, 167, 306
 Western German, 135, 146, 147, 313
- mezzadria. *See* sharecropping
- migration, 86
 effects on industry of, 37, 135, 136, 146,
 151, 159, 166, 284, 289, 293, 313,
 314, 317, 333
 peasant, 15, 20, 97, 107, 108, 110, 111,
 120, 236
 religious, 136, 148, 313, 314
 to colonies, 66, 97, 170, 188
See also slave trade
- Milan, duchy of (Italy)
See Lombardy
- millones. *See* Spain, taxes in; taxes,
 consumption
- mills, 24, 35, 164, 173, 174, 318
 fulling, 28, 156, 161, 295, 296, 298
 paper, 29, 154, 275, 315, 317
 saw, 146, 161, 318
 sugar, 206, 340
 water, 30, 154, 307, 329
- wind, 23, 28, 159, 161, 162, 174,
 263
- mining
 coal, 150, 271, 290, 299, 320, 324
 copper, 82, 110, 134, 139, 145, 146, 147,
 171, 252
 iron, 82, 110, 139, 146, 154, 249,
 252, 320
 lead, 145
 mercury, 63, 68, 141, 142, 171
 silver, 28, 29, 43, 67, 138, 139, 141, 145,
 147, 200
See also coal; Japan, copper of; laborers,
 mine; Liège; silver; individual
 countries/regions, mining in
- money-lending. *See* credit; debt
- monopolies
 chartered-company, 54, 73, 75, 77, 187,
 194, 195, 196, 198, 199, 200, 212
 commercial, 41, 53, 58, 71, 73, 74, 78,
 86, 190, 191
 government, 6, 68, 70, 71, 73, 85, 173,
 211, 241, 303, 316
 guild, 31, 32, 304, 313
 industrial, 141, 147, 175, 284, 310, 320
 merchant, 165, 167, 227
 seigniorial, 14, 24, 101, 108, 127,
 145, 245
 urban, 26, 298, 306
- mulberry trees, 21, 99, 102, 244, 244, 246,
 289
See also silk
- Navigation Acts, 217, 218, 227, 284, 335
See also Britain, economic policies of;
 England, economic policies of;
 mercantilism
- Netherlands. *See* Belgium; Dutch Republic;
 Low Countries
- new drapery. *See* woollens, new drapery
- newspapers, 82, 222, 279
- northwestern Europe, xiv
 agriculture in, 92, 102, 183, 238, 239,
 242, 248, 258
 commerce of, 55, 57, 70, 185, 189, 212,
 213, 214, 220
 consumption in, 281, 283
 economic performance in, 4, 6, 9, 84, 91,
 128, 134, 138, 163, 175, 182, 212,
 222, 232, 247, 312
 industry in, 146, 175, 283
 population of, 134, 135, 180, 182,
 234, 349
 urbanization in, 180, 329, 350
See also Belgium; Britain; Dutch
 Republic; England
- Norway
 agriculture in, 110, 251
 imports of, 110, 252
 industry in, 146
 population of, 110, 252
- oats, 116, 121, 261, 270
See also grain; Scotland, agriculture in
- occupational structure. *See* individual
 countries/regions, occupational
 structure of
- old drapery. *See* woollens, old drapery
- Ottoman Empire
 commerce with, 41, 73, 139, 140, 142,
 145, 220
 trade policy of, 54, 83, 321
- papermaking, 317
 in Dutch Republic, 158, 159, 161, 275,
 292, 315, 317, 321
 in England, 154, 321
 in France, 148, 321, 322, 323
 in Italy, 141, 307
 in Portugal, 310
- Paris (France)
 agriculture near, 102, 103, 104, 254
 industry in, 33, 148, 318
 population of, 106, 155

- pastel. *See* woad
- peasants
- cottagers, 18, 104, 106, 108, 109, 110, 120, 249, 269, 271, 281
 - differentiation among, 17–18, 104, 108, 109, 110, 119, 128, 129, 250, 251, 253, 263
 - dispossession of, 6, 104, 105, 112, 115, 149, 243, 247, 250, 270
 - elite, 18, 91, 103, 105, 106, 108, 109, 110, 111, 112, 115, 118, 119, 130, 248, 249, 254, 255, 258, 260, 262, 263, 264, 269
 - government policies toward, 107, 111, 234, 249
 - holdings of, 14, 15–16, 17, 19, 23, 24, 107, 115, 116, 117, 119, 120, 121, 123, 126, 127, 129, 236, 246, 248, 255, 265
 - industrial labor of, 25, 27, 30, 107, 116, 127, 152, 166, 175, 250, 251, 258, 260, 261, 264, 286, 290, 292, 293, 302, 304, 306, 307, 309, 313, 325
 - innovations by, 96, 98, 101, 105, 107, 113, 117, 118, 121, 122, 125, 129, 130, 235, 240, 243, 250, 251, 254, 259, 260, 261, 262, 266, 269
 - landless, 18, 108, 109, 110, 116, 120, 129, 251, 254, 281, 294, 319
 - landpoor, 18, 129, 252, 254
 - middling, 18, 103, 107, 118, 254, 269
 - rebellions by, 15, 106, 115, 117, 125, 126, 147, 233, 249, 252
 - smallholders, 91, 104, 106, 107, 109, 110, 111, 116, 118, 120, 249, 249, 251, 254, 262, 263, 264, 265, 269, 271, 281, 292, 319
 - strategies of, 23, 46, 93, 96, 106, 107, 108, 110, 111, 120, 256, 258
- See also* agriculture; common lands; credit, to peasants; debt, peasant; demesne lordship; laborers; landholdings; landowners, peasant; mezzadria; migration, peasant; putting-out, peasants and; individual countries/regions, agriculture in
- peat, 120, 121, 160, 172, 173, 317
- digging of, 23, 121, 170, 173
- pepper
- Dutch trade of, 81, 82, 190, 192, 193
 - English trade of, 76, 192, 194, 195, 196
 - European demand for, 76, 84, 188
 - Portuguese trade of, 58, 59, 61, 71, 72, 79, 189
- Persia
- commerce with, 190, 193
 - trade goods of, 61, 83, 190, 195
 - See also* silk, trade of; individual countries/regions, Asian commerce of
- Physiocrats, 236, 254
- Poland
- agriculture in, 124, 125, 179, 232, 234
 - commerce of, 124, 125, 235
 - industry in, 127, 145, 275
 - mining in, 145
 - population of, 349
 - urbanization in, 350
- population. *See* individual countries/regions, population of
- porcelain
- producers of, 284, 303, 304, 309, 320, 322
 - trade of, 59, 60, 61, 68, 84, 189, 194
- Portugal
- agriculture in, 85, 93–94, 97, 121, 241–42, 309
 - Asian commerce of, 56, 57, 58, 59, 71, 189
 - Atlantic commerce of, 41, 42, 55, 56, 57, 68, 70, 72, 202
 - colonies of, 64, 65, 66, 201, 203, 204, 311
 - commercial institutions of, 57, 70, 71, 73, 85
 - domestic consumption in, 222, 242, 309
 - economic policies of, 241, 309, 310
 - economic trends in, 85, 141, 308
 - European commerce of, 79, 185, 213
 - exports of, 213, 220, 225, 241
 - imports of, 61, 70, 224, 225, 242, 319, 334
 - industry in, 85, 143, 224, 242, 288, 290, 309, 310, 311
 - population of, 349
 - urbanization in, 84, 93, 242, 279, 350
- See also* Azores; Brazil; Dutch Revolt, effects on Iberian economies of; entrepôts; Lisbon; papermaking, in Portugal; pepper, Portuguese trade of; shipbuilding, Portuguese; slave trade, Portuguese; spices, Portuguese trade of; West Africa, Portuguese trade with; wine, Portuguese trade of
- potatoes, 98, 112, 185, 235, 240, 249, 259, 260, 261, 262, 269, 269, 319
- Potosí, 63, 67, 68, 72
- See also* mining, silver; silver, American
- pottery, 158, 219, 281, 315, 329

- printing
 centers of industry of, 44, 134, 137, 148, 151, 152, 158, 315
 European adoption of, 26, 51, 136
 workplace organization in, 137, 171
- productivity
 declining, 44, 85, 91, 93, 94, 98, 100, 110, 113, 118, 128, 129, 242, 245, 247, 251, 264, 272
 definition of, xii
 effects on demand of, 38, 151, 214, 239, 269, 278, 309, 313, 315, 321
 effects on labor supply of, 240, 263
- gains in, xii, 4, 26, 28, 47, 51, 54, 55, 91, 93, 98, 99, 114, 116, 137, 154, 157, 162, 172, 176, 183, 223, 227, 235, 237, 240, 240, 253, 256, 258, 264, 267, 268, 269, 272, 294, 299, 329, 333, 337, 338, 346, 348
- labor, 98, 130, 238, 240, 243, 247, 253, 261, 272
- land, 97, 243, 247, 253, 261
- low, 3, 106, 107, 108, 111, 120, 129, 144, 171, 244, 248, 250, 251, 252, 297
- shipping, 39, 82
- total factor, 253
- proto-factories, 4, 169, 170, 173, 287, 294–96, 298, 326, 339, 340, 347
- putting-out and, 296, 323
- technology and, 294, 296, 335
- proto-industrialization
 critiques of, 287
 theory of, 286–87
See also proto-industry
- proto-industry, xiii
 advantages of, 289, 292, 299, 341
 entrepreneurs and, 290, 291, 298, 302, 305, 338
 labor supply and, 286, 287, 288, 289, 293, 319, 325
 obstacles to, 288, 289
 problems of, 291, 304, 341
 technology and, 293, 313, 338
See also proto-industrialization
- Prussia
 agriculture in, 233, 234
 commerce of, 198
 economic policies of, 236, 284, 303
 industry in, 145, 284, 303
- putting-out
 artisans and, 34, 35, 36, 38, 45, 167, 174, 291, 297
 capital and, 35, 168, 175
- labor in, 35, 36, 168, 170, 291, 293, 317, 341
 merchants and, 35, 150, 167, 174, 292, 334
 organization of, 35–36, 38, 166–68, 174, 175, 296, 338, 339, 340
 peasants and, 166, 292, 293, 302, 309, 313, 321, 325
See also guilds, putting-out and; proto-industry; proto-industrialization
- retailing, 44, 121, 220–22, 280
- rice, 235, 244
 cultivation of, 20, 21, 93, 101, 243
 trade of, 201, 205, 265, 268
- robot. *See* labor services, East Elbian
- Russia, 284
 commerce with, 41, 82, 83, 145, 213, 216
 trade goods of, 73, 82, 261, 339
- rye
 cultivation of, 110, 120
 trade of, 124, 233, 235, 252
See also grain
- salt
 processing of, 157, 158, 160, 170, 171, 320, 329
 trade of, 39, 41, 64, 77, 79, 80, 82, 83, 149, 164, 213, 214, 216, 222, 227
- Scandinavia
 agriculture in, 15, 108, 111, 250, 253
 commerce of, 82, 145, 198, 214, 219
 industry in, 146, 219, 304
 population of, 3, 109, 349
 urbanization in, 350
See also Denmark; Norway; Sweden-Finland
- Scotland
 agriculture in, 269, 270, 271
 commerce of, 209, 211
 industry in, 223, 271, 284, 332, 334, 335
 population of, 349
 urbanization in, 182, 270, 350
See also Act of Union; Britain; linens, Scottish; tobacco, trading of
- seigniorialism, 23, 91, 92, 126, 127, 128
See also East Elbia, demesne lordship in serfdom, 14, 101, 123, 126, 150, 270
 second, 91, 124
See also East Elbia, demesne lordship in; seigniorialism
- Seven Years' War, 186, 199, 207
- seventeenth-century crisis, 179
 economic effects of, 180–81, 182
 interpretations of, 179–82

- Seville (Spain)
commerce of, 42, 53, 66, 70, 72, 79, 83, 86
See also Cádiz; entrepôts
sharecropping, 21, 241, 246
characteristics of, 19, 101, 141
effects of, 45, 99, 242, 244, 244, 246, 255, 289
See also agriculture, tenurial systems in
shipbuilding, 171, 181, 224, 277
Dutch, 86, 110, 146, 152, 158, 159, 161, 162, 215, 275, 315
French, 135, 323
innovations in, 4, 28, 80, 161–62
Portuguese, 80, 85, 143
Spanish, 85, 86, 141, 142
ships
types of, 29, 39, 80, 162, 191
See also transport
siamoise. *See* cottons, mixed fiber
Silesia, 154
agriculture in, 125, 234
linen industry of, 145, 168, 185, 289, 302, 322
mining in, 140, 145
See also proto-industry, demesne
lordship and
silk
cocoon cultivation for, 99, 102, 244, 246
technology of, 139, 294, 296, 297, 300, 306, 307, 308, 334, 337
trade of, 41, 59, 60, 61, 68, 79, 82, 83, 192, 193, 196, 210, 214, 219, 327
weaving of, 33, 151, 158, 168, 170, 171, 244, 285, 340
See also China, trade with; Dutch United East India Company; English East India Company; France, silk industries in; Italy, silk industries in; mulberry trees; Spain, silk industries in
silver
American, 54, 63, 67, 84, 95, 139, 141, 179, 186, 190, 200, 202, 225
Central European, 28, 29, 62, 79, 138
Japanese, 59, 60, 63, 189, 190
See also bullion, trade of; China, silver imports of; mining, silver; Potosí
skins and hides, 16, 22, 35, 60, 64, 66, 73, 82, 141, 153, 203, 207, 210, 212, 249, 270
See also leather
slave trade, 200, 201, 223, 224
and capitalism, 6, 54, 223, 347
Brazilian, 203, 204, 352
British, 204, 206, 207, 208, 211, 223, 227, 228, 332, 335, 352
Dutch, 77, 205, 206, 208, 223, 352
English, 73, 187, 205, 223
French, 73, 187, 205, 206, 207, 208, 216, 223, 321, 325, 352
from Africa, 41, 42, 54, 59, 64, 68, 84, 187, 188, 201, 282, 351
from Asia, 59
of Amerindians, 65
other European and American, 73, 352
Portuguese, 59, 64, 68, 73, 86, 187, 189, 204, 205, 224, 352
profits of, 85, 223
Spanish, 67, 73, 187, 204, 352
United States, 212, 352
slaves
agricultural labor of, 15, 64, 65, 66, 201, 202, 206, 207, 340
Atlantic regional disembarkations of, 204, 353
consumption by, 134, 207, 208, 210, 214, 225, 251, 282, 311, 322, 324, 332
industrial labor of, 64, 66, 170
mining by, 66, 147
numbers shipped to Americas of, 66, 67, 68, 84, 205, 208, 228, 351
rebellions by, 206
See also plantations; slave trade
Smith, Adam
on restraints to economic growth, 31, 54, 227, 283, 347
theory of economic change of, 4–5, 54, 276, 346
See also capitalism; growth; mercantilism
smuggling. *See* commerce, contraband
Southeast Asia
trade with, 57, 58, 59, 62, 76
See also Indonesia; trading posts
Spain
agriculture in, 92–98, 237–41, 238
Asian commerce of, 56, 57, 59
Atlantic commerce of, 57, 68, 70, 72, 202, 203
colonies of, 58, 65, 66, 67, 68, 86, 93, 94, 141, 142, 153, 154, 170, 201, 202, 203, 204, 207, 211, 212, 225, 310, 311, 319
commercial institutions of, 53, 70, 72–73
domestic consumption in, 93, 95, 96, 140, 144, 240, 241, 308
economic policies of, 73, 142, 202, 206, 218, 237, 239, 309, 310

- Spain (cont.)
- economic trends in, 93, 94, 97, 141, 142, 237, 240, 308
 - European commerce of, 213, 216
 - exports of, 142, 144, 225
 - imports of, 94, 144, 154, 319
 - industry in, 141–44, 308, 310
 - population of, 95, 142, 180, 238, 240, 349
 - silk industries in, 68, 142, 143, 309, 310
 - taxes in, 95, 96, 97, 98, 143, 240, 308
 - transport in, 143, 222, 239
 - urbanization in, 84, 93, 95, 97, 142, 181, 238, 240, 350
 - wages in, 97, 143, 225, 308
- See also* Basque provinces; bullion, trade of; Cádiz; Catalonia; Dutch Revolt, effects on Iberian economies of; entrepôts; ironmaking, in Spain; Mesta; Seville; shipbuilding, Spanish; slave trade, Spanish; Valencia; wool; woollens, Spanish
- spices
- demand for, 76, 84, 188, 191, 268
 - Dutch trade of, 74, 81, 82, 190, 191, 192, 193, 194
 - English trade of, 76, 195
 - Italian trade of, 41, 83, 214
 - Portuguese trade of, 41, 57, 58, 59, 61, 71, 72, 79, 80, 189
- See also* tropical groceries
- steam engine, 299, 320, 330, 338, 348
- subcontracting, 34, 35, 36, 161, 167, 169, 173, 175, 323
- See also* putting-out
- sugar
- American, 94, 101, 201, 203
 - and slavery, 64, 65, 204, 207, 210, 211, 224
 - Asian, 189, 190, 192, 193
 - Brazilian, 65, 70, 77, 81, 84, 185, 203, 224
 - other producers of, 39, 42, 65, 93, 101
 - output of, 65, 226
 - plantations for, 21, 42, 65, 207, 340
 - refining of, 29, 77, 134, 151, 158, 160, 171, 214, 215, 216, 226, 271, 284, 315, 317, 318, 320, 322, 328, 329
 - revolution, 206–7
 - trade of, 70, 71, 77, 78, 79, 81, 82, 83, 84, 85, 192, 207, 208, 209, 211, 212, 268
 - West Indian, 65, 185, 193, 203, 204, 207, 226
- See also* tropical groceries
- sumptuary laws, 225, 277, 278
- Sweden-Finland
- agriculture in, 110–11, 252–53
 - economic policies in, 284, 285, 305
 - industry in, 146, 252, 285, 290, 291, 304, 305
 - mining in, 82, 134, 252
 - taxes in, 111, 252
- See also* chartered companies; China, silk trade of; Scandinavia; tea trade
- Switzerland
- agriculture in, 107, 249
 - industry in, 146–48, 314, 335
 - population of, 349
 - urbanization in, 350
- See also* Geneva
- tanning, 126, 171, 203, 293
- See also* leather
- taxes
- consumption, 96, 143, 256
 - See also* individual countries, taxes in
- tea trade, 59, 188, 189, 194, 198, 199, 210, 268
- Dutch, 190, 191, 192, 193, 194, 205
 - English, 194, 196, 197
- tenures. *See* agriculture, tenurial systems in textiles
- raw materials for, 39, 79, 82, 93, 98, 179, 219, 237, 240, 260, 268, 309
- See also* cotton; cottons; dyestuffs; indigo; knitting; lacemaking; Leiden, textile industry in; linens; silk; woad; wool; woollens
- Thirty Years' War, 106, 107, 110, 147, 149, 180, 233, 249, 256, 288
- tithes. *See* agriculture, levies on
- tobacco, 64, 66, 207
- Brazilian, 64, 68, 189, 203, 204, 224
 - Chesapeake Bay, 76, 209, 211, 261
 - European, 118, 130, 254, 261
 - processing of, 214, 215, 224, 315, 316, 320, 328
 - trade of, 199, 201, 211, 222, 261, 268, 284
- See also* tropical groceries
- trade. *See* commerce
- trade routes, 41, 54
- Atlantic, 13, 41, 42, 56
 - European, 39, 41, 42, 43, 79, 82, 83, 160, 214, 215
- integration of, 53, 59, 81, 83, 86, 346
- new intercontinental, 41, 55, 56, 57, 60, 84
- trading posts, 41, 55, 57, 60, 70, 71, 76, 77, 79, 97, 196, 205

- transactions costs, 256
burden of, 222, 258, 323
definition of, 4
reduction of, 156, 312
- transport
canal, 22, 121, 122, 279, 303, 329
improvements in, 28, 80, 162, 267, 279, 303, 320, 329
problems affecting, 42, 61, 69, 105, 140, 170, 242, 258, 324
riverine, 22, 151, 279, 303
road, 22, 62, 151, 242, 279, 303, 329
ship, 28, 39, 60, 62, 80, 162
See also France, transport in; Spain, transport in
- tropical groceries, 283
consumption of, 208, 268, 281, 282
definition of, 64
processing of, 215, 276
trade of, 207, 209, 211, 214, 217, 219, 220, 321
- Tuscany (Italy), 39, 82, 139, 244
- United Kingdom. *See* Britain
- United States, 194, 210, 210, 327
See also Britain, exports of; cotton, trade in; France, exports of
- urbanization. *See* individual countries/regions, urbanization in
- Venice, 39, 83, 200, 213
industry in, 44, 134, 139, 275, 305
See also glassmaking, in Venice; Italy, silk industries in
- Verlagssystem. *See* putting-out
- viticulture. *See* wine, production of
- Vizcaya (Spain). *See* Basque provinces (Spain)
- VOC. *See* Dutch United East India Company
- Wallerstein, Immanuel, 7, 179, 347
- Wars of Religion, 96, 102, 103, 149, 151
- West Africa
European trade with, 41, 42, 55, 58, 63, 64, 77, 210, 336
See also gold, West African; slave trade; trading posts
- West Indies. *See* agriculture, plantation; Caribbean; slave trade; slaves; sugar; individual countries, colonies of
- Western Germany
agriculture in, 107, 247–49
economic policies in, 313
- economic trends in, 106, 107, 146, 147, 247
exports of, 146, 233, 313
industry in, 146, 292, 312–14, 317
population of, 108, 147, 247, 248
taxes in, 107, 108, 248, 313
urbanization in, 313
wages in, 248, 249, 249
See also Germany, population of; Germany, urbanization in; Hamburg wheat
trade of, 64, 211, 222, 233, 260, 264, 265
yields of, 100, 116, 243, 260, 269
See also grain
- Wild Coast, 205
sugar production of, 203, 206
- wine
Dutch trade of, 80, 82, 216
French trade of, 102, 103, 149, 216, 218, 256
other trade of, 24, 39, 68, 79, 83, 125, 214, 227
Portuguese trade of, 79, 212, 213, 220, 241, 268
production of, 21, 93, 96, 102, 103, 105, 107, 235, 241, 241, 250, 254
woad, 21, 64, 79, 102, 103, 201, 254, 268
See also dyestuffs
- women
agricultural work of, 42, 99, 111
commercial activities of, 44, 221
economic position of, 17
gendered divisions of labor and, 17, 30, 167, 290, 334, 348
industrial work of, 25, 28, 30, 31, 33, 36, 116, 153, 155, 156, 161, 166, 169, 170, 171, 172, 173, 289, 290, 294, 296, 297, 305, 306, 320, 328, 333
See also guilds, women and
- wool
English, 28, 93, 118, 267
English exports of, 42, 153, 156
other trade of, 39, 82, 166, 332
Spanish exports of, 42, 54, 79, 80, 83, 86, 93, 94, 142, 143, 179, 183, 212, 237, 295, 309
See also Dogana; Mesta; textiles, raw materials for; woollens
- woollens
Belgian, 79, 134, 150, 152, 319, 320
British, 327, 337, 338
broadcloth, 25, 154, 156, 157
Dutch, 26, 158, 160, 315, 317

- woollens (cont.)
English, 26, 42, 73, 74, 79, 134, 136, 153, 154, 156, 210, 217, 219, 284, 294, 331, 332
French, 134, 138, 148, 150, 220, 319, 321, 323, 326, 327
Italian, 26, 134, 139, 141, 245, 305, 306, 307
light drapery, 29, 38, 138, 150, 154, 163, 210, 275, 280, 296, 302, 319, 331
new drapery, 30, 38, 154, 156, 275, 328
North African, 42, 63
old drapery, 28, 38, 138, 150, 154, 156, 210, 292
Spanish, 68, 103, 142, 143, 308, 309
Western German, 146, 148, 167, 298, 313
- worsteds, 293, 339
See also Dogana, Florence; Leiden, textile industry in; Mesta; wool workhouses, 169, 172, 297 world-system theory, 7, 8, 54, 179, 347
See also Wallerstein, Immanuel yeomen. *See* peasants, elite yields. *See* agriculture, yields in
- Zaanstreek (Dutch Republic), 158, 159, 160, 161, 174, 263, 275, 315, 317, 318
See also Dutch Republic, industry in; mills; papermaking, in Dutch Republic; shipbuilding, Dutch

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