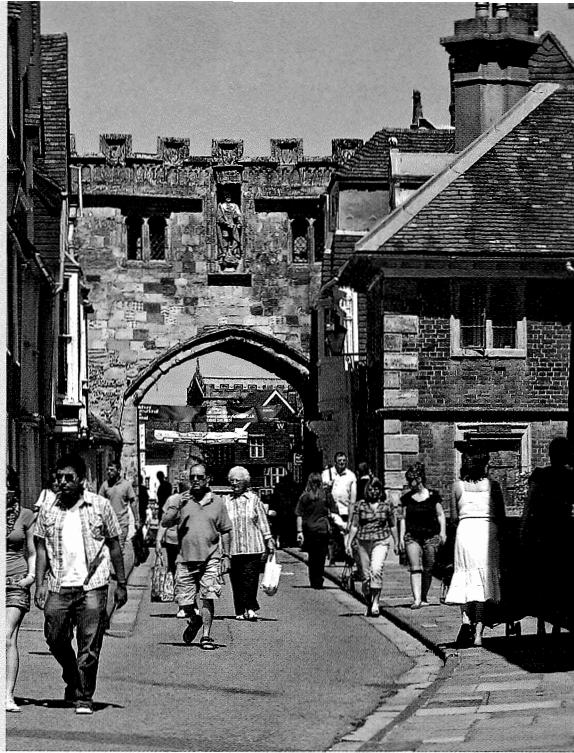


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Chapter 4

Preindustrial foundations



Picture credit: Linda McCarthy

In this chapter, we trace the emergence of an embryonic world economy centered on Europe, and describe the way in which Europeans became, as Robert Reynolds put it (1961: vii), the “leaders, drivers, persuaders, shapers, crushers and builders” of the rest of the world’s economies and societies. From these changes, the core areas of Europe forged the template for the economic geography of the contemporary world. It must be recognized at the outset, however, that preindustrial economic development was by no means exclusively a European phenomenon. The early trajectories of other parts of the world often eclipsed that of Europe and were sometimes important in influencing events in Europe itself. We begin, therefore, with a brief review that spans the origins and diffusion of the first, crucial “revolution” in the development of agricultural systems, the rise of ancient empires, the establishment of urban systems, and the spread of feudalism as the dominant form of economic organization. Rather than provide a thumbnail sketch of early economic history, we simply highlight the emergence and spatial implications of certain key socioeconomic forces.

4.1 BEGINNINGS

We start from some basic distinctions provided by the world-systems theory of Immanuel Wallerstein. In his view, at one time all societies were **minisystems**: “A minisystem is an entity that has within it a complete division of labor, and a single cultural framework” (1979a: 17). Such minisystems would include simple hunter-gatherer and some agricultural societies. But as soon as they became tied to empires or the world economy, they ceased to be separate systems. Empires and the world economy are examples of what Wallerstein calls **world-systems**: Units with a single spatial division of labor but multiple cultural systems. In the case of a unit with a common political system, there is a world empire. Where no political integration exists, a world economy occurs.

Relatively little is known about the first transitions from primitive hunter-gathering minisystems to larger scale, agriculturally based world empires and world economies. Despite

significant advances in the accuracy of archaeological research, we still rely on speculation as much as established facts. It is generally agreed, however, that the transition began in the Proto-Neolithic period (between 9000 and 7000 BCE), when a series of innovations among certain hunter-gatherer peoples established the preconditions for agriculture. These innovations included (1) the use of fire to process food, (2) the use of grindstones, and (3) the improvement of basic tools for catching, killing, and preparing animals, fish, birds, and reptiles. Given these preconditions, the transition to a simple system of fallow agriculture (or shifting cultivation) was relatively straightforward. It involved sowing or planting familiar species of wild cereals or tubers on scorched land using a slash-and-burn system (cutting down the natural vegetation and burning it to release its nutrients into the soil). This method of cultivation required no special tools and minimized the need for labor-intensive practices such as weeding. When soil fertility in the area declined, the plot was simply abandoned in favor of a new location.

Meanwhile, the domestication of cattle and sheep had begun. By the Neolithic period (7000 to 5500 BCE), stock breeding and seed agriculture had become established techniques of food production; however, the transition from hunting and gathering seems to have occurred slowly and sporadically. Archaeological evidence from a Neolithic village in western Asia, for example, shows that cultivated grains only gradually replaced wild legumes—the major food item in 7500 BCE—over a span of almost 2000 years. Ester Boserup (1981) suggested that there was little incentive to switch to food production until population densities began to increase and/or wild food sources became scarce. From this perspective, then, *demographic conditions as well as technological innovations were a critical precondition for economic change.*

HEARTH AREAS

The weight of available archaeological evidence suggests that the transition to food production took place independently in several agricultural hearth areas:

- The earliest hard evidence comes from southwestern Asia, in the foothills of the Zagros Mountains of what are now Iran and Iraq, where radiocarbon analysis has dated the remains of domesticated sheep to around 8500 BCE. Evidence of early Neolithic activity also has been found in other parts of southwestern Asia, particularly around the Dead Sea Valley in Palestine and on the Anatolian Plateau in Turkey.
- A second early Neolithic hearth area was in south Asia, along the floodplains of the Ganges, Brahmaputra, and Irrawaddy rivers.
- Later, from around 5000 BCE, a third hearth area seems to have emerged in China, around the Yuan River valley in western Hunan.
- Finally, evidence suggests independent agricultural organization in four regions of the Americas: The southern Tamaulipas area and the Tehuacán Valley in Central America, coastal Peru, and the North American southwest. In these regions, however, agricultural development not only came later but it was incredibly slow with widespread food production coming to dominate the exploitation of the abundant wild plants and game in those regions only after 1000 CE.

Meanwhile, the agricultural “revolution” had been diffused from southwestern Asia. By 5000 BCE it had begun to spread eastwards, to southern Turkmenia, and westwards, via the Mediterranean and the Danube, into Europe. By 3000 BCE it had reached the Sudan and Kenya (via the Nile), much of India (via Afghanistan and Baluchistan), and had penetrated Europe

as far as Britain, Ireland, and southern Scandinavia. By 1500 BCE the last European stronghold of pure hunter-gatherer economies was the zone of tundra and coniferous forest stretching eastwards from the Norwegian coast.

Of course, archaeological evidence is inevitably rather patchy, so the patterns of diffusion from agricultural hearth areas remain a topic of considerable academic debate. More important to us here, however, are the eventual *outcomes* of the transition to food production:

- Most important for the long-term evolution of the world economy were the changes in social organization that resulted from the establishment of settled agriculture. The previous communal social order was steadily replaced by a **kin-ordered system** that laid the basis for a stratified social structure. Kin groups emerged as a “natural” way of assigning rights over resources and organizing the production and storage of food. They also generated new social institutions to deal with the ownership of property and the formal exchange of goods.
- The increased volume and reliability of food supplies allowed much higher population densities and encouraged the proliferation of settled agricultural villages. Together with the social institutions of kin-ordered societies, this transition facilitated the development of nonagricultural crafts such as pottery, weaving, jewelry, and weaponry. Such specializations, in turn, encouraged the beginnings of barter and trade between communities, sometimes over substantial distances.

THE FRAMEWORK OF EARLY URBANIZATION

These outcomes of the agricultural revolution were effectively the preconditions for another “revolutionary” change in the economic and spatial organization of the world: The emergence of cities and city systems. As with the evidence on the agricultural transition, our knowledge of the earliest cities is partly a function of where archaeologists have chosen to dig and partly a function of fortuitous factors like the durability of building materials and artifacts and local climates that preserve or destroy evidence of civilization. It now seems firmly established, however, that urbanization developed independently in different regions, more or less in the wake of the local completion of the agricultural transition. So the first region of independent or “nuclear” urbanism, from around 3000 BCE, was in southwestern Asia, in the Mesopotamian valleys of the Tigris and Euphrates and the Nile Valley (together constituting the Fertile Crescent). By 2500 BCE cities had appeared in the Indus Valley, and 1,500 years later they were established in northern China. Other areas of nuclear urbanism include Central America (from around 1500 CE). Meanwhile, of course, the original southwest Asian urban hearth had generated successive urban world empires, including those of Greece, Rome, and Byzantium.

Explanations of these first transitions to city-based economies have emphasized several factors. Boserup (1981), for instance, stressed the role of local concentrations of population; Jacobs (1969) interpreted the emergence of cities mainly as a function of trade; while the classical archaeological interpretation rests on the availability of an agricultural surplus large enough to facilitate the emergence of specialized, nonagricultural workers.

Another important factor was the emergence of “primitive accumulation” through the exaction of tributes, the control of fixed assets, and/or the control of labor power—usually through some form of religious persuasion or despotic coercion. Once established, a parasitic élite provided the stimulus for urban development by investing its appropriated wealth in displays of power and status. These actions created the kernel of the monumental city but also required an increased degree of specialization in nonagricultural activities—construction,

crafts, administration, the priesthood, soldiery and so on—which were organized most effectively in an urban setting.

This kind of expansion, however, could only be sustained in the most fertile agricultural regions where the peasant population could produce enough to support not only the élite but also the growing numbers of nonagricultural workers. In this context, the development of irrigation seems to have been a critical factor. It not only intensified cultivation and increased productivity; it also required the kind of large-scale cooperation that could be organized more effectively in a hierarchical, despotic society. Yet, even in the most fertile and intensively farmed regions, rank-redistributive economies could only expand to a certain point if overall levels of productivity could be increased: Through harder work, improvements in technology, or improvements in agricultural practices. All three of these solutions required more non-agricultural specialists and so reinforced the incipient process of urbanization:

[A]dministrators and, perhaps, an army to oversee the harder work (their actions may have been accompanied by the élite taking to itself the ownership of land) in the first, craftsmen to create the tools in the second, and also, probably, miners and others to provide the raw materials; and “researchers” to develop the new strains and the new technology (notably irrigation) in the third. Thus the demands for more production are reflected in the urban node as well as in the countryside, and continued growth of the society, to meet the never-satisfied demands of an expanding élite and its associates, leads to self-propelling urban growth.

(Johnston, 1980: 52)

The size of a society’s resource base, however, ultimately limited such developments. The logical response to this constraint was enlargement of the resource base through territorial expansion, a process that tended to reinforce and extend the process of urbanization. All these changes involved the creation of city-based jobs. Additionally, whereas small-scale colonial expansion could be organized from one center, expansion beyond the immediate reach of the main settlement (perhaps, a day or two of travel) required establishing secondary settlements. These nodes of the controlled territory acted as intermediate centers in the flow of demands from élite to producers and of goods in return. *As long as growth was a goal, therefore, the empire had to be continually enlarged with an increasing number of urban control centers.* So the expansion of the Greek and Roman Empires laid the foundations of an urban system in western Europe (see Figure 4.1).

Although this transition appears logical and orderly on paper, one should not misinterpret it as a picture of steady growth, expansion, and succession of ancient and classical empires. Urbanized economies were a precarious phenomenon, and many lapsed into ruralism before being revived or recolonized. In a number of cases, this was a result of demographic setbacks associated with war, epidemic, or natural phenomena such as floods or sustained droughts. Such setbacks left too few people to maintain the social and economic infrastructure necessary for urbanization.

An early example of this kind of relapse occurred in the Indus Valley where Aryan pastoralists displaced the urban economy in the middle of the second millennium BCE. Elsewhere, changes in resource/population ratios precipitated the breakdown and decay of urban economies. The demands of repair and upkeep of irrigation systems, for example, coupled with the demands of population growth, sometimes exceeded the available supply of peasant labor. After a while, investments were neglected, armies grew small, and the strength and cohesion of the empire was fatally undermined.

This kind of sequence seems to have resulted in the eventual collapse of the Mesopotamian Empire and may also have contributed to the decay of much of the Mayan Empire more than

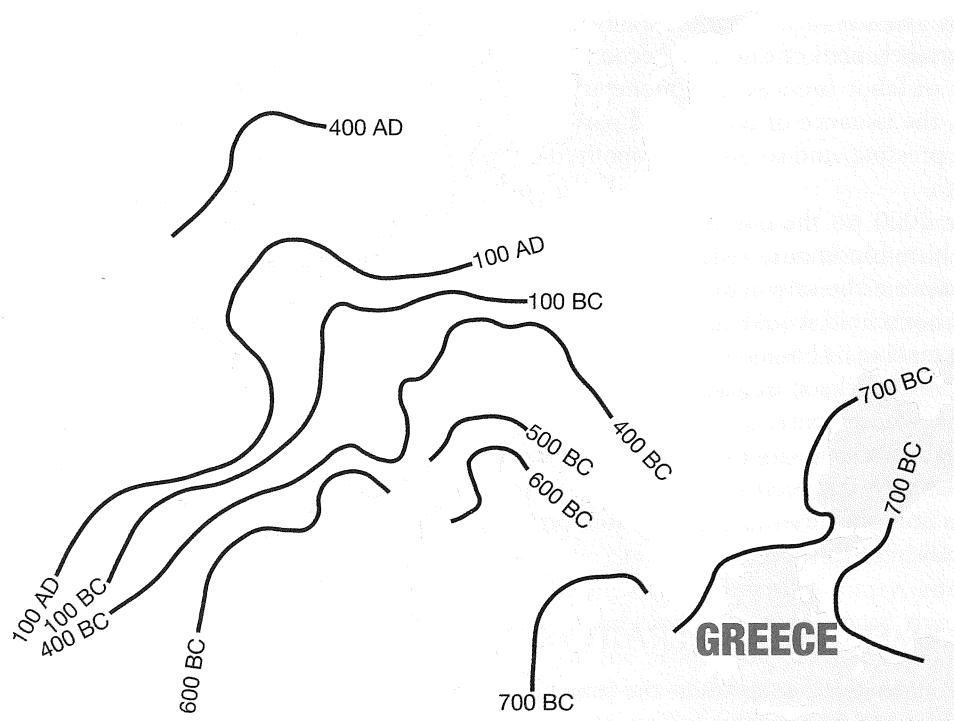


Figure 4.1 The urbanization of the classical world

Source: Based on Carter (1983: 21, Figure 2.2)

500 years before the arrival of the Spanish. Similarly, the population of the Roman Empire began to decline in the second century CE, allowing the infiltration of “barbarian” settlers and traders from the German lands of east-central Europe (ultimately leading to the sacking of Rome in the fifth century CE by the Vandals, an east Germanic tribe).

RURAL CONSOLIDATION

The emergence of urbanization provided an important framework for future development; however, the reorganization and consolidation of rural areas provided the immediate platform for the critical transition to merchant capitalism and the emergence of a European world economy. At the heart of this rural consolidation was the evolution of the elaborate feudal systems of medieval Europe, China, and Japan.

In economic terms, feudal systems were almost wholly agricultural, with 80–90 percent of the workforce engaged in mixed arable and pastoral farming and much of the rest engaged in basic craftwork. Most production filled immediate needs and did not find its way to wider markets. Feudal estates served as the core of the feudal system. Lay or ecclesiastical lords owned the estates and delegated parcels of land to others in return for allegiance and economic obligations, the latter being fulfilled mainly in the form of money dues. The lords, in turn, normally owed allegiance and homage to higher lords from whom they held delegated grants of land. The labor power that ran each estate consisted of a peasant population, most of whom were serfs (descended from slaves and therefore not free) or tenants whose freedom of movement, freedom to marry, freedom to leave property to their heirs, and freedom to buy

goods and sell their labor were closely circumscribed by public law. The peasantry was the essential element of the feudal economic system. Peasants provided the human capital (in the form of labor services) and monetary capital (for example, rents in kind, taxes, seigneurial dues, the issuance of money and payments for the use of essential services—milling, baking, olive pressing, and so on—monopolized by the lords) that enabled feudal lords to accumulate wealth.

By 1000 CE the countryside of most of Europe had been consolidated into a series of largely autonomous, feudal agricultural subsystems. Every estate was more or less self-sufficient in the raw materials for simple industrial products. Some of the members of every rural household would be capable of specialized, nonagricultural, part-time activities such as cloth making or basketry; and nearly every community supported a range of specialist artisans and craft workers. In addition, most regions had the capacity to sustain at least some small towns whose existence hinged mainly on their role as ecclesiastical centers, defensive strongholds, and administrative centers for the upper echelons of the feudal hierarchy. Improbably, this economic landscape—inflexible and introverted—nurtured the resurgence of trade and the revival of cities and provided the preconditions for the rise of merchant capitalism in Europe.

4.2 EMERGING IMPERATIVES OF ECONOMIC ORGANIZATION

Before moving on to examine the transition to merchant capitalism and the emergence of the European world-system, we pause briefly to review some of the organizing principles that seem to have been important in delineating the formative stages of preindustrial economic geography:

- Major changes in patterns of economic activity were gradual and incremental, even in hearth areas or core regions.
- Such changes generally preceded the development of critical innovations, particularly in technology and economic organization.
- Such innovations were a necessary but not sufficient condition to bring about radical change; institutional and sociopolitical changes were also necessary in order to exploit them.
- Demographic factors were also critical. Insufficient absolute numbers of potential workers sometimes hindered economic development, while changes in the balance between a population and its local resource base could be important in precipitating either progressive or regressive economic change.
- The law of diminishing returns provided an early impetus for territorial expansion. Colonization was pivotal in the development of hierarchical urban systems and improved transportation. It also stimulated the development of militarism, which induced important changes in spatial organization, for example, elevating the importance of defensive sites for key settlements. Finally, the environmental and social constraints laid bare by the law of diminishing returns were responsible for the emergence of a new geopolitical element—the state.

4.3 EMERGENCE OF THE EUROPEAN WORLD-SYSTEM

In this section, we consider the period that marked the first stirrings of the transition from feudalism to merchant capitalism in the thirteenth century through the creation of the European world-system in the sixteenth and seventeenth centuries. We also examine the proto-industrialization of the early eighteenth century, which served as the foundation for the

Industrial Revolution. We will highlight the emergence, interaction, and spatial implications of the salient aspects of economic change. But, first, we must consider an obvious but often neglected question: Why Europe?

WHY EUROPE?

In the twelfth century, almost half a millennium before Europe embarked on the path of capitalist development that shaped, directly or indirectly, virtually the entire world economy, several well-developed “economic worlds” existed in the Eastern Hemisphere. One was the Mediterranean region, whose principal elements included Byzantium, the Italian city-states, and Muslim North Africa. A second was the Chinese Empire. The central Asian land mass from Russia to Mongolia was a third. The Indian Ocean/Red Sea complex was a fourth. And the Baltic area was on the verge of becoming a fifth.

Why did Europe become the locus of innovative economic change? Perhaps more importantly, *why not China?* China had approximately the same total population as Europe and, until the fifteenth century, was at least as advanced in science and technology. Chinese ironmasters had developed blast furnaces that enabled the casting of iron as early as 200 BCE. Iron plows were introduced in the sixth century, the compass in the tenth century, and the water clock in the eleventh. The Chinese were also significantly more advanced than the Europeans in medicine, papermaking, and printing, and the production of explosives. They also retained an imperial system with centralized decision making, an extensive state bureaucracy, well-developed internal communications, and a unified financial system, elements ideally suited to economic development and territorial expansion.

China’s failure to take off must be attributed in part to its failure to pursue economic opportunities overseas. The Chinese had matched early European exploratory successes by spanning the Indian Ocean from Java to Africa in a series of lucrative and informative voyages; but they simply lacked a comparable interest in further exploration. One explanation for the absence of this colonizing drive is that they saw their own “world” as the only one that mattered. Another is that they were distracted by the growing menace of Mongol nomad barbarians and Japanese pirates. A third explanation is that the centralized power structure of imperial China did not contain enough different interest groups for whom overseas exploration was an attractive proposition.

This last point is seen by some as a facet of a broader set of structural constraints associated with the imperial form. The administration and defense of a large population and land mass perhaps drained the attention, energy, and wealth that might otherwise have been invested in capital development. The imperial system also meant that cultural and social élites tended to be focused on the arts, humanities, and self-promotion *vis-à-vis* the imperial bureaucracy. The centralization of decision making, meanwhile, is seen as having been insensitive to the economic potential of China’s estimated 1,700 city-states and principalities. China’s imperial framework is also implicated in its failure to develop military technology (after having gained a flying start) in the way that enabled Europeans to turn exploration into domination: Quite simply, the Imperial court suppressed the spread of knowledge of gunnery because it feared internal bandits and domestic uprisings.

Agricultural production served as another important element guiding the trajectories of China and Europe. European agriculture centered on the production of cattle and wheat. In contrast, rice production dominated Chinese agriculture. Because rice production requires relatively little land, China had less need to seek territorial expansion. Conversely, Europe’s reliance on wheat and cattle provided a strong impetus for territorial expansion and exploration, while the more

extensive use of animal power in Europe meant that “European man possessed in the fifteenth century a motor, more or less five times as powerful as that possessed by Chinese men” (Channu, 1969: 336).

Finally, some writers have emphasized the lack of autonomy of oriental towns compared to their European counterparts. As we will see, the legal and political autonomy of European towns served as a crucial “pull” factor in attracting the rural migrants whose labor and initiative were central to the emergence of merchant capitalism.

CRISIS OF FEUDALISM IN EUROPE

The transition from feudalism to merchant capitalism in Europe remains an issue of considerable debate, largely because we do not know enough about the details or timing of the critical economic and social changes that took place between 1300 and 1450. As a result, a variety of theoretical interpretations have emerged, each emphasizing different elements in the transition. In contrast, scholars generally agree that the overall context for the transition was a phase of economic, demographic, and political crisis brought about by the combination of steady population growth, modest technological improvements, and limited amounts of usable land.

As a result of improvements in plowing techniques, harnesses, and basic equipment in the early feudal period, wheat yields rose significantly and led to a steady rise in population over the twelfth and thirteenth centuries. In response, the feudal economy kept up by reclaiming rough pastureland and woodland. When this began to prove difficult (from around 1250), the population responded by attempting to improve crop rotations and shortening the period the land was permitted to lay fallow. There were limits, however, to such adjustments (Figure 4.2 illustrates the land intensity of a medieval manor in England). The number of cattle that could be kept, for example, was fixed by climatic constraints, which, in turn, limited the quantity of available winter forage; and this, likewise, imposed a limit on the supply of fertilizer for farming. In the absence of further advances in agrarian technology, food shortages were an inevitable outcome. In the wake of shortages, just as inevitably, came epidemics such as the Black Death (bubonic plague) in the 1340s, 1360s, and 1370s. These problems were compounded by climatic fluctuations: The cold winters and late springs of the fourteenth century aggravated the food shortages, while some exceptionally hot summers helped to swell the population of the black rat, host to the rat flea, the most significant vector of the bubonic plague.

Another aggravating factor was the beginning of the Hundred Years War in 1335–1345. The war necessitated a significant increase in taxes, which triggered a downward economic spiral fueled by falling rates of consumption, liquidity problems for noble treasuries, and a shortage of goods, which led to a spike in prices. The shortfall in funds necessitated additional tax increases and provoked a political climate of endemic discontent. The combined result of these pressures was “not only to exhaust the goose that laid the golden eggs for the castle, but to provoke, from sheer desperation, a movement of illegal emigration from the manor” (Dobb, 1963: 21).

The destination of these fugitives was the town, where different laws and tax systems prevailed. The late medieval European town (Cipolla, 1981: 146):

[W]as the “frontier,” a new and dynamic world where people felt they could break their ties with an unpleasant past, where people hoped they would find opportunities for economic and social success, where sclerotic traditional institutions and discriminations no longer counted, and where there would be ample reward for initiative, daring and industriousness.

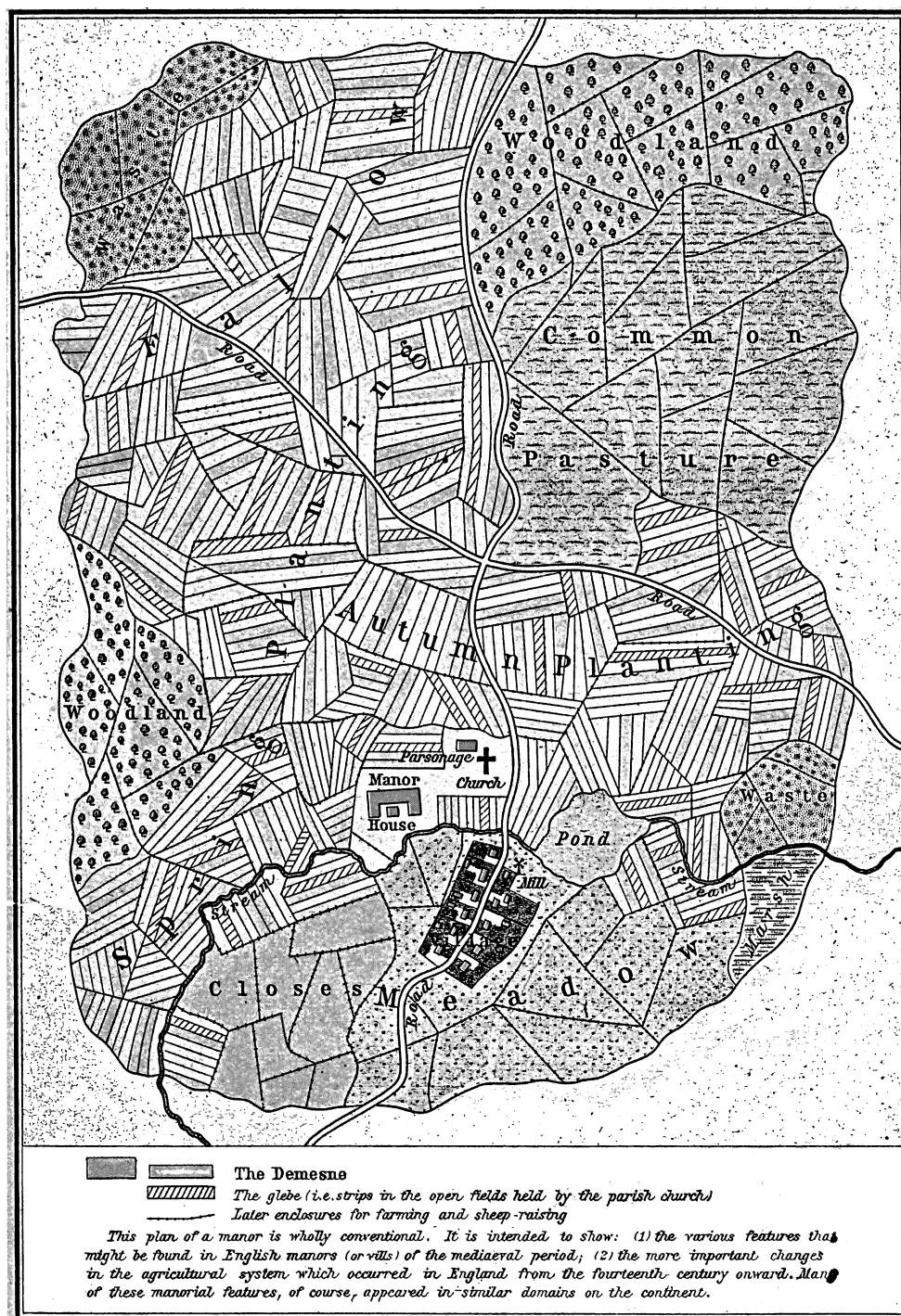


Figure 4.2 Plan of a medieval manor

Source: Based on Shepherd, 1923, *Historical Atlas*, Perry-Castañeda Library Map Collection, The University of Texas at Austin
http://www.lib.utexas.edu/maps/historical/shepherd/plan_mediaeval_manor.jpg

The attractiveness of towns was not simply a product of the legal status of their inhabitants, however. People had, ironically, begun to prosper at the height of feudal economic development. In order to meet the nobility's more sophisticated and ostentatious requirements, seigneurial incomes had been increasingly realized in the form of cash. This requirement obliged peasants to sell part of their produce on the market in order to pay rents and taxes, and generally sparked trade in commodities. An embryonic pattern of regional trade developed in basic industrial and agricultural produce, and even some long-distance, international trade in luxury goods such as spices, furs, silks, fruit, and wine. As a consequence of this trade the size and vitality of towns increased and a greater number of merchants and craft workers emerged to cope with the demands of the system. This urban vitality served as a major agent in the eventual crisis of feudalism. It underscored the relative inefficiency of the self-sufficient feudal estate and transformed attitudes towards the pursuit of wealth.

RESURGENCE OF TRADE AND EXPANSION OF TOWNS UNDER MERCHANT CAPITALISM

Increased trade and urban growth were both a cause and an effect of the transition from feudalism. They also became hallmarks of the new economic order. As the feudal system faltered and disintegrated, an economy dominated by market exchange replaced it and communities came to specialize in the production of the goods and commodities they could produce most efficiently in comparison with other communities (see Figure 4.3). Merchants who supplied the capital required to initiate the flow of trade became the key group in this system, consequently the label **merchant capitalism**.

In marked contrast to feudalism and earlier rank-redistributive and primitive subsistence economies, merchant capitalism was, at least in theory, a self-propelling growth system, at least to the extent expansion through trade could be realized. Without it, neither merchants nor those dependent on their success—producers, consumers, financiers, etc.—could maintain their position, let alone advance it:

Mercantile success required the merchants to buy as cheaply as possible, and to sell as expensively as possible; it also demanded that they trade in as large a volume of goods as possible. . . . This created a contradiction, however, for the producers were also consumers (though not of the goods they produced), so that if the prices they received were low, they could not afford to buy large quantities of other goods and thus satisfy the demands of the merchant class as a whole. A consequence of this was a great pressure on producers to increase the volume of goods offered for sale, which meant increasing their productivity, while merchants put pressure on consumers to buy more, even if this meant them borrowing money in order to afford their purchases. Both processes . . . involved producers raising loans which they had to repay with interest; to achieve the latter, they had to produce more (or, if they were employees rather than independent workers, to work harder).

(Johnston, 1980: 33–34)

The regional specializations and trading patterns that provided the foundations for early merchant capitalism were predetermined to a considerable degree by the longstanding patterns developed by the traders of Venice, Pisa, Genoa, Florence, Bruges, Antwerp, and the Hanseatic League (which included Bremen, Hamburg, Lübeck, Rostock, and Danzig; see Figure 4.4) from the twelfth century. As merchant capitalism took hold, centers of trade multiplied in northern France and the lower Rhineland, new routes across Switzerland and southern Germany linked the commerce of Flanders (in Belgium) more closely to that of the Mediterranean, and sea

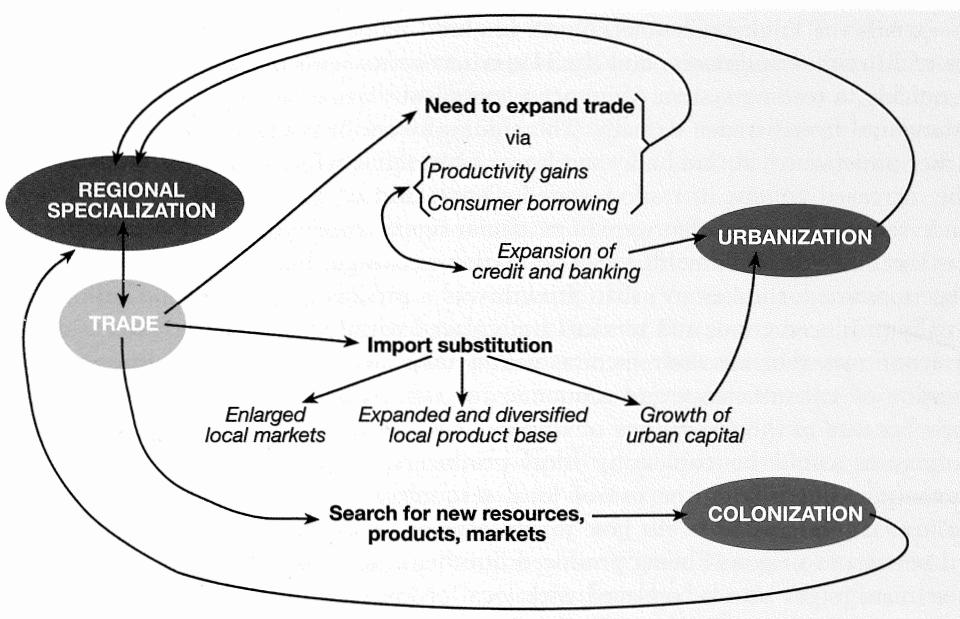


Figure 4.3 The rise of merchant capitalism and the changing space-economy

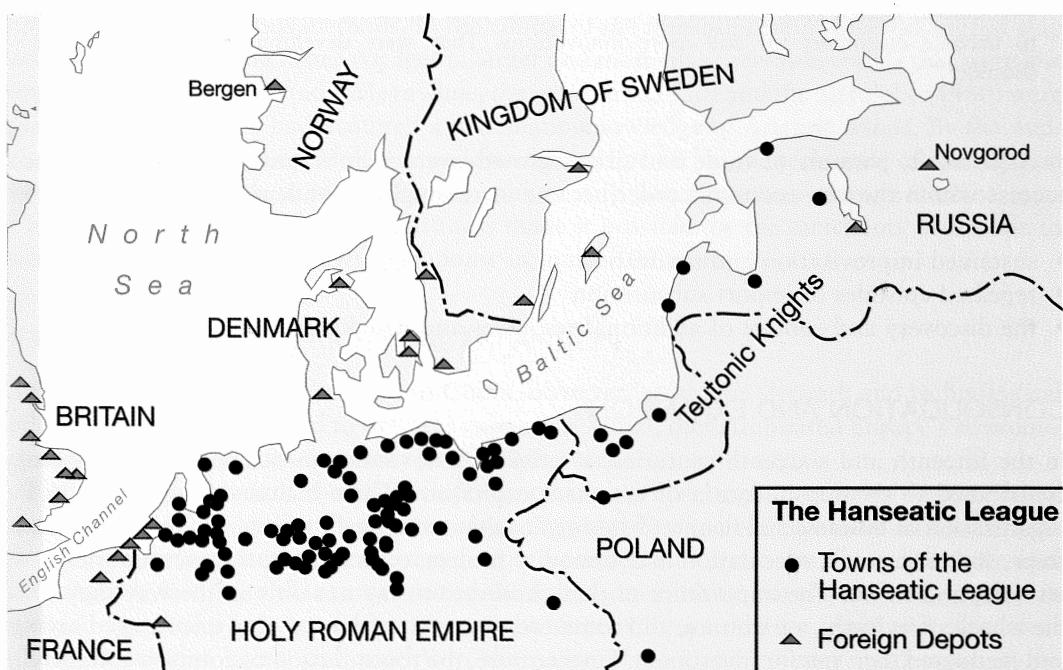


Figure 4.4 Towns and cities of the Hanseatic League

Source: Adapted from Hugill (1993: 50, Figure 2.5)

lanes—across the English Channel, North Sea, and Baltic Sea—began to integrate the economies of Britain, Scandinavia, and the Hansa territories with those of the continental core. Very quickly, a trading system of immense complexity came to span Europe, from Portugal to Poland and from Sweden to Sicily. This trading system was based not on the luxury goods of earlier trade routes but on bulky staples such as grains, wine, salt, wool, cloth, and metals.

The increased volume of trade fostered a great deal of urban development as merchants began to settle at locations that were of particular significance in relation to major trade routes, and as local economies came to focus on market exchange. But, once the dynamics of trade had been initiated, the key to urban growth was a process of import substitution, whereby externally produced goods and services are replaced with locally produced ones. In this way, local economies reinvest their income within their boundaries, which leads to a partial restoration of self-sufficiency and economic autarky. Although some things proved difficult to copy because of the constraints of climate or basic resource endowment, many imported manufactures could be copied by local producers, which increased local employment opportunities, intensifying the use of local resources, and increasing the amount of local investment capital available. As Jane Jacobs argued, cities that replaced imports could then afford new types of goods being produced in other cities. The newly imported innovations, in their turn, might also be replaced with local production, opening up the market for still more innovations from elsewhere. So the cities of Europe:

[W]ere forever generating new exports for one another—bells, dyes, buckles, parchment, lace, carding combs, needles, painted cabinet work, ceramics, brushes, cutlery, paper, sieves, riddles, sweetmeats, elixirs, files, pitchforks, sextants—and then replacing them with local production, to become customers for still more innovations. They were developing on one another's shoulder.

(Jacobs, 1984: 50)

As a result, patterns of trade and urban growth were very volatile; and long-term local success within the new economic order became increasingly dependent on:

- sustained improvisation and innovation
- repeated episodes of import substitution
- the discovery and control of additional resources and new kinds of resource.

CONSOLIDATION AND EXPANSION

In the fifteenth and sixteenth centuries, a series of innovations in business and technology contributed to the consolidation of merchant capitalism. These included innovations in the organization of business and finance: banking, loan systems, credit transfers, company partnerships, shares in stock, speculation in commodity futures, commercial insurance, courier/news services, and so on. The importance of these innovations lay not only in the way they oiled the wheels of industry, agriculture, and commerce, but also in the way they encouraged savings and facilitated their use for investment. Furthermore, the routinization of complex commercial and financial activity brought with it the codification of civil and criminal legislation relating to property rights (for example, patent laws); a development seen by some as being of critical importance because it provided an incentive for a sufficient number of innovators and entrepreneurs to channel their efforts into the embryonic capitalist economy.

Meanwhile, technological innovations succeeded each other at an accelerated rate. Some of these were adaptations and improvements of oriental discoveries—the windmill, spinning

wheels, paper manufacture, gunpowder, and the compass, for example. But Europe also possessed a passion for the mechanization of the productive process as a means of increasing productivity. In addition to improvements based on others' ideas, a welter of independent engineering breakthroughs emerged including the more efficient use of energy in watermills and blast furnaces, the design of reliable clocks and firearms, and the introduction of new methods of processing metals and manufacturing glass.

Innovators jealously guarded these breakthroughs in a hope of monopolizing the advantages they conferred while competitors in other regions went to considerable lengths to acquire new technology at the first opportunity. So, for example, the Venetian government strictly prohibited the emigration of caulkers; and the Grand Duke of Florence gave a reward for the return, dead or alive, of emigrants from key positions in the brocade industry. The French kidnapped skilled iron workers from Sweden; while many governments were happy to provide shelter and handsome rewards for migrant craftsmen who had knowledge of new techniques. These early examples of a "brain drain" were complemented by the practice of temporary migration in the opposite direction in order to acquire new expertise, sometimes legitimately, sometimes covertly. But the most important vector for the diffusion of technological innovations came with the invention of the printing press. Within 20 years of its introduction by Johannes Gutenberg in Mainz around 1450, printing shops had spread throughout Europe, opening up vast new possibilities in the fields of knowledge and education.

Innovations in shipbuilding, navigation, and naval ordnance, however, had the most far-reaching consequences for the evolution of the European space economy. By the fourteenth century European shipwrights were building ships skeleton first, as a vast saving of labor in comparison with previous methods. In the course of the fifteenth century, the full-rigged ship was developed, enabling faster voyages in larger and more maneuverable vessels that were less dependent on favorable winds. Meanwhile, the quadrant (1450) and the astrolabe (1480) were invented, and seafarers had acquired a systematic knowledge of Atlantic winds. By the mid-sixteenth century, England, Holland, and Sweden had perfected the technique of casting iron guns, making it possible to replace bronze cannon with larger numbers of more effective guns at lower expense. Together, these advances made it possible for the merchants of Europe to establish the basis of a worldwide economy in under 100 years.

MERCANTILISM AND TERRITORIAL EXPANSION

As we have already seen in relation to China, however, economic strength and technological ability do not necessarily lead to overseas expansion. What, then, translated Europe's economic power and technological superiority to a broader arena?

Figure 4.5 summarizes the most important factors. The large number of impoverished aristocrats produced by European inheritance laws and by expensive crusades and local wars was one important factor. Discouraged from commercial careers by sheer snobbery and encouraged by a culture that romanticized the fighting man, these poverty-stricken gentlemen provided a plentiful supply of adventurers who were willing to die for glory and even more willing to exercise greed and cruelty in the name of god and country, underscoring the importance of the evangelical zeal of the Catholic Church and the political competitiveness of the monarchies during this period.

Above all, however, overseas expansion was impelled by the *logic of merchant capitalism* and the *law of diminishing returns*. As noted, growth could only be sustained as long as output could be increased. After a point, this required food and energy resources that could only be obtained by the conquest—peaceful or otherwise—of new territories. Similarly, merchant

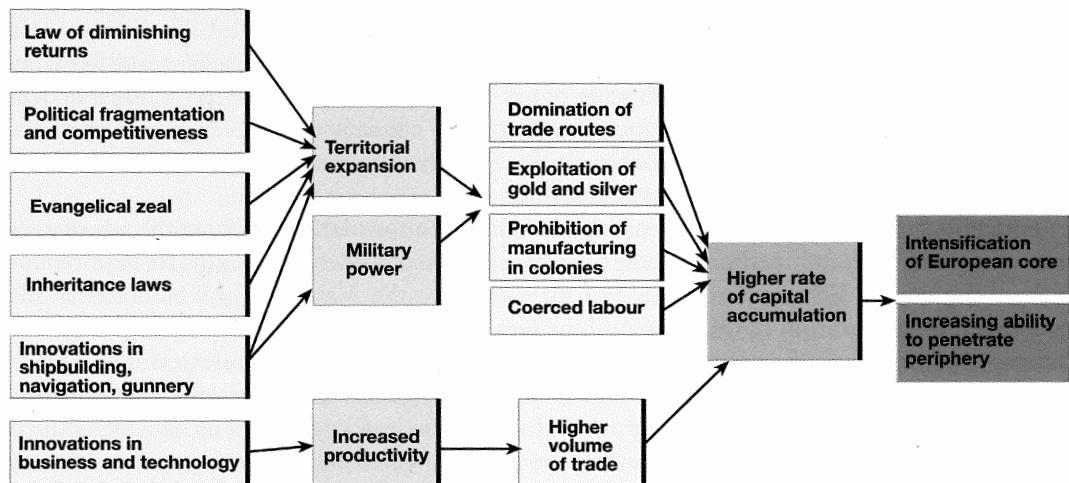


Figure 4.5 The emergence of a European-based world-system

capitalism required new supplies of gold and silver to make up for the leakage through trade with Byzantium, China, India, and Arabia.

Collectively, these motivations found expression in the dogma of mercantilism. Most European countries adhered to this dogma from the sixteenth century to the early eighteenth century. National wealth was measured in terms of the amount of accumulated precious metal (gold or silver), and the fundamental source of economic growth was a persistently favorable balance of trade. This economic “logic” justified not only overseas colonization but also the coercion of plantation labor and the prohibition of manufacturing in the colonies. It also promoted thrift and saving on the domestic front as a means of accumulating capital for overseas investment. It required a high degree of economic regulation, sponsorship, and protection by the government.

There is no need for us to reiterate here the pattern and sequence of European expansion and conquest (though it is worth noting that the overall thrust—overseas from Atlantic Europe rather than inland to the east—reflected the technological superiority of the Europeans on sea relative to land: Asians could counterbalance technological inferiority with weight of numbers until after the mid-seventeenth century when European technology succeeded in developing more mobile and rapid-firing guns). Europeans soon destroyed most of the Muslim shipping trade in the Indian Ocean and captured a large share of the intra-Asian trade. By bringing Japanese copper to China and India, Spice Island cloves to India and China, India cotton textiles to Asia, and Persian carpets to India, European merchants made good profits and with them paid for some of their imports from Asia.

The gold and silver from the Americas, however, provided the first major economic transformation and allowed Europe “to live above its means, to invest beyond its savings” (Braudel, 1972: 268). In effect, the bullion was converted into effective demand for **consumer goods** and **producer goods** of all kinds—textiles, wine, food, furniture, weapons, and ships—which stimulated production throughout the economic system, creating the basis for a “Golden Age” of prosperity for most of the sixteenth century. Meanwhile, overseas expansion made available a variety of new and unusual products—cocoa, beans, maize, potatoes, tomatoes, sugar cane, tobacco, and vanilla from the Americas, tea from the Orient—which opened up large new markets to enterprising merchants.

As European traders came to monopolize intra-oriental trade routes, they literally controlled the flow and patterns of trade between potential rivals. This monopoly enabled European traders to identify foreign articles with a tested profitable market and ship them to Europe where skilled workmen learned to imitate them. Once Europeans began manufacturing these products, their goods were shipped to the rest of the world:

For example, Europeans long prized the shawls which were made in the north of India in the Kashmir region; much later Scotchmen [sic] were making imitations of those shawls by the dozens per day; called Paisley shawls, they swept the Kashmir shawls off the general market. Europeans admired the very hard vitrified china of the Chinese, and for a long while bought it to sell to other peoples, taking it from China and distributing it. But then the Europeans began to make it in France and elsewhere, and shortly true Chinese china had become a rare article on the world market while Europe was making and selling enormous amounts of its own "china." For a good while Europeans bought cottons of a very fine quality from India for markets in Africa, Europe, and America, but before too long they had imitated them in England and were shipping cheaper machine-made cottons back to India where they ruined the Indian cotton-weaving industry in its own home.

(Reynolds, 1961: 45–46)

So for Europe, the benefits of overseas expansion extended well beyond the basic acquisition of new lands and resources. In addition to the bullion and the opportunities for import substitution, overseas expansion also stimulated further improvements in technology and business techniques, which added a further dimension to the self-propelling growth of merchant capitalism. New developments were achieved in nautical mapmaking, naval artillery, shipbuilding, and the use of the sail; and the whole experience of overseas expansion provided a great practical school of entrepreneurship and investment. Most important, perhaps, was the way profits from overseas colonies and trading overflowed into domestic agriculture, mining, and manufacturing. This contributed to an accumulation of capital that was undoubtedly one of the main preconditions for the emergence of industrial capitalism in the eighteenth century.

THE WORLD OUTSIDE EUROPE: TRANSOCEANIC RIM SETTLEMENTS

Outside Europe, the most important features of the economic landscape to emerge as a result of merchant capitalism were the gateway towns and *entrepôts* established along the coastal rims of the Americas, Africa, and south Asia. These *transoceanic rim settlements* (see Figure 4.6) were of three main kinds:

1. *Trading stations*, such as Canton (now Guangzhou, China), Madras (now Chennai, India) and Goa (India). These locations emerged as the points of contact between Europe and the relatively autonomous economies of the orient. Few Europeans lived in these towns and cities, and only in India was it possible to exercise any secure measure of political control over the large hinterland areas that served as ports.
2. *Entrepôts and colonial headquarters* for tropical plantations, such as Rio de Janeiro (Brazil), Georgetown (British Guiana), Port of Spain (Trinidad), Penang (Malaysia), Lagos (Nigeria), Lourenço Marques (now Maputo, Mozambique) and Zanzibar (Tanzania). In these locales, substantial numbers of European settlers were required for administrative and military purposes, whereas the indigenous population provided field labor and manual labor in the towns. The colonial plantation system made intensive demands on labor, however, and when the indigenous supply was insufficient, the colonizers augmented it by enforced movements of slave labor from other regions, which created distinctive ethnic cleavages among the populations of many colonies.

3. *Gateway ports* for the 13 farm-family colonies on the northeastern seaboard of America (similar settlements were later established in South Africa, Australia, and New Zealand). Although several distinctive groups emerged—the Tidewater Colonies (for example, Jamestown, Baltimore), the New Towns of New England (for example, Boston, Newport), the Middle Colony towns (for example, New York, Philadelphia) and the Colonial Towns of the Carolinas (for example, Charleston, Savannah)—they were essentially a direct extension of the European urban system, peopled by Europeans and oriented much more to their homelands than their hinterlands.

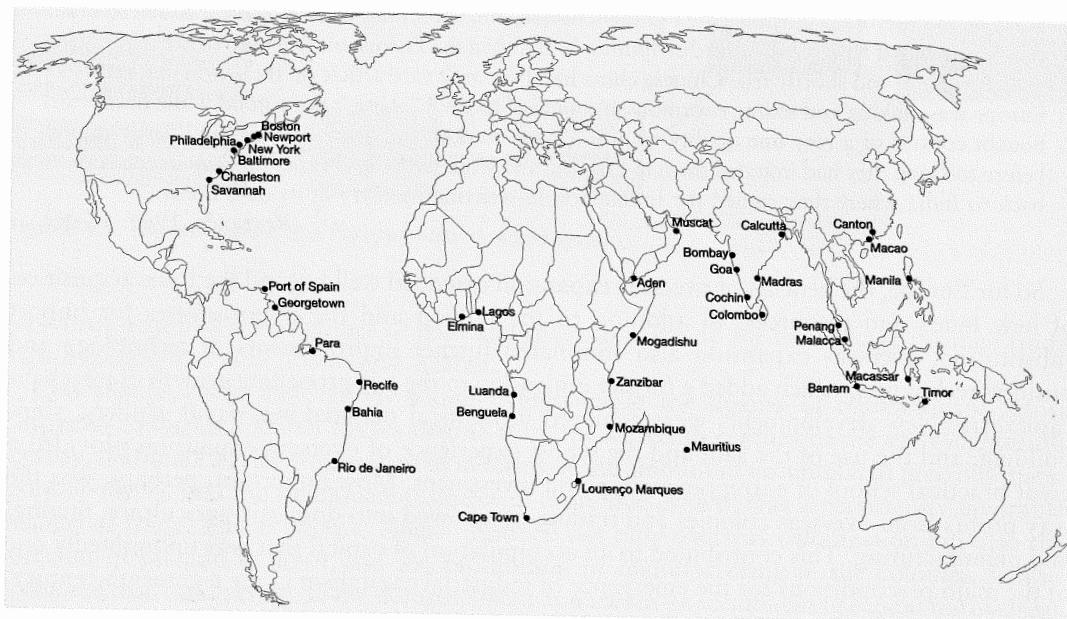


Figure 4.6 Transoceanic rim settlements of the mercantile era

THE SHIFTING LOCUS OF ECONOMIC POWER

The dominant feature of the changing economic geography of Europe in the sixteenth and seventeenth centuries was a dramatic shift in the focus of economic activity from the Mediterranean to the North Sea. At the end of the fifteenth century the Mediterranean was the most highly developed region in the world with central and northern Italy as the hub of economic activity. During the sixteenth century the relative prosperity of the Mediterranean was further enhanced as Spain and Portugal benefited immensely from the influx of treasure from the Americas. By the end of the seventeenth century, however, the Mediterranean had become a backward region in relation to the levels of prosperity generated by the Dutch economy; while England, previously a marginal economy in relative terms, stood poised to threaten the position of the Dutch as world leaders.

Between the extremes of stagnation/regression and dynamic expansion was the experience of France, Scandinavia, Germany, and much of the rest of continental Europe, where a general penetration of economic development and maturing of local economies—a consolidation of merchant capitalism—helped maintain the coherence of the European economy during a period of volatile change in its spatial organization. In detail, therefore, the changing center of gravity

of the European economy involved a complex tapestry of overlapping, interlocking, and interacting regional struggles and transformations. The basic processes involved, however, were more general, and they can be illustrated with reference to the decline of Spain and Italy and the rise of Holland and England.

Spain

Spain provides a good example of the importance of import substitution. Quite simply, Spain declined because it had never been fully "developed" to begin with; it had merely been wealthy. The increased demand generated by its acquisition of bullion from the Americas did not stimulate domestic production as much as it might have for two reasons: Bottlenecks in the productive system—the restrictive practices of guilds and the lack of skilled labor, for example—and the complacent attitude of the Spanish élite. In 1675 Alfonso Nuñez de Castro wrote:

Let London manufacture those fabrics of hers to her heart's content; Holland her chambrays; Florence her cloth; the Indies their beaver and vicuña; Milan her brocades; Italy and Flanders their linens, so long as our capital can enjoy them; the only thing it proves is that all nations train journeymen for Madrid and that Madrid is the queen of Parliaments, for all the world serves her and she serves nobody.

(quoted in Cipolla, 1981: 125)

The treasure of the Americas greatly increased Spain's purchasing power, but this wealth ultimately stimulated the development of England, France, Holland, and the rest of Europe. Additionally, Spain's prosperity induced the government to pursue a persistently warmongering policy that became a serious drain on the treasury. In the course of the seventeenth century, then, as the influx of bullion from Spain's colonies declined (partly through depleted mines), the momentum of the economy evaporated and left insufficient entrepreneurs and artisans to counterbalance an overabundance of bureaucrats, lawyers, and priests and to tackle a mounting national debt.

Italy

Italy's decline was more complex, but its beginning can be dated more accurately: the end of the fifteenth century, when for almost 50 years northern Italy became the battlefield for an international conflict involving Spain, France, and Germany. Famines and epidemics characterized this period as well as severe disruptions to trade that coincided with a blossoming of exchange elsewhere. Buoyed by the international boom in demand during the late sixteenth century, the economy made something of a recovery; but it was a recovery based on traditional methods of organization, which meant, among other things, that competition and innovation were suppressed by the renewed strength of craft guilds.

Between 1610 and 1630 a series of external events led to the collapse of some of the Italians' major markets—the decline of the Spanish economy, disruptive wars in the German states, and political instability within the Turkish Empire. At the same time, many of Italy's competitors had been able to substitute domestic products for Italian imports. At this point, the self-propelling growth of merchant capitalism broke down. Unable or unwilling to respond through innovation and increased productivity, Italian entrepreneurs began to disinvest in manufacturing and shipping. By the end of the seventeenth century, Italy was importing large quantities of manufactures from England, France, and Holland and exporting agricultural goods—oil, wheat, wine, and wool—for which the terms of trade were poor. So foreign trade had been transformed from an "engine of growth" to an "engine of decline."

The Netherlands

The “economic miracle” of the Netherlands in the seventeenth century was launched from a fairly solid platform of trading and manufacturing. Although overshadowed in the early phases of merchant capitalism by the prosperity of nearby Bruges and Antwerp, Holland (and Amsterdam in particular) had steadily developed an entrepôt function for northern Europe (importing flax, hemp, grain, and timber and exporting salt, fish, and wine) which served as the foundation for establishing a manufacturing base. From the stability of this base, the Dutch successfully rebelled against Spanish imperialism and emerged, in 1609, with political independence and religious freedom.

Thereafter, a combination of factors helped the Dutch become leaders of the world economy for more than 150 years. One was the “modernity” of Dutch institutions: relatively few restrictive guilds, a small nobility of landowners, and a relatively weak church after the departure of the Spanish. Another was the vigorous pursuit of mercantilist policies, including not only a strong colonial drive and a significant commitment to merchant shipping but also an uncompromising stance towards competitors. For example, the Dutch blockaded Antwerp’s access to the sea from 1585 to 1795, taking over its entrepôt trade and its textile industry. The Dutch were also able to turn their geographical situation to great advantage, developing ocean ports and exploiting the inland waterways that penetrated the heart of continental Europe. They benefitted from a highly developed and very innovative shipbuilding industry whose output completely overshadowed that of the rest of Europe. Finally, the Dutch were the major beneficiaries of the flight of skilled craftsmen, merchants, sailors, financiers, and professionals from the fanaticism and intolerance of the Spanish in Flanders and Wallonia (Belgium).

England

England, at the end of the fifteenth century, was distinctly backward, with a small population (around 5 million, compared to more than 15 million in France, 11 million in Italy, and 7 million in Spain) and a poorly developed economy. The only significant comparative advantage the English held was the manufacture of woolen cloth. The first real break for the English economy came in the first half of the sixteenth century when Italian production and trade collapsed and left the English to capitalize on a sustained increase in woolen exports—a trend that was further enhanced by the progressive deterioration of English currency resulting from Henry VIII’s extravagant military expenditures. The boom was halted in the mid-sixteenth century, however, by the recovery of the Italian textile industry and by the war between the Dutch and the Spanish, which disrupted English exports.

By this time, however, English entrepreneurial and expansionist ambitions had become established and were articulated through a strong mercantilist philosophy. Like the Dutch, the English were able to take advantage of their geographical situation, at least in relation to transoceanic trade. They had also developed a strong navy, and gave high priority to establishing a large merchant fleet and to acquiring colonial footholds. Also like the Dutch, they also benefited from the skills of immigrants driven from France and the Low Countries by religious persecution. Innovation, improvisation, and import substitution played their part in ensuring a rapid escape from the mid-century economic crisis and, indeed, in building an economy to challenge that of the Dutch. The development of iron artillery in the 1540s, for example, enabled the English to arm their merchant ships, privateers, and warships more extensively *and* at lower cost. Meanwhile, the exploitation of coal as a substitute for the relatively sparse and rapidly diminishing timber reserves not only helped the English to avoid an energy crisis but also helped to develop new processing techniques. “Concentrating on iron and coal, England set herself on the road that led directly to the Industrial Revolution” (Cipolla, 1981: 290).

SUMMARY

Several organizing principles can be delineated to describe the evolving space economy up to the eve of the Industrial Revolution. First, note that the emerging imperatives of early economic systems described in this chapter appear as recurring elements in subsequent economic epochs, confirming the gradual and incremental nature of major economic change.

We can also confirm the continuing importance of innovations in technology and business organization; although we should note that the innovative process to this point occurred in small steps by way of the gradual accumulation of improvements rather than by distinct bursts of invention which, as we will see, have characterized economic change since the industrial era.

The importance of institutional and sociopolitical factors was also a recurring theme (as, for example, in the constraints of a centralized imperial system on the evolution of the Chinese economy, in the stimulus provided by European laws on property rights, and the role of European governments in implementing mercantilist policies). Similarly, we must acknowledge the continued interaction between demographic change and economic development and, finally, the ongoing impetus for territorial expansion as a product of the law of diminishing returns and, of course, the ego aggrandizement of rulers. In addition, however, we can identify several new dimensions of spatial-economic organization:

- The emergence of a true world economy involving long-distance interaction based on a sophisticated spatial division of labor.
- The progressive elaboration of the world economy in space and across commodities was *uneven*. Some sectors, countries, and regions expanded more quickly than others, and some spheres of opportunity and lines of communication were penetrated more quickly than others, so that its early spread was in a selective, spatially discontinuous fashion.
- The pattern of specialization and the nature of economic interaction within the world economy resulted in the emergence of *core* areas, characterized by such mass-market industries as had emerged (for example, textiles, shipbuilding), international and local commerce in the hands of an indigenous bourgeoisie, and relatively advanced forms of agriculture; *peripheral* areas, characterized by the *monoculture* of cash crops by coerced labor on large estates or plantations; and *semi-peripheral* areas, characterized by a process of deindustrialization but retaining a significant share of specialized industrial production and financial control.
- The spatial organization of the European space economy was based around a cluster of core areas in northwestern Europe: southeastern England and Holland together with the Baltic states, the Rhine and Elbe regions of Germany, Flanders (Belgium), and northern France. Peripheral regions included northern Scandinavia, Britain's Celtic fringe (Scotland, Wales and Ireland), east-central Europe, and all of the transoceanic rim settlements and colonies. The semi-periphery consisted of the Christian Mediterranean region, which had been the advanced core area at the beginning of the merchant capitalist era.
- The articulation of the European world economy also produced a distinctive pattern of settlement and urbanization. Merchant capitalism was reflected in the urban landscape by a strengthening of the hierarchical system of settlements and the development of a **central place system**. The overseas territorial expansion associated with merchant capitalism was also reflected in a distinctive urban landscape, as illustrated in Figure 4.7. Johnston (1980: 74) once again provides a succinct description:

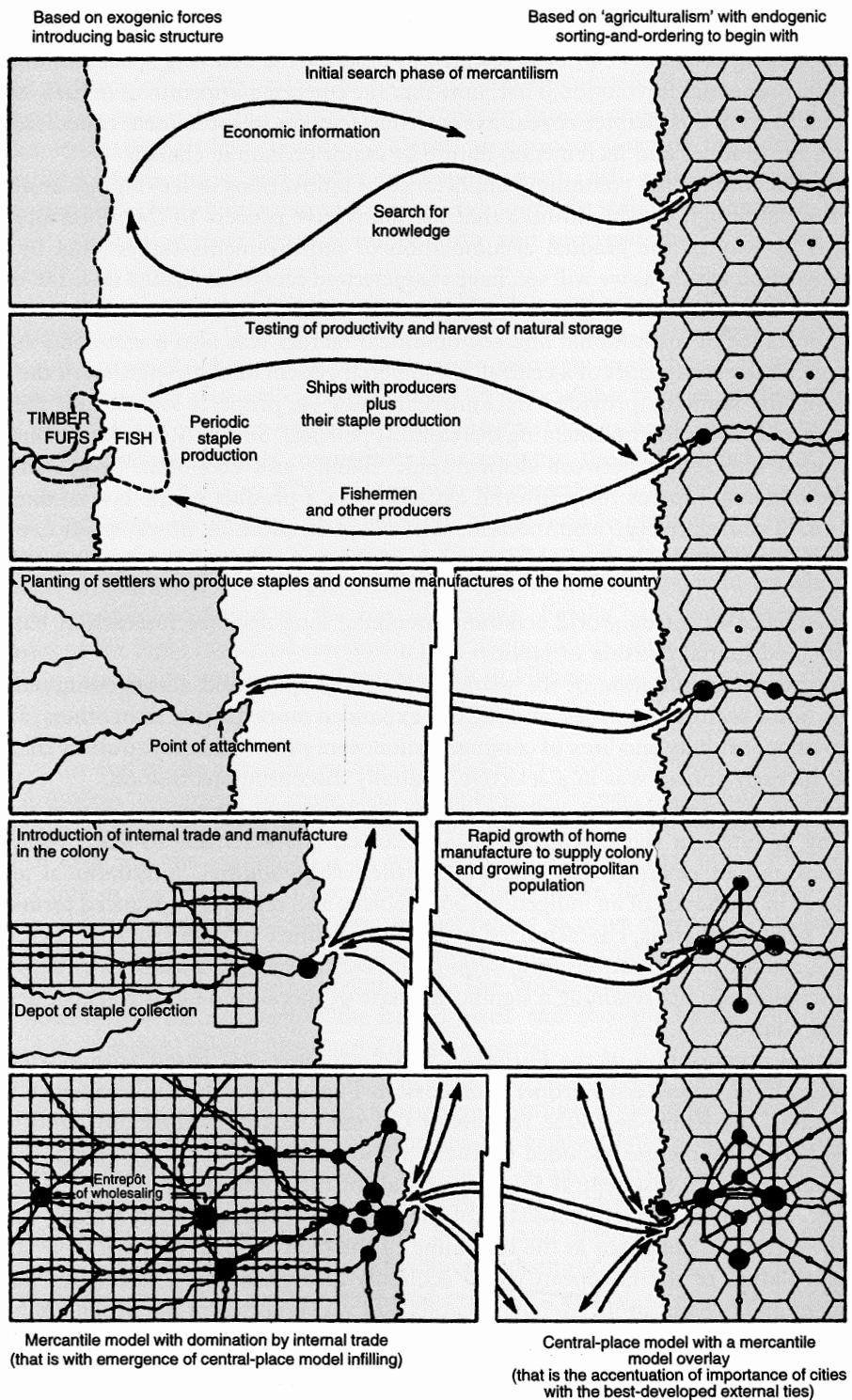


Figure 4.7 Colonialism and urban settlement patterns

Source: Based on Vance (1970: 151, Figure 18)

In the initial stages of mercantile exploration no permanent settlement is established in order to obtain the required products (fish, timber and furs). Then the colony is settled by agriculturalists; the export of their products moves through local articulation points to the colonial port, and thence to the port in the homeland, which grows in size and status relative to its inland competitors. As settlement of the colony expands further inland, so both of the ports increase in size, railways replace rivers as the main traffic arteries within the colony, and internal gateways develop to articulate the trade of areas some distance from the port, while in the homeland places near to the original port benefit from the imports and a new outport is built to handle the larger volume of trade and the bigger vessels.

The emergence of the European world economy brought about a system of internal dynamics that involved three important mechanisms of spatial change:

1. *Strategic investments*: The switching of investment from one area to another by merchants in response to the shifting comparative advantages enjoyed by local producers. These shifts in comparative advantage, in turn, were associated with technological innovations and improvements, institutional changes, currency fluctuations, and so on.
2. *Import substitution*: Communities able to achieve repeated episodes of import substitution, as Jacobs (1984) pointed out, benefit from five aspects of economic development:
 - a) enlarged markets for new imports and innovations
 - b) an expanded and more varied employment base
 - c) new applications of technology to increase rural productivity
 - d) a spillover of employment to rural areas as older, expanding enterprises are crowded out of cities
 - e) growth of city capital.
3. *Militarism and geopolitical change*.

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