

Chapter 5

Evolution of the core regions



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From the second half of the eighteenth century, industrialization rapidly reshaped economic landscapes, introducing new dimensions and shifting the patterns and tempo of the world economy. Today, economic geography within the core of the world economy is dominated by the physical, institutional, and social legacies of industrial capitalism. The economic geography of the peripheral regions has, meanwhile, been shaped by their role in sustaining the industrial expansion of the core economies and more recently the NIEs. In short, few elements of the economic landscape are not a product, directly or indirectly, of the industrial era. In this chapter, we outline the evolution of the economic geography of the industrial core regions, analyzing the major processes involved in the relative ascent and decline of countries and regions within these regions.

5.1 THE INDUSTRIAL REVOLUTION AND SPATIAL CHANGE

The transition during the late eighteenth and early nineteenth centuries from merchant capitalism to industrial capitalism as the dominant form of economic organization is conventionally ascribed to the Industrial Revolution. The Industrial Revolution, in turn, is typically depicted as a revolution in the techniques and organization of manufacturing based on a series of innovations in the technology of production (e.g., Kay's flying shuttle (1733), Hargreaves' spinning Jenny (1765), and Cartwright's machine loom (1787)) and in transport technology and engineering (particularly the development of canal and railway systems). But technological advances were only part of a wider economic, social, and political transition whose origins and preconditions can be found in the Renaissance and Enlightenment. Indeed:

[P]rior to 1800, living standards in the world economy were roughly constant over the very long run: per capita wage income, output and consumption did not grow. Modern industrial economies, on the other hand, enjoy unprecedented and seemingly endless growth in living standards.

(Hansen and Prescott, 2002: 1202)

The most important context for technological advance was the existence within merchant capitalism of industry organized on capitalist lines by entrepreneurs employing wage labor and producing commodities for sale in regional and national markets. In addition, the capital that had been accumulated through trading provided the means for entrepreneurs to finance investment in the capital-intensive but highly productive technologies introduced during the Industrial Revolution.

From these roots, machine production and the organizational setting of the factory—machinofacture—emerged as the central characteristics of industrialization. While machinery provided the basis for higher levels of productivity, factories enabled this productivity to be exploited to its fullest extent. Gains in productivity were most often achieved through specialization—the assembly-line division of labor—and internal economies of scale. At the same time, the concentration of workers in big industrial units generated urban environments that represented a new dynamic force for economic, social, and political change.

Like merchant capitalism before it, however, industrial capitalism had to confront the twin obstacles of market saturation and the law of diminishing returns. In response, industrialists pursued a variety of strategies. In addition to the constant search for technological advances, industrialists sought:

- new ways of exploiting internal and external economies of scale
- cheaper sources of labor, raw materials, and energy
- greater access to overseas markets
- development of new products, either through new inventions or by the “commodification” of activities previously performed within the household
- formalized relations with labor unions and governments to provide a more stable context (economic, social, and political) in which to operate.

The changes imposed on economic landscapes by the first waves of the Industrial Revolution have been overwritten by a succession of episodes of industrial development, restructuring, and reorganization. These episodes have created significant differences between the major industrial regions; differences that reflect variations in resource endowment, previous patterns of economic development, and, importantly, variations in the relative timing and interaction of these episodes of industrial change.

5.2 MACHINOFACTURE AND THE SPREAD OF INDUSTRIALIZATION IN EUROPE

Although often considered a single, discrete period, the Industrial Revolution included several distinctive transitional phases, each with a unique impact on various regions and countries. As new technologies altered the margins of profitability in different enterprises, so the fortunes of specialized places shifted.

These regional differences, in turn, helped to influence the changing character of capitalism. With the evolution of capitalism came shifts, occasionally of a dramatic nature, in economic, social, political, and cultural relations. These evolving forms of economic organization—interrelated complexes of production, consumption, and income distribution based on the organization of firms—grew in response to the opportunities and constraints created by new production, transportation, and communications technologies. At the same time, this evolution yielded a succession of technology systems that were imprinted differentially across the economic landscape.

Associated with each form of economic organization is a specific regulatory framework—a set of local and historical political arrangements and institutions that emerged to provide appropriate management for the operation of the successive forms of economic organization (e.g., monetary and wage regulation, particular government–business relationships, trading regulation, etc.) and technology systems within the wider national and international context. These regulatory frameworks have four principal functions:

1. regulating the monetary system and financial mechanisms
2. regulating wages and collective bargaining
3. facilitating (or, in some circumstances, constraining) competition, and negotiating the relations between the private sector and public economy
4. establishing the roles of government at various spatial scales.

Three major waves of industrialization in Europe can be identified. Each wave consisted of several phases, and each was highly localized in its impact. The first wave introduced the first technology system of the Industrial Revolution, which included new iron and cotton textile technologies and the use of water power, trunk canals, and turnpike roads. Even within the span of this first wave, however, the imprint was highly differentiated. “Above all,” Pollard emphasizes, “the industrial revolution was a regional phenomenon” (1981: 14).

Figure 5.1 clearly highlights that the growth rate of GDP per capita in Europe was close to zero for nearly 1,000 years prior to the first wave of industrialization. In England, the real wage was roughly the same in 1800 as it had been in 1300. Figure 5.1 also demonstrates that population growth was stagnant prior to industrialization, largely reflecting the low pace of technological change.

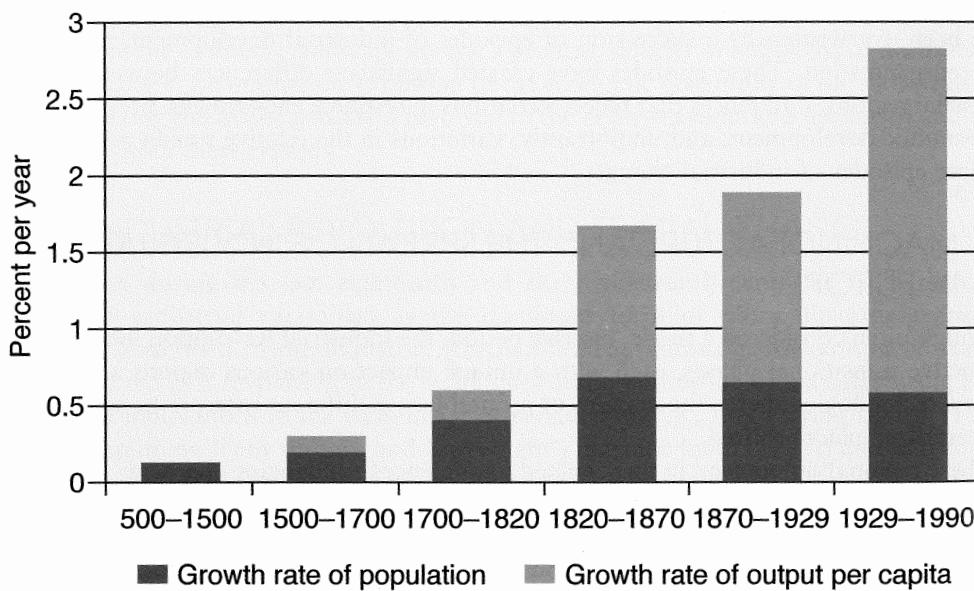


Figure 5.1 Output growth in Western Europe, 500–1990

Source: Based on Galor and Weil (2000: 808, Figure 1)

FIRST-WAVE INDUSTRIALIZATION: BRITAIN

The springboard for the first wave of industrialization, which began in Britain around 1760, consisted of several local hearth areas of “proto-industrialization.” These areas had long-standing concentrations of industry based on a wage-labor force using the most advanced of the available industrial processes. The need to locate operations near mineral resources and sources of water power as well as within reasonable distance to local canal systems meant that early industrial activity was highly localized. This localization also reflected the principle of comparative advantage whereby industry had been displaced into the least hospitable locales for agricultural production.

This pattern of proto-industrialization, with its external economies, infrastructural advantages, and well-developed markets, helped to determine the nuclei of industrial development in Great Britain during the first phase of the first wave of industrialization between 1760 and 1790. Although sub-regions such as north Cornwall, south Staffordshire, and north Wales shared the common impetus of certain key resources and innovations, each retained its own distinctive business transitions and industrial style. Much of the required capital was raised locally, labor requirements were drawn (in the first instance) from the immediate hinterland, and industrialists formed regional organizations and operated regional cartels.

From the start, then, industrialization was articulated at the regional level. The second phase (of the first wave), between 1790 and 1820, reinforced the position of those embryo industrial regions with a coalfield base and saw the emergence of other regions such as Ulster in Northern Ireland and south Wales as industrialized regions. Meanwhile, the prosperity of the early starters declined markedly as their relative advantages were eclipsed by a combination of three factors:

1. the exhaustion of minerals or the discovery of cheaper alternative supplies
2. the relative inaccessibility of markets due to poor communications or the isolated nature of the locale
3. the lack of size to develop.

The third phase of the “British” wave, between 1820 and 1850, was dominated by the expansion of the railway system. This development did not foster any new industrial regions, but it did widen the market area of the existing industrial regions, drawing more of Britain into the sphere of industrial capitalism.

SECOND-WAVE INDUSTRIALIZATION: A NEW TECHNOLOGY SYSTEM AND NEW FORMS OF ECONOMIC ORGANIZATION

The second wave was characterized by the spread of industrialization to continental Europe. This diffusion did not occur in a straightforward or systematic manner; rather, forms of economic organization and regulatory frameworks emerged to exploit new technologies, primarily leveraging coal, steel, heavy engineering, steam power, and railways. This shift was accompanied by a number of other changes including the development of new labor practices (i.e., the spread of wage-labor norms), the emergence of new corporate structures (e.g., large limited-liability firms with a national rather than local scope), and new relationships between governments and industry (i.e., increased regulation of and investment in key industries by states).

Similar to the British wave of industrialization, the second wave was launched from the proto-industrial regions of continental Europe. Initially, from around 1850, industrialization

was concentrated in the Sambre-Meuse region of Belgium and in the valley of the Scheldt in Belgium and France. Subsequent phases saw the spread of industrialization to areas such as the Ruhr in Germany and Alsace, Normandy, and the upper Loire valley in France.

Unlike their counterparts during the first wave of industrialization, would-be competitors on the continent entered a market in which the early movers (i.e., the British) had secured comfortable advantages in technology which translated into a dominant position in the world markets. Britain also had a series of “natural” geographical advantages: A compact territory with a large population, favorable conditions for intensive agricultural production, and a rich variety of minerals including coal.

This competitive disadvantage for the industrial regions of continental Europe was compounded by the consequences of the Revolutionary and Napoleonic Wars of the early nineteenth century (as it was in the United States by the Civil War of 1861–1865). Conscription, armed conflict, and military occupation disrupted production and suppressed industrial expansion, allowing British industries to forge further ahead on the basis of the new technology system (and, of course, a constantly evolving and adapting regulatory framework).

But in contrast to their British counterparts, continental entrepreneurs and governments did not have to industrialize by trial and error. By drawing on the British experience—as well as importing British managers, workers, capital, and technology—they minimized missteps and accelerated their pace of modernization. These regions of “inner” Europe differed from one another not only in the mix of industries that gained a foothold, but also by what economic historian Sidney Pollard calls the *differential of contemporaneity*, whereby new technologies, ideas, and market conditions reached regions simultaneously but affected them in unique ways because they were not comparably equipped to respond to them. Thus, for example:

Legislation permitting the easy formation of joint-stock companies spread quickly across Europe in the 1850s, and their contribution to overspeculation and wide-spread bankruptcies in the less sophisticated European economies has often been commented on. In banking, the backward economies, using the experience of the pioneers, could bypass some of the difficulties of the latter by enjoying the benefits of more efficient banks, ahead, as it were, of their own stage of economic growth.

(Pollard, 1981: 188–189)

In general terms, however, the cumulative impact of innovations in first- and second-wave industrializers made for convergence: The French Nord (north) began to look and function increasingly like the central belt of the Scottish Lowlands, and the Ruhr began to look and function increasingly like the Sambre-Meuse region. At the same time, areas that had adopted an industrial base and those that had yet to follow suit increasingly diverged in their social and economic complexion. By 1875, the latter still covered a great deal of the map (see Figure 5.2), but many of them were incorporated in the third wave of industrialization between 1870 and 1914.

THIRD WAVE INDUSTRIALIZATION: INTERMEDIATE EUROPE

The third wave of industrialization included “intermediate” Europe—parts of Britain, France, Belgium, and Germany that had not been directly affected by the first two waves, together with most of the Netherlands, southern Scandinavia, northern Italy, eastern Austria, and Catalonia in northeastern Spain. By this time, all European landscapes had begun reorganizing

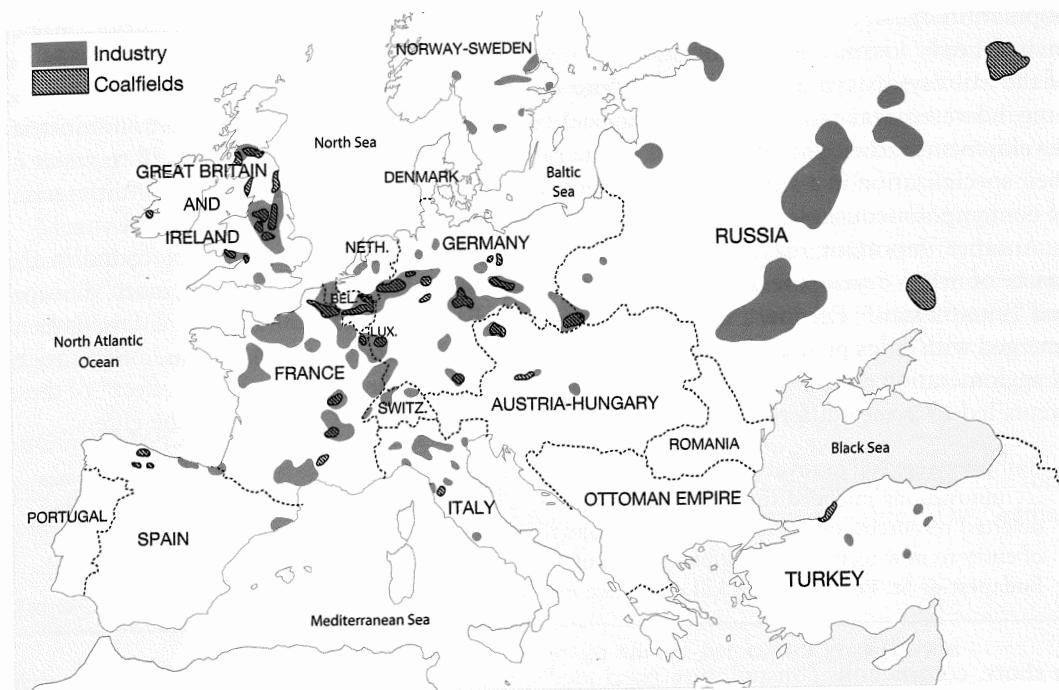


Figure 5.2 Europe in 1875

Source: Adapted from Pollard (1981: xv, Map 2)

in response to the imperatives of a third technology system: One based on steamships, world shipping, the internal combustion engine, heavy chemicals, and heavy engineering.

In the regions of “intermediate” Europe, the imprint of this industrialization was distinctive in several important respects. Prior development played a minor role, and the capital required for industrialization had increased exponentially since the first wave. The combination of these factors and the increasing sophistication of industrial technology led central governments to assume a larger, more proactive role in development. As a result, the economic role of the state among the later industrializers tends to be more pronounced than in the countries of “inner” Europe.

PERIPHERAL EUROPE

The residual territories of western Europe—most of the Iberian peninsula, northern Scandinavia, Ireland, southern Italy, the Balkans, and east-central Europe which Pollard collectively terms the “outer periphery”—remained mainly outside the fold of industrial capitalism and would only be penetrated over the next 50 years to various degrees.

Although a complex interplay of variables contributed to the peripheral status of these regions, an important factor was simply that its entrepreneurs and governments were imitators rather than innovators; they adopted the technologies and forms of organization that had served the pioneer regions well despite the reality of very different economic geographic settings. Railways provide a simple illustration. Rail networks in pioneer regions operated profitably by carrying regular passenger traffic as well as heavy bulk freight like coal, ore, and grain. Extending railway systems to regions that lacked an emerging industrial base and sufficient

population density (e.g., in Ireland, southern Italy, Spain, and most of east-central Europe) invited heavy losses. The willingness of states to underwrite such losses reflects the potency of the railways as symbols of political (and economic) virility. What was not foreseen at the time, however, was that integrating national territories did not necessarily result in industrial development; rather, the penetration of the railways to peripheral regions tended to result in their specialization in a subordinate, agricultural role—a special case of Pollard's "differential of contemporaneity."

Another important reason these regions remained on the periphery can be found in the nature of urban development within the later industrializing regions. In Britain, "inner" Europe, and "intermediate" Europe, a symbiotic relationship between urban and industrial development emerged with cities providing capital, labor, markets, access to transport systems, and a variety of agglomeration economies. In much of peripheral Europe, the "demonstration effect" of these events led to a very different relationship, largely because of the attitudes of the élite:

Railways were laid to royal palaces, gas or water mains supplied a narrow layer of privileged classes . . . innovations intended for mass markets were misused for a narrow luxury market and either diverted resources, or led to burdensome capital imports. . . . Above all, the city became the gate of entry to new technology manufactures from abroad, spreading outward from Naples, Madrid, Budapest or St. Petersburg, to kill off native industry as unfashionable.

(Pollard, 1981: 212)

In short, conspicuous consumption precluded import substitution and resulted in cities that inhibited rather than fostered industrial growth.

DISLOCATION AND DEPRESSION

In the first half of the twentieth century, two major wars punctuated the economic development of Europe. The disruption of the First World War was immense. The overall loss of life, including the victims of influenza epidemics and border conflicts which followed the war, amounted to between 50 and 60 million people. About half as many again were permanently disabled. For some countries, this meant a loss of 10–15 percent of the male workforce. In addition, material losses caused a severe dislocation to economic growth: Some estimates suggest that the level of European output achieved in 1929 would have been reached by 1921 had the war not intervened.

Economic dislocation in Europe was further intensified by several indirect consequences of the war. In terms of tracing the evolving economic geography of the core regions of the world, two of these were particularly important:

1. The *relative* decline of Europe as a producer compared with the rest of the world. Europe accounted for 43 percent of the world's production and 59 percent of its trade in 1913, compared with only 34 percent of production and 50 percent of trade in 1923. The main beneficiaries of this decline were manufacturers in the United States and Japan, and Latin America and the British dominions for primary production.
2. The redrawing of the political map of Europe. This transformation created 38 independent economic units instead of 26; 27 currencies instead of 14; and 20,000 extra kilometers of national boundaries. The corollary of these changes was a severe dislocation of economic life, particularly in east-central Europe: Frontiers separated workers from factories, factories from markets, towns from traditional food supplies, and textile looms from spinning sheds and finishing mills; while the transport system found itself only loosely matched to this new political geography.

Just as European economies had adjusted to these dislocations, the stagflation crisis of 1929–1935—the Great Depression—created a further phase of economic damage and reorganization throughout Europe. It should be emphasized, however, that the effects of the Depression varied considerably across the various sectors of the economy and from one region to another. The image of the 1930s depends very much on whether one focuses attention on Jarrow or Slough, Bochum or Nice, Glasgow or Geneva.

Meanwhile, the coherence of the European economic world began to disintegrate as individual countries attempted to protect their industries with import quotas and restrictions, currency manipulation, and exclusionary trade agreements. The result was a substantial fall in trade, both in absolute terms and as a proportion of output, with the United States and Japan, once again, reaping the reward.

SECOND WORLD WAR AND RECOVERY

The Second World War resulted in a further round of destruction and dislocation. The total loss of life in Europe was 42 million, two-thirds of whom were civilian casualties. The German

Table 5.1 Growth rates in Europe

	Average annual per capita growth rate of real output	
	1913–1950	1950–1970
Austria	0.2	4.9
Belgium	0.7	3.3
Denmark	1.1	3.3
France	1.0	4.2
West Germany	0.8	5.3
Greece	0.2	5.9
Ireland	0.7	2.8
Italy	0.8	5.0
Netherlands	0.9	3.6
Norway	1.8	3.2
Portugal	0.9	4.8
Spain	-0.3	5.4
Sweden	2.5	3.3
Switzerland	1.6	3.0
United Kingdom	0.8	2.2
Western European average	1.0	4.0

Source: Adapted from Pollard (1981: 315, Table 9.2)

Box 5.1 Core and periphery in Europe

The cumulative effects of the differential impact of successive waves of industrialization and reorganization have often been interpreted in terms of the core and periphery; the former accumulating capital and economic power, and the latter encountering limitations (natural or imposed) in its quest for economic development. The relative affluence of these core regions is shown in stark fashion in Figure 5.3. Even though the cost of living is notoriously high around London, Paris, and Milan, these regions enjoy a prosperity that is well above the overall level (indexed at 100 for the 27-member European Union). Affluent outliers have also emerged in Southern Ireland, Denmark, northeast Scotland, the Basque country of

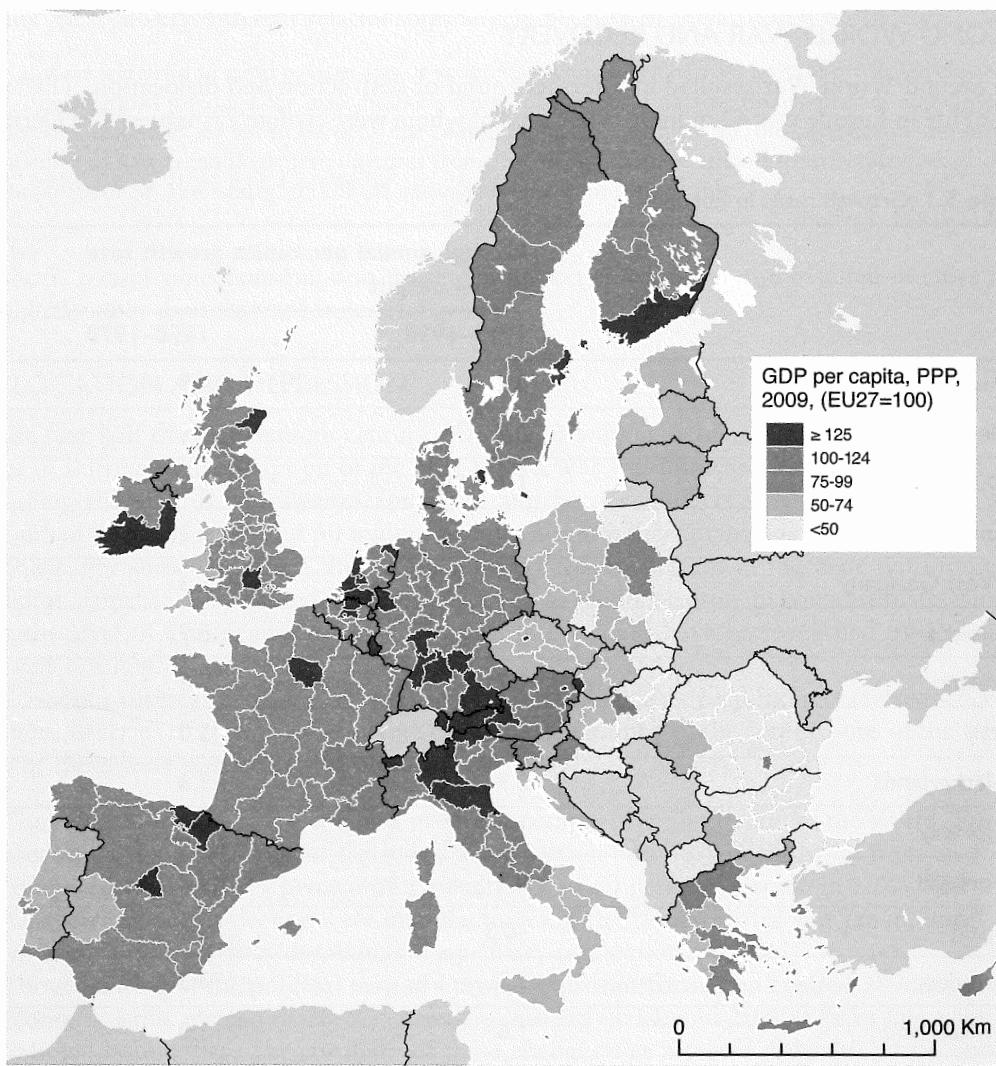


Figure 5.3 Core and periphery in Europe

Source: Adapted from Eurostat (2012a: 21, Map 1.2)

the industrial core regions, many did not. In general terms, the effective distance from the industrial core that represented their major market determined the type and profitability of activities in semi-peripheral and peripheral regions. Within the resultant zones of specialization, the beneficial effects of trade were conditioned by a variety of factors including variations in climate, topography, pre-existing systems of agriculture, and population densities. In practice:

The trade impetus to growth was . . . immensely important for Argentina and Uruguay in Latin America, South Africa and Zimbabwe (formerly Southern Rhodesia) in Africa, Australia and New Zealand, and, to a lesser extent, in Sri Lanka (formerly Ceylon). Elsewhere, there was a significant impact, *but this was inadequate to get sustained development going*, for example on the west coast of Africa. For countries such as India, Pakistan, Bangladesh, Iraq and Iran, *the export trades were too small relative to the total population to provide much impetus for development, except in very restricted areas.*

(Chisholm, 1982: 88; emphasis added)

In short, the benefits of specialization and international trade enabled some regions and countries to ascend within the world-system, but it primarily enhanced the position of those at the top. For the rest, the prospect of economic growth through trade has been diminished. These regions and countries find themselves at a relative disadvantage in accessing capital which, in turn, affects their use of technology and hinders their ability to realize significant increases in productivity. As a result, the amount of labor power required to produce a given quantity of exports from the industrial core will generally be much less than that needed to produce an equivalent value of exports from peripheral countries. From this point of view, the international trade system is characterized by unequal exchange.

Attempts to short-circuit this built-in handicap by borrowing capital with which to purchase new (but not always appropriate) technology have almost always resulted in a debt trap as compounded interest on loans has outpaced increases in the rate of productivity.

In addition, many peripheral countries have been affected by another built-in handicap: the differential elasticities of demand for their products *vis-à-vis* those of their trading partners in the industrial core. In general, the elasticity of demand for primary commodities that are the staples of the periphery is low, that is, large price reductions in overseas markets elicit only a modest rise in demand. Similarly, demand for these products increases only slightly in response to increases in the purchasing power of consumers in the core countries. Conversely, elasticities of demand for manufactured goods are generally high. The net result is that the terms of trade have tended to work to the cumulative advantage of the industrial core.

Most simply, although the world economy has become characterized by interdependent relationships as a result of the spatial division of labor, the periphery has carried the burden of dependency. We explore this theme in detail in Part 3.

5.6 PRINCIPLES OF ECONOMIC GEOGRAPHY: SUMMARIZING LESSONS FROM THE INDUSTRIAL ERA

The case histories in this chapter illustrate how the increasing complexity of economic organization and spatial change make it difficult to generalize about organizing principles or characteristic features. However, the recurrence of certain elements and the emergence of others in the development of the economic landscapes of the industrial core regions during the industrial era can be underscored. Among those elements that carried over from previous eras are the following:

- *Natural resource distribution*—in particular, the importance of iron ore and coal.
- *Demographic change*—the timing of the demographic transition in relation to industrialization and the role of large-scale migrations in relation to changing labor markets.
- *Technological change*—improvements and innovations in transport and communications.
- *Territory*—specifically, colonialism and territorial expansion as responses to the law of diminishing returns.
- *Changes in institutional and sociopolitical settings*.
- *Spatial distribution of investment*—changes in response to the shifting comparative advantages enjoyed by producers in different areas.
- *Import substitution*—as a mechanism of ascent within the world economy.
- *Militarism and geopolitical change*.

In addition, the industrial era saw the emergence of several new dimensions of spatial-economic organization and the increased prominence of others:

- The extension of the world economy to a global scale with a corresponding extension of the spatial division of labor and the consequent intensification of the interdependencies between core, semi-periphery, and periphery.
- The replacement of “liberal” merchant capitalism with a competitive and, later, an increasingly organized form of industrial capitalism characterized by distinct, specialized regional economies organized around growing urban centers.
- The eclipse of the European core of the world economy by the ascent of the United States and Japan.
- The emergence of distinctive core–periphery contrasts within the industrial core territories of the world economy.
- The agglomeration of industrial activity as a result of the logic of economies of scale and the multiplier effect.
- The modification of urban systems by the addition of new kinds of town and city—mining towns, heavy manufacturing centers, power centers, and transport nodes—and the rapid growth of larger preindustrial cities as they benefited disproportionately (because of their established markets, entrepreneurship, trading links, and commercial infrastructure) from the various growth impulses that characterize industrialization.
- The imprint of cyclical fluctuations in the pace and nature of economic activity.
- The “differential of contemporaneity” in regional economic development—a phenomenon linked to the uneven impacts of the process of technological diffusion and changing technology systems.
- The adaptation of private firms to the changing opportunities and constraints of different technology systems resulting in evolving forms of economic organization from simple manufacturing to machinofacture to Fordism.
- The adaptation of a wider society to these changing forms of economic organization and another evolutionary process—that of changing regulatory frameworks—in which the increasing intervention of governments in economic development was the most important development.
- The emergence of an “organized” form of capitalism founded on the power and authority of independent countries; characterized by a sophisticated interdependence of firms, industries, regions, and governments; and forming the basis for core–periphery relationships at various geographic scales.