
A Historiography of the First Industrial Revolution

THE COURSE AND NATURE of the almost 800-year-long development process in England, which produced the structural and technological transformation controversially referred to as the Industrial Revolution, have been carefully laid out in the preceding chapter. The task now is to show how historians have explained the causes of this major historical event. Since the first systematic study by Arnold Toynbee in the 1880s,¹ economic historians have periodically taken stock of the state of knowledge in the field. One of the earliest such exercise was by T. S. Ashton in 1937, in which we are informed that those who taught economic history before World War I “had but a meagre shelf from which to make up our story of the Industrial Revolution.”² Between the wars the literature grew quickly. Ashton was, therefore, able to report excitedly, just before World War II, that the problem for students of the Industrial Revolution was “no longer a question of finding raiment to cover intellectual nakedness, but of which many garments to assume.”³ The literature on the subject has grown continuously since then. In 1965, Max Hartwell published the first “reasonably comprehensive and critical survey” of the various attempts by economic historians to explain the causes of the Industrial Revolution.⁴ The latter work presents a critical discussion of the different explanations favored

¹ Arnold Toynbee, *Lectures on the Industrial Revolution of the Eighteenth Century in England: Popular Addresses, Notes, and other Fragments* (London: Longmans, 1884).

² T. S. Ashton, *The Industrial Revolution: A Study in Bibliography* (London: Published for the Economic History Society by A. & C. Black, 1937), p. 1.

³ *Ibid.*, p. 1.

⁴ R. M. Hartwell, “The Causes of the Industrial Revolution: II An Essay on Process,” in R. M. Hartwell, *The Industrial Revolution and Economic Growth* (London: Methuen, 1971), pp. 161–162; R. M. Hartwell, “The Causes of the Industrial Revolution: An Essay in Methodology,” *Economic History Review*, Vol. XVIII, no. 1 (1965), pp. 164–182.

by scholars. Since that publication, similar critical surveys of the literature on the causes of the Industrial Revolution have been published, the most recent and probably the most comprehensive being the one by Joel Mokyr.⁵

General surveys of the literature on the Industrial Revolution are thus not wanting. Yet none of the existing surveys contains a systematic and elaborate study of over time change in the explanations offered by economic historians and the factors responsible for the change. The nearest to this kind of study are those focused on over time change in the aspects of the Industrial Revolution studied and in the perception of the Industrial Revolution held by economic historians. For example, when, in 1959, Max Hartwell attempted "to give a history of the interpretations of the Industrial Revolution, and to explain them," he limited himself to the changing view of the Industrial Revolution, at one time as a catastrophic event that brought all kinds of woes to human society (starting with England) and at another as the most cherished outcome of the application of human ingenuity, which brought all the good things of modern civilization, with England leading the way.⁶ More recently, David Cannadine published a rather provocative history of the writings by economic historians on the Industrial Revolution from 1880 to 1980, in which he argues that the dominant point of view in each historiographical epoch was a function of the dominant socio-economic characteristics of the epoch. Again, Cannadine's article is not focused on changing explanations of the origins of the Industrial Revolution. Rather, it is centered on changing aspects of the Industrial Revolution studied by different generations of historians and the reasons for the change: Between the 1880s and 1920s, the dominant theme was the social consequences of the Industrial Revolution, viewed generally in negative terms; the negative theme continued in the second generation, 1920s–50s, with a shift of emphasis to socio-economic instability brought about by the Industrial Revolution – the business cycle, with unstable employment and income; in the two decades from the 1950s to the 1970s, the Industrial Revolution was studied as the first example of modern economic growth (sustained per capita income growth) based on the application of scientific principles to economic production; finally, the period since the 1970s has been characterized by studies attempting to undermine the idea of an industrial revolution in England between 1750 and 1850 – emphasis is on the slow pace of technological change and per capita income

⁵ Joel Mokyr, "Introduction: The New Economic History and the Industrial Revolution," in Joel Mokyr (ed.), *The British Industrial Revolution: An Economic Perspective* (Boulder, CO: Westview Press, 1993), pp. 1–131.

⁶ R. M. Hartwell, "Interpretations of the Industrial Revolution in England," *Journal of Economic History*, Vol. XIX, no. 2 (June, 1959), reprinted in Hartwell, *Industrial Revolution and Economic Growth*, pp. 81–105.

growth and on the persistence of a small-scale as opposed to factory organization of production.⁷

In contrast to the existing literature surveys, the historiography of the Industrial Revolution presented in this chapter takes as its point of departure an attempt to explain historically the changing explanations of the causes of the Industrial Revolution offered by economic historians. Three historiographical periods are identified – 1880–1945; 1950–85; and the late 1980s to the present. The explanations are divided into two broad groups: those stressing the role of overseas trade; and others emphasizing the dominance of internally located forces, such as population growth, agricultural progress, mineral resource endowment, and autonomous technological change. Over time change in the explanations, therefore, means a change from the dominance of one of the two groups to the other. It is argued that explanations centered on overseas trade were dominant in the first period, 1880–1945; there was a change in 1950–85, when domestic forces became more prominent in the explanations; and the trend emerging since the late 1980s, while its direction is yet to be established firmly, appears to favor the pre-eminence of explanations centered on international trade. These changes are explained in terms of two main historical factors; over time changes in the theories of economic growth fashioned by economists, and developments in the international ideological environment. This historiographical exercise provides a solid foundation for a deeper understanding of the contending explanations, which are then critically assessed in considerable detail in the last part of the chapter.

3.1 CHANGING EXPLANATIONS OF THE CAUSES OF THE INDUSTRIAL REVOLUTION

Let it be said from the onset that determining which group of explanations was dominant in what period is not an easy task. Scholars usually present wide-ranging and complex explanations. Identifying individual scholars with particular explanations may sometimes depend on which aspects of their explanations readers concentrate on. What is more, disagreement among scholars in the explanations offered extends to all the three periods identified earlier in the chapter. As early as 1937, T. S. Ashton stated in his

⁷ David Cannadine, “The Present and the Past in the English Industrial Revolution 1880–1980,” *Past and Present*, Number 103 (May, 1984), pp. 131–172. For more recent similar literature surveys on the Industrial Revolution, see Patrick K. O’Brien, “Introduction: Modern conceptions of the Industrial Revolution,” in Patrick K. O’Brien and Roland Quinault (eds.), *The Industrial Revolution and British Society* (Cambridge: Cambridge University Press, 1993), pp. 1–30; Gary Hawke, “Reinterpretations of the Industrial Revolution,” in O’Brien and Quinault (eds.), *Industrial Revolution*, pp. 54–78.

bibliographical essay: "It cannot be said that there is general agreement as to the ultimate cause of the Industrial Revolution." The factors regarded by individual scholars as the ultimate cause in the then existing literature, according to Ashton, include inventions, expansion of commerce, capital accumulation, the elimination of corporate regulation (economic freedom), social mobility, and new religious ideas and practices.⁸ The problem is compounded by the differing conceptions of the Industrial Revolution held by scholars, which makes it difficult to know what is being explained over which there is disagreement: Is it a sudden upward change in the rate of growth of national income per capita, a phenomenal expansion of the factory system in manufacturing, a major change in industrial technology, or a radical structural transformation of economy and society within a few generations, say, 1750–1850? Each of these may require somewhat different explanations. To eliminate the unnecessary appearance of disagreement in the literature, the discussion here is restricted to studies that view the Industrial Revolution in terms of the major changes in the growth and development of industrial production in England between 1750 and 1850. So focused, the changing explanations that are relevant are those aimed at the absolute growth of industrial output, the changing structure of industrial output and of the economy and society as a whole, and changes in the technology and organization of industrial production. Limited to studies attempting to explain exactly the same historical phenomena, the problem becomes relatively more manageable.

It is pertinent to point out at this juncture that the debate concerning whether or not there was an industrial revolution in England between 1750 and 1850 has now been concluded for all practical purposes. Harley and Crafts, whose research has raised doubts about the occurrence of such a major discontinuity in the economic history of England during the period, now admit that indeed there was:

Our work is seen by some as denying a fundamental transformation of the British economy during the century 1750–1850. This was not, however, the impression we intended to convey and our revisionism needs to be set in a proper perspective. . . . Even though industrial innovations had a more modest impact on economic growth than was previously believed, they did create a genuine industrial revolution reflected in changes in Britain's economic and social structure. By the second quarter of the nineteenth century, a combination of the rapid growth of the urban based textile industries that exported most of their product and the marked decline in agriculture's share of the labour force produced the first urban industrial economy. . . .⁹

⁸ Ashton, *The Industrial Revolution*, pp. 13–14.

⁹ Crafts and Harley, "Output Growth and the British industrial revolution," pp. 704–705. However, Rondo Cameron continues to attack scholars who support the idea of a British Industrial Revolution. See Rondo Cameron, "The Industrial Revolution: Fact or Fiction?" *Contention*, Vol. 4, No. 1 (Fall, 1994), pp. 163–188.

Crafts and Harley's characterization of the central features of the Industrial Revolution, which call for explanation, agrees essentially with the one adopted in this chapter. Their emphasis is on the rate of industrial growth, technological innovation, and the structural transformation of economy and society between 1750 and 1850, although they are also concerned with the rate of growth of GDP per capita during the period.

As was noted earlier in the chapter, explaining the causes of the Industrial Revolution was not the main focus of the writings on the subject between 1880 and 1945. During the period, economic historians were pre-occupied with the social ills of industrial capitalism, particularly its impact on the working class. However, a number of writers did include the historical origins of the Industrial Revolution among other aspects of concern. Now which group of factors stood out prominently in the explanations of these writers during the period? To answer the question, let us examine the writings of the more or less celebrated writers of the period – Arnold Toynbee, William Cunningham, Paul Mantoux, James Gillespie, Harry Barnes, and John Hobson. It should be stressed that the list is not exhaustive. However, their views are sufficiently reflective of the balance of the contending explanations during the period.

It is generally agreed that the first systematic and elaborate study of the Industrial Revolution was by Arnold Toynbee in his lectures and public addresses in the 1880s, which were published in 1884 after his death at the age of 30.¹⁰ Although not very much space was devoted to it, Toynbee offered implicitly what he considered to be the main factors that brought about the major change in England he labeled the Industrial Revolution. Hartwell believes that Toynbee regarded “the change in economic policy, from mercantilism to *laissez faire*,” as the main cause of the Industrial Revolution.¹¹ This is based on a statement in Toynbee's book, Chapter VIII titled, “The Chief Features of the Revolution”:

The essence of the Industrial Revolution is the substitution of competition for the medieval regulations which had previously controlled the production and distribution of wealth. On this account it is not only one of the most important facts of English history, but Europe owes to it the growth of two great systems of thought – Economic Science, and its antithesis, Socialism.¹²

It would appear that here Toynbee is talking about the main features of the Industrial Revolution rather than the causes. Taking the whole statement together, what stands out is effect and not cause. An earlier statement in Chapter IV titled, “England in 1760, Manufactures and

¹⁰ Toynbee, *Industrial Revolution*. See T. S. Ashton's “Introduction to the 1969 Edition.”

¹¹ Hartwell, *The Industrial Revolution and Economic Growth*, p. 137.

¹² Toynbee, *Industrial Revolution*, p. 64.

Trade,” gives a better sense of what Toynbee saw as the main cause of change:

Yet at the time of which I am speaking [1760], many of the evils which modern Socialists lament were already visible, especially in those industries which produced for the foreign market. Already there were complaints of the competition of men who pushed themselves into the market to take advantage of high prices; already we hear of fluctuations of trade and irregularity of employment. *The old simple conditions of production and exchange were on the eve of disappearance before the all-corroding force of foreign trade.*¹³

It is clear from this passage that Toynbee saw the growth of overseas trade as the principal cause of change, “the all-corroding force” that swept away “the old simple conditions of production and exchange.” Toynbee also made it clear that trade with the Americas was responsible primarily for the growth of English foreign trade during the period of the Industrial Revolution. Citing Arthur Young’s *Northern Tour* as his source, he pointed out that by 1770, manufacturers in Manchester were virtually dependent on American markets where 75 percent of all their manufactures were sold.

William Cunningham wrote *The Growth of English Industry and Commerce in Modern Times*¹⁴ about the same time that Toynbee delivered his lectures on the Industrial Revolution. Again, he stressed the growth of foreign trade as the principal factor in the Industrial Revolution. Cunningham fully appreciated the importance of invention and technological innovation in the Industrial Revolution. But he saw both activities as a function of the growth of overseas markets for English manufactures and the development of financial institutions, which eased the supply of capital and made it accessible to entrepreneurs. Answering the question why England was first in the invention and application of machines in industrial production, he wrote:

It was not an accident that England took the lead in this matter; the circumstances of the day afforded most favourable conditions for the successful introduction of new appliances. Inventions and discoveries often seem fortuitous; men are apt to regard the new machinery as the outcome of a special and unaccountable burst of inventive genius in the eighteenth century. But we are not forced to be content with such a meagre explanation.¹⁵

Earlier in his book, Cunningham had argued that England’s access to large quantities of gold and silver from Portuguese Brazil and Spanish America made possible the growth of savings by individual English savers:

¹³ Toynbee, *Industrial Revolution*, pp. 33–34; emphasis added.

¹⁴ William Cunningham, *The Growth of English Industry and Commerce in Modern Times*, 3 Vols. (Cambridge: Cambridge University Press, 1882).

¹⁵ Cunningham, *The Growth of English Industry*, Vol. II, pp. 610–611.

So long as natural economy continued to predominate in rural life, there was difficulty in amassing wealth; corn and other raw produce, cannot be stored indefinitely without loss; the prudent man was prepared to be frugal in the use of his possessions, but he had no facilities for accumulating wealth. When gold and silver came more generally into circulation, it was possible for many people, who had never thought of it before, to lay up a hoard.¹⁶

The accumulated “hoards” were assembled by the financial institutions and made available to resourceful entrepreneurs striving to take advantage of expanding commerce.¹⁷

Paul Mantoux, in what is deservedly acclaimed as a classic, and the first authoritative work on the Industrial Revolution in the twentieth century,¹⁸ continued the tradition of Toynbee and Cunningham in identifying the growth of overseas trade as the central factor in the growth and development of industrial production in England in the eighteenth century. He noted the mutual stimulation that usually exists between the growth of industry and commerce, making it difficult to determine where the process started, historically: “Sometimes the advancement of industry, by forcing trade to find new outlets, enlarges and multiplies commercial relations. Sometimes, on the other hand, fresh wants, created by the extension of a commercial market, stimulate industrial enterprise.” Mantoux noted that in his day (1906), the first case was the more usual: “Modern industry, driven forward by the internal force of technical progress, urges on trade and credit, which, in the interests of production, have undertaken the conquest of the world.” But he argued that this was a new phenomenon associated with the capacity of the modern factory system “to anticipate demand, to modify, or even sometimes to create it,” owing to “its extraordinary adaptability and to the rapid and incessant improvements in its technical equipment.” Given this capacity, and the revolution in transport and communication, the producer could increase the extent of his market at will to the very limits of the inhabited world. But, Mantoux stressed:

This was not the case with the old industry. Limited by both the slowness of technical improvement, and by the difficulty of communication, production was forcibly confined to the known wants of its habitual market. . . . In those days progress in industry was almost impossible unless it was preceded by some commercial

¹⁶ *Ibid.*, pp. 8 and 460–461.

¹⁷ Cunningham also implied that technological innovation in the cotton textile industry was induced by competition with East India cottons in overseas markets, the manufacturers having secured “a practical monopoly of the home market,” and observed that the industry depended on foreign commerce both for the material used and for access to the markets in which the cloth was sold. *Ibid.*, pp. 624–625.

¹⁸ Paul Mantoux, *The Industrial Revolution in the Eighteenth Century: An Outline of the Beginnings of the Modern Factory System in England* (New York: Harper Torchbooks, 1928; original French edition, 1906).

development. . . . Half a century before she became the land of industry *par excellence*, the land of mines, of ironworks and of spinning mills, England was a great commercial country – ‘a nation of shopkeepers’, as went the famous phrase. The commercial expansion there preceded – and perhaps determined – the changes in industry.¹⁹

Mantoux also connected the growth of commerce with the Industrial Revolution through the political process in late seventeenth-century England. He saw the Glorious Revolution of 1688 as an important factor in the economic development process in England; while conceding that its origin could not be attributed to the interests of a particular class, he stressed the role played by the merchant class in “these decisive events, which were to have such advantageous consequences for them.” Mantoux added:

It was in the Guildhall, the common home of the merchant companies, that the Lords met, after the flight of the King, to summon the Prince of Orange to London. . . . Finally, in order to meet immediate necessities and especially in order to pay the Army, the City lent the Treasury two hundred thousand pounds. It was the token alliance of the new monarchy with the class of merchants and moneyed men.²⁰

Across the Atlantic, scholars in the United States and the Caribbean, who wrote during the period under consideration, also stressed the role of overseas trade like their counterparts in Europe. In a work published in 1920, James Gillespie wrote:

The growth of various English industries as a result of world commerce, such as the woolen, silk, cotton and hardware manufactures, mining, shipbuilding and even agriculture, resulted in the employment in England of ever increasing numbers of workmen. Sir Josiah Child estimates that during the second half of the seventeenth century, the plantation colonies alone gave employment to 200,000 persons in England.²¹

Gillespie particularly emphasized the role of overseas trade in the transformation of consumption habits in England and the rest of Western Europe, which created the foundation for the materialist character of Western civilization that was essential for the development of modern industry:

Hitherto civilization and the ideals which had prompted them had come from the East, westward; now an entirely new spirit, that of the New World, was to sweep eastward over the seas and, along with new forces generated from active and regular contact with the Orient, transform and revivify Europe. Its essence was essentially that of materialism, of worldly comforts and interests . . . In the material realm alone what would Europe be today without such creature comforts as potatoes, maize,

¹⁹ Mantoux, *The Industrial Revolution*, pp. 93–94, 487–488.

²⁰ *Ibid.*, pp. 96–97.

²¹ James E. Gillespie, *The Influence of Overseas Expansion on England to 1700* (New York: Longmans, 1920), p. 27. Dr. Gillespie taught history at the University of Illinois.

sugar, tea, coffee and chocolate; without cotton cloth; without many such luxuries as the silks, perfumes and jewels of every-day commerce . . . It takes considerable imagination to picture England of the pre-discovery period catered to by the ships of other nations, whose coasts were infested with swarms of pirates, a country of staid landed gentry moderately rich from the wool sold to the more enterprising Flemings, a country of industries insignificant in comparison with many other European nations.²²

To Gillespie, then, the growth of foreign trade, especially trade with the Americas, was at the very center of the English development process. The emphasis on the role of new products and the development of a materialist culture is somewhat similar to the argument more elaborately developed in the early 1930s by Elizabeth Gilboy in her famous article, "Demand as a factor in the Industrial Revolution."²³

Also writing across the Atlantic in the United States, Harry Barnes developed the theme on the importance of changing demand structure for the development process in Europe, even more than Gilboy did about the same time, and much more than Gillespie had done earlier. Like Gillespie, Dr. Barnes attributed the development of the materialist character of West European culture to the growth of overseas trade with the Americas and the Orient. "It is to the expansion of Europe," he argued, "that we must look for a historical force sufficiently powerful and comprehensive to explain the origins of modern times." Barnes noted that most historians who preceded him studied the movement of Europeans overseas primarily in terms of discovery, colonization, and trade with overseas areas. The more important subject of the impact of the discoveries, colonization, and overseas trade upon economies and societies in Western Europe was neglected until Robert Shepherd of Columbia University called attention to it in 1919.²⁴

²² *Ibid.*, pp. 347-348.

²³ Elizabeth Waterman Gilboy, "Demand as a factor in the Industrial Revolution," in Arthur H. Cole, A. L. Dunham, and N. S. B. Gras (eds.), *Facts and Factors in Economic History: Articles by former Students of Edwin Francis Gay* (Cambridge, Mass.: Harvard University Press, 1932), pp. 620-639.

²⁴ Harry Elmer Barnes, *An Economic History of the Western World* (New York: Harcourt, Brace & Co., 1937), p. 209; William R. Shepherd, "The Expansion of Europe," *Political Science Quarterly*, Vol. 34, 1919, pp. 43-60. In this paper, William Shepherd noted: "The 'Renaissance,' the 'Reformation,' the 'French Revolution,' the 'Industrial Revolution,' 'Nationalism and Democracy,' have been examined, described and evaluated with reference to the particular period of which they form a part. But a movement greater than these and contemporaneous with them has been comparatively ignored. Actually they seem to have been born and bred in Europe alone, and thus to have communicated their influence to the rest of the world; and yet, how far were they in reality the product of Europe's ventures beyond its own frontiers; and if not wholly the product, how far was their inception or development affected by such ventures oversea and overland in distant portions of the earth? This

The immediate effect of European expansion overseas upon Europe, Barnes explained, was the growth of European and world trade, “narrowly and technically speaking, the Commercial Revolution.” This commercial revolution produced a radical cultural change in European taste: “The psychological factor of demand lies at the bottom of all economic activity, and the character of European demand for consumer’s goods was transformed during this period.”²⁵ The new products which transformed the consumption habits of all classes in Western Europe, listed by Barnes, include sugar, tea, coffee, tobacco, and a host of Oriental manufactures, including pottery, many types of hardware, glass, upholstered furniture, tapestry, silks, and cottons. The different classes in Europe went through this radical change in consumption habits at different points in time:

By 1600 upper-class life was profoundly affected by the influx of new goods . . . By 1700 the middle classes, particularly in England, Holland, Spain, and Portugal, had generally changed their mode and standards of consumption, but the laboring masses were still living much as they had in the Middle Ages. It was not until the eighteenth century proper that the effects of the expansion of Europe penetrated to the very foundations of European society, stimulating a so-called Industrial Revolution that has altered the conditions of human life more profoundly than any other event in history.²⁶

To Barnes, the Industrial Revolution in England was a product of the combined pressure and opportunities emanating from growing overseas demand for English manufactures and the radical transformation of the consumption habits of all classes in England and other parts of Europe. He explained the superiority of England over other European rivals, especially France and Holland, in terms of the greater per capita value of English overseas trade and the growth of manufacturing in England for overseas markets: “England ultimately achieved an enormous economic superiority over France and other competitors (prior to the rise of Germany after 1870) because the future lay with the two lines of activity it was beginning to cultivate: overseas trade and the manufacture of goods demanded abroad.”²⁷

However, it must not be concluded, on the basis of the foregoing cases, that everyone supported the “Commercial Revolution” thesis during the

is a question that has remained substantially without an answer” (p. 47). At the time of writing Dr. Harry Barnes was Lecturer in Economic History at the New School for Social Research, New York.

²⁵ Barnes, *An Economic History*, pp. 229–230.

²⁶ *Ibid.*, pp. 231–232, 233, 242–243.

²⁷ *Ibid.*, p. 233. Comparing English and French trade in the eighteenth century, Barnes showed that total English foreign trade in 1716 was \$65 million, while that of France was \$43 million; and in 1789, England’s foreign trade was \$340 million, while that of France in 1787 was \$230 million: “This becomes the more significant,” Barnes pointed out, “when we realize that the population of France was then more than double that of England” (p. 235).

period under consideration. Certainly, there were some dissenting voices. As early as 1894, John Hobson complained that the role played by foreign commerce in the development of “machine production” in Europe had been blown out of proportion by historians:

The degree of importance which statesmen and economists attached to this foreign commerce as compared with home trade, and the large part it played in the discussion and determination of public conduct, have given it a prominence in written history far beyond its real value.²⁸

Significantly, this is an exception that proves the rule. Hobson’s complaint that the historians of his day gave to overseas commerce “a prominence in written history far beyond its real value,” is probably the best empirical evidence we can get to support the argument in this chapter that explanations stressing the primary role of overseas commerce were dominant in the historiographical period, 1880–1945.

What is more, in the context of the more recent tendencies in the historiography of the Industrial Revolution, even Hobson’s own explanations can be seen as stressing the role of overseas trade, although he also developed what could be termed the first example of the “small ratios” argument.²⁹ Hobson specified five conditions for the development of capitalist industry: the production of investible surplus; the existence of a laboring class deprived of the means of independent employment; development of the technology and organization of industrial production that makes large-scale and mechanized manufacturing profitable; “the existence of large, accessible markets with populations willing and economically able to consume the products of capitalist industry”; and, finally, the existence of “the capitalist spirit, or the desire and the capacity to apply accumulated wealth to profit making by the organization of industrial enterprise.”³⁰ Elaborating, Hobson argued that the slave-based economies of the Americas provided one of the necessary conditions of modern capitalism:

The black population of Africa was, of course, the great reservoir for the new tropical economy of the European colonial system which spread through Central America, Brazil, and the West Indies, taking root later on in North America. . . . The profits of the European companies embarking in early colonial trade were very

²⁸ John A. Hobson, *The Evolution of Modern Capitalism: A Study of Machine Production* (London: Allen & Unwin, 1894, revised edition, 1926), p. 31.

²⁹ The expression, small ratios argument, originated from Barbara Solow’s critique of arguments directed against Eric Williams that the ratio of slave trade profits to British GNP or to total British industrial investment was too small to have produced the kind of effects argued by Eric Williams. See Barbara L. Solow, “Caribbean Slavery and British Growth: The Eric Williams Hypothesis,” *Journal of Development Economics*, 17 (1985), pp. 99–115.

³⁰ Hobson, *Evolution of Modern Capitalism*, pp. 1–2.

large, for slave economy is not in itself and under all circumstances bad. Merivale clearly points out the main condition of its profitable use. 'When the pressure of population induces the freeman to offer his services, as he does in all old countries, for little more than the natural minimum of wages, those services are very certain to be more productive and less expensive than those of bondsmen. This being the case, it is obvious that the limit of the profitable duration of slavery is attained whenever the population has become so dense that it is cheaper to employ the free labour for hire.' In other words, Western Europe until the nineteenth century did not present the large supply of landless labourers required as one condition of great profitable capitalism. It is for this reason that colonial economy must be regarded as one of the necessary conditions of modern capitalism. Its trade, largely compulsory, was in large measure little other than a system of veiled robbery and was in no sense an equal exchange of commodities. Trading profits were supplemented by the industrial profits representing the 'surplus-value' of slave or forced labour, and by the yield of taxation and plunder.³¹

Like Mantoux who wrote about the same time, Hobson dismissed the chance explanation of inventive activities in time and space:

To those who regard evolution as essentially the product of 'accidental variations,' the inventions of industrial machinery may appear attributable to the 'chance' which assigns to some ages and countries a large crop of inventive geniuses, and denies it to other ages and countries. A more scientific view of history explains the slow growth of mechanical invention by the presence of factors unfavourable to, and the absence of factors favourable to, the application of human intelligence to definite points of mechanical progress.³²

The unfavorable conditions in medieval Europe mentioned by Hobson include "the vested interests and conservative methods of existing industrial castes and their guild organizations," the small dimensions of markets, the absence of "great 'free' labor market," the restriction of education to classes who regarded with disdain the useful arts and crafts, and the application of the energies of "men of science and intellectual ingenuity"

³¹ *Ibid.*, pp. 12-13. In addition, Hobson even attributed the early development of commercial agriculture in England to the impact of overseas trade: "Trade in agricultural produce, bringing an increased use of money into the agricultural economy and stimulating owners and tenants to a more careful and intensive cultivation, so as to earn money rents and profits, was the chief channel of the innovating current. It was the Flemish demand for wool, which, coming upon England in the Tudor age when political and social conditions were favourable, afforded a large profitable use of pasture, leading to the enclosure of great quantities of common lands and wastes, and the formation of large pasture farms under new proprietors . . . This foreign market for wool, and the growing market for grain afforded by the increase of London and other centres of population and by a certain sporadic export trade, began that process of converting the small yeoman and cottager into the mere wage-earner which reached its fullest pace in the enclosures at the end of the eighteenth and the beginning of the nineteenth centuries" (*Ibid.*, p. 15).

³² *Ibid.*, pp. 19-20.

to problems other than those concerning “the humbler paths of detailed mechanical improvement in the useful arts.” Of all the unfavorable factors, Hobson stressed that “Difficulties of transport and the slight irregular structure of markets were largely responsible for the retardation of mechanical inventions and capitalistic enterprise in the manufactures.” He explained England’s leadership in the development of new industrial methods, instead of Holland, in terms of the former’s land and population size, the possession of capital, the control of colonies, and the extent of its carrying trade.³³

But, in a later chapter in the book, Hobson argued that England’s overseas trade was very small relative to the home trade. He computed that the official value of England’s export trade in 1712 was less than one-sixth of the home trade, noting that “Such an estimate, however, gives an exaggerated impression of the relation of foreign to home trade, because under the latter no account is taken of the large domestic production of goods and services that figure in no statistics.” He concluded that in the eighteenth century, England’s home trade was “a vast deal greater in value than the whole of the foreign trade.”³⁴

Taken together, Hobson’s position can best be described as an attempt to mellow the dominant explanation of his day, which saw overseas commerce – the Commercial Revolution – as the prime mover in European industrialization, particularly in the case of the first Industrial Revolution. There can be little doubt that in the historiographical epoch from 1880 to 1945, the development of industrial production in England, in terms of the expansion of output and the development of the technology and organization of manufacturing, was explained largely as a function of expanding overseas commerce. Other factors, such as natural resource endowment and socio-political conditions, were usually included. But, ultimately the pride of place was given to the Commercial Revolution.

A new trend in the historiography of the Industrial Revolution began after World War II; by the second half of the 1960s, the change had become clearly visible; and by the 1970s, we can say a new dominant set of explanations of the causes of the Industrial Revolution had been established. The new dominant intellectual opinion, which was to continue up to the 1980s, discounted the importance of overseas trade and shifted emphasis to internal factors, especially those on the side of supply – domestically generated capital supply and the rate of interest; the growth of agricultural productivity and falling agricultural prices; demographic processes (at one time it is economically derived fertility restraint and at another the growth of population); internally derived long-term development of favorable

³³ *Ibid.*, pp. 20–21, 23–24.

³⁴ *Ibid.*, pp. 32–34. A graph on page 33 of the book shows the slow growth of England’s foreign trade from 1700 to 1800, and an explosive growth from 1830 to 1890.

socio-economic and political structures; the growth of education and scientific knowledge; accidental technological breakthrough and chance endowment of abundant natural resources of coal and metallic ores. Where demand is assigned an important place, it is the domestic market that is stressed, not overseas demand. In the discussions that follow, we propose to present some of the better known works representing the new dominant scholarly tradition. Let it be said, at this point, that unlike the first historiographical period, the dominant explanations of the decades from 1950 to the 1980s were not overwhelmingly dominant. Explanations stressing the principal role of overseas commerce, though stripped of their earlier overbearing presence, remained in serious contention. Later discussions in this section give recognition to their resilience in the literature.

The writings of T. S. Ashton on eighteenth-century English economic history may be taken as a major contribution to the new historiographical trend, which followed World War II. In his book, *The Industrial Revolution, 1760-1830*, published in 1948, emphasis is clearly on the availability of investible funds (capital) as reflected by the rate of interest. He cited approvingly a 1668 statement by Josiah Child that “all countries are at this day richer or poorer in an exact proportion to what they pay, and have usually paid, for the Interest of Money,” and declared that “the importance of the lowering of the rate of interest in the half-century before the industrial revolution has never been properly stressed by historians.”³⁵ Throughout the book, supply factors are elaborated. There is no chapter on trade, domestic or overseas. Apart from the introductory chapter, the remaining five chapters are devoted to “The earlier forms of industry,” “The technical innovations,” “Capital and Labour,” “‘Individualism’ and ‘laissez-faire,’” and “The course of economic change.” The expansion of overseas commerce is mentioned not in terms of growing markets for English manufactures and sources of raw material imports, but in terms of ideas – the widening of “men’s views of the world.” At best, overseas trade is listed as one of the several sources of capital that “made it possible for Britain to reap the harvest of her ingenuity.” Ashton summarized the causes of the Industrial Revolution as follows:

The conjuncture of growing supplies of land, labour, and capital made possible the expansion of industry; coal and steam provided the fuel and power for large-scale manufacture; low rates of interest, rising prices, and high expectations of profit offered the incentive. But behind and beyond these material and economic factors lay something more. Trade with foreign parts had widened men’s views of the world, and science the conception of the universe: The industrial revolution was also a revolution of ideas.³⁶

³⁵ T. S. Ashton, *The Industrial Revolution, 1760-1830* (London: Oxford University Press, 1948), pp. 10-11.

³⁶ Ashton, *The Industrial Revolution*, pp. 21, 94-95.

Ashton's more elaborate work, *An Economic History of England: The Eighteenth Century*, devoted much space to trade: two chapters out of seven, one on internal trade and transport and the other on overseas trade and shipping. But emphasis is still on supply factors and the treatment of trade is mainly descriptive. What is more, while admitting that the expanding industries found their markets largely abroad,³⁷ he took issue with those who stressed the contribution of the American colonies and that of the Atlantic slave trade:

The rapid development of English industry has been attributed to the exploitation of colonial peoples and to profits wrung from the slave trade. But it was after the Americans had won their independence, and at a time when the West Indian economy was in decline, that the pace quickened.³⁸

Closely following Ashton was the work of A. H. John on the role of agricultural productivity. In a paper published in 1961,³⁹ John argued that the growth of agricultural productivity in England between 1680 and 1750 gave rise to the expansion of the domestic market for all sorts of goods and services. The product of a more intensive use of land, especially in the more populous south of England, the sustained growth of agricultural productivity during the period led to the fall in prices of agricultural products, particularly food, and a change in the terms of trade between agriculture and industry in favor of the latter. The growth of real wages stimulated the expansion of mass demand, and the general growth of middle class incomes shifted the demand curve for middle class consumer goods to the right. As John saw it, the particularly interesting feature of the period, 1680–1750, was “the conjuncture of a sluggish growth of population and of the export trade in English manufactures with a marked rise in agricultural output.”⁴⁰ Thus John explained the development of the metal-using trades in the West Midlands and the expansion of the textile industries in Lancashire and Yorkshire in terms of home demand.⁴¹ It is conceded that although the export of manufactures during the period was not large, the growth of overseas trade generally, especially re-exports, contributed to the growth of incomes and the expansion of the domestic market. But John concluded:

It is not possible with the evidence available, to distinguish accurately how far it [the expansion of the domestic market] was the result of incomes and investment

³⁷ T. S. Ashton, *An Economic History of England: The 18th Century* (London: Methuen, 1955), pp. 125–126.

³⁸ Ashton, *An Economic History of England*, p. 125.

³⁹ A. H. John, “Aspects of English Economic Growth in the First Half of the Eighteenth Century,” *Economica*, No. 28 (1961), reprinted in Minchinton (ed.), *The Growth of English Overseas Trade*, pp. 165–183.

⁴⁰ John, “Aspects of English Economic Growth,” p. 170.

⁴¹ *Ibid.*, pp. 174–177.

generated in foreign trade and how far it arose from other factors. But the character as well as the extent, of the expansion, when compared with the growth of overseas commerce between 1700 and 1750, suggest that other powerful forces were at work. In so far as this growth arose from internal factors, they in turn made their contribution to the growth of real capital.⁴²

John's argument for the first half of the eighteenth century was extended more forcefully to 1780 by D. E. C. Eversley, who argued that with some variations "the causes operative in the period 1730-50 continued to exercise much influence for the next thirty years, and . . . it is during this period that the most important foundations of the industrial state were laid."⁴³

The agricultural argument reached its peak of sophistication in the hands of Deane and Cole, who started their analysis with the important role of overseas trade, almost similar to the "Commercial Revolution" thesis of the preceding historiographical epoch. They assembled and displayed an impressive array of quantitative evidence, showing that English foreign trade and overseas markets for English goods grew much faster than the whole economy and the domestic market in the eighteenth century. For this reason, industries that produced largely for export grew considerably faster than those that produced mainly for the domestic market.⁴⁴ But the role of overseas commerce was demoted to a secondary position when Deane and Cole argued, *a priori*, that overseas demand for British goods in the eighteenth century was not determined externally; rather, it was derived from developments within the British economy at the time. The operative factors were population growth and agricultural prosperity in England. The largely deductive argument is that the growth of British domestic exports in the eighteenth century was due mainly to the expansion of exports to the British American colonies. These colonies being "dependent economies," the growth of British domestic export to them depended on the growth of

⁴² *Ibid.*, pp. 178-179.

⁴³ D. E. C. Eversley, "The Home Market and Economic Growth in England, 1750-1780," in E. L. Jones and G. E. Mingay (eds.), *Land, Labour and Population in the Industrial Revolution: Essays Presented to J. D. Chambers* (London: Edward Arnold, 1967), p. 259. In a footnote, Eversley expressed displeasure with Phyllis Deane's argument stressing the primacy of exports in her book, *The First Industrial Revolution*, "as do most of the Cambridge economists and historians" (p. 211); Phyllis Deane, *The First Industrial Revolution* (Cambridge: Cambridge University Press, 1965). It was particularly fashionable in the 1960s to stress the role of agriculture in the Industrial Revolution. See especially E. L. Jones, "Agriculture and Economic Growth in England 1660-1750: Agricultural Change," *Journal of Economic History*, 25 (1965), pp. 1-18; E. L. Jones, "Agricultural Origins of Industry," *Past and Present*, 40 (1968), pp. 58-71.

⁴⁴ Deane and Cole, *British Economic Growth*, pp. 76, 78, 79. The industries which produced mainly for the home market were beer, leather, candles, and soap. Textiles and metals were largely the export industries.

British demand for imports from them. It was the growth of prosperity for the agricultural community in England after 1743, brought about by the growing demand from an expanding population, that stimulated the growth of imports into Britain from the colonies. In turn, increasing imports from the colonies induced the expansion of their demand for English manufactures that led to the soaring of English domestic exports in the second half of the eighteenth century.⁴⁵

The sophistication and logical coherence of this argument made it very appealing. In consequence, it had considerable influence on subsequent writings on the Industrial Revolution. In fact, it will be hard to find any other single argument in the historiography of the Industrial Revolution that has had as much influence on the views of students of the subject. Among those who extended and popularized it in the 1960s and 1970s were well-known economic historians, such as Max Hartwell, M. W. Flinn, and Robert Brenner, to name but a few. In an influential paper published in 1965, Hartwell wrote:

Most historians of the industrial revolution have attributed greater importance to an increase in overseas trade than to an increase in home demand. However, much of the increased trade came from North America and the West Indies, colonies whose demand for English goods was largely derived from the English demand for colonial goods.⁴⁶

Then in 1966, in a widely circulated book, Flinn stated,

rising demand from the colonies and foreign countries for British products was only made possible by the steady increase in Britain's demand for their products, particularly in view of the compulsory canalization of the greater part of the colonies' exports to British ports. In its turn, of course, the rise in British imports of colonial produce was related to the general growth of the British economy, so that the growth of colonial markets cannot be regarded as a wholly exogenous stimulus to growth.⁴⁷

Even the Marxist historian, Robert Brenner, while querying his fellow Marxists for adopting a Smithian mode of analysis,⁴⁸ could not resist the appeal of this explicitly neoclassical argument. His contribution was first made in a seminar whose proceedings were published in 1975. Responding

⁴⁵ Deane and Cole, *British Economic Growth*, pp. 85, 92.

⁴⁶ Hartwell, "The Causes of the Industrial Revolution," in Hartwell (ed.), *The Causes of the Industrial Revolution in England* (London: Methuen, 1967), p. 74. The paper was first published in *Economic History Review*, Vol. XVIII, No. 1, 1965.

⁴⁷ M. W. Flinn, *Origins of the Industrial Revolution* (London: Longman, 1966), pp. 61–62.

⁴⁸ Robert Brenner, "The Origins of Capitalist Development: A Critique of Neo-Smithian Marxism," *New Left Review*, No. 104 (July–August, 1977), pp. 25–92.

to the arguments of another participant, J. W. Smit, that exports to the Americas were the main factor that explains the differing experiences of Britain and Holland in eighteenth-century industrialization, Brenner said,

the success of England was fundamentally based on the transformation of agriculture and on major increases in agricultural productivity. As Professor Smit commented yesterday, 18th century economic growth in England was heavily dependent on colonial markets. But it may also be argued that these, in turn, depended quite strongly on the ability of the English home market to absorb the colonies' exports.⁴⁹

At some point the agricultural argument merges with another explanation focused on autonomous internal forces in England, that is, the evolution of socio-political structures in the centuries preceding the Industrial Revolution. Most, if not all, writers attempting to present a comprehensive explanation of the Industrial Revolution usually include the development of conducive socio-political institutions as a factor. The issue that warrants discussion, therefore, is the magnitude of the weight attached to this factor. In particular, the discussion here focuses on explanations that give the pride of place to socio-political structures. One example is the argument by W. A. Cole.⁵⁰ Excluding the fortuitous gifts of nature, such as natural resource endowment, Cole identified three factors that were central to eighteenth-century economic growth in England, "each of which had been firmly established in the course of the seventeenth century": First, "the development of a social and institutional environment conducive to economic growth, as a result of the economic and social changes of the sixteenth and seventeenth centuries, and . . . the political revolution of the seventeenth"; second, "a more favorable balance between population and other resources, as a result of the relaxation of population pressure shortly before the middle of the seventeenth century;" third, "the radical reorientation and greatly enlarged opportunities for Britain's overseas trade as a result of the foundation of her colonial Empire outside Europe, and the development of an aggressive commercial policy designed to foster the growth of her shipping and com-

⁴⁹ Robert Brenner, "England, Eastern Europe, and France: Socio-Historical Versus 'Economic' Interpretation," in Frederick Krantz and Paul M. Hohenberg (eds.), *Failed Transitions to Modern Industrial Society: Renaissance Italy and Seventeenth Century Holland* (Montreal: Interuniversity Centre for European Studies, 1975), pp. 68–70; see pp. 61–63 for Smit's argument, to which Brenner reacted. For a more recent continuation of the Deane and Cole argument, see David Richardson, "The Slave Trade, Sugar, and British Economic Growth, 1748–1776," in Barbara L. Solow and Stanley L. Engerman (eds.), *British Capitalism and Caribbean Slavery: The Legacy of Eric Williams* (Cambridge and New York: Cambridge University Press, 1987), pp. 103–133.

⁵⁰ W. A. Cole, "Eighteenth-Century Economic Growth Revisited," *Explorations in Economic History*, Vol. 10, No. 4 (1973), pp. 327–348.

merce.”⁵¹ It is clear in Cole’s analysis that the order of the factors presented corresponds to the ranking of their causal importance. This is brought out in his conclusion that “the Industrial Revolution was the natural, if not inevitable, outcome of the conditions established more than a century before.”⁵²

The agricultural argument and analysis centred on socio-political structure merge more visibly in the works of Marxist writers exemplified by Immanuel Wallerstein and Robert Brenner. Conducting their analysis in totally different ways, both Wallerstein and Brenner see the origin of West European development in the socio-political structure associated with an alleged development of agrarian capitalism in the fifteenth and sixteenth centuries. For Wallerstein, the significance of the supposed agrarian capitalism in the fifteenth and sixteenth centuries lies in the fact that it created the conditions that compelled economic and political entrepreneurs in Western Europe to expand overseas and establish a European world economy, on the basis of which Western Europe subsequently developed industrial capitalism. Hence, for Wallerstein, the proclaimed early agrarian capitalism offered no sufficient condition for the development of industrial capitalism in Western Europe. But, even so, the argument derived from a combination of agricultural development and socio-political structure remains, chronologically at least, central.⁵³ This is even more so for Brenner in whose analysis the socio-political structure arising from the alleged development of agrarian capitalism of the fifteenth and sixteenth centuries provided adequate conditions for modern economic development in Western Europe. Brenner, therefore, discounts the contribution of the “Commercial Revolution” and overseas trade in general.⁵⁴

The autonomous development of science and technology constitutes another line of argument centered on independent internal forces in England. This is an old argument favored by some historians of science and

⁵¹ Cole, “Eighteenth-Century Economic Growth,” pp. 346–347.

⁵² *Ibid.*, p. 348.

⁵³ Immanuel Wallerstein, *The Modern World System I: Capitalist Agriculture and the Origins of the European World Economy in the Sixteenth Century* (New York: Academic Press, 1974); “Failed Transitions or Inevitable Decline of the Leader?: The Workings of the Capitalist World-Economy: General Comments,” in Krantz and Hohenberg (eds.), *Failed Transitions*, pp. 75–80; *The Modern World System II: Mercantilism and the Consolidation of the European World-Economy, 1600–1750* (New York: Academic Press, 1980); and *The Modern World System III: The Second Era of Great Expansion of the Capitalist World-Economy, 1734–1840s* (New York: Academic Press, 1989).

⁵⁴ Robert Brenner, “Agrarian Class Structure and Economic Development in Pre-Industrial Europe,” *Past and Present*, No. 70 (1976), pp. 31–75; “The Origins of Capitalist Development” and “The Agrarian Roots of European Capitalism,” *Past and Present*, No. 97 (1982), pp. 16–113.

technology.⁵⁵ Walt Rostow incorporated it in his controversial take-off hypothesis, in which the expansion of trade and the process of invention and technological innovation are presented as having very little historical connection. He admonished that the income effects of expanded trade must be distinguished from its effects on the process of invention and technological innovation: “The two processes are not identical; income, output, and population can expand without substantial change in technology.”⁵⁶

According to Rostow, the new technologies that precipitated the early phase of the first industrial revolution arose from three problems: “how to produce good pig and wrought iron cheaply with coke as the fuel; how to make a reasonably efficient steam engine; and how to spin cotton with machinery.”⁵⁷ He conceded that the expansion of overseas trade contributed to the creation and solution of the three problems: The import and re-export of Swedish and Russian iron and East Indian cotton textiles created markets leading to import-replacement production of iron and cotton textiles in England; and the commercial revolution also stimulated the growth of real income, population, and urbanization, all of which created a conducive and natural environment for widespread inventive activities and the diffusion of technological innovation.⁵⁸ But ultimately Rostow traced the main source of the critical inventions and technological innovations of the English Industrial Revolution to the seventeenth-century scientific revolution and its ramifying social consequences:

Foreign trade played its role in the story of these three critical sectors [iron, coal, and cotton], but, in each case, it was quite a narrow role. The commercial revolution set in motion demands that made it increasingly profitable to solve these problems on the supply side with new technology, but a new mentality was required to yield the corps of inventors and entrepreneurs who actually created the lowered cost curves that define technically the industrial revolution.⁵⁹

This line of reasoning became increasingly fashionable in the 1970s and early 1980s, so much so that even Ralph Davis who had been one of the

⁵⁵ A. E. Musson and E. Robinson, *Science and Technology in the Industrial Revolution* (Manchester: Manchester University Press, 1969); A. E. Musson, “Introduction,” in A. E. Musson (ed.), *Science, Technology and Economic Growth in the Eighteenth Century* (London: Methuen, 1972), pp. 1–68.

⁵⁶ Walt W. Rostow, *How it all began: Origins of the Modern Economy* (London: Methuen, 1975), p. 126.

⁵⁷ Rostow, *How it all began*, p. 130.

⁵⁸ Rostow, *How it all began*, p. 126–130.

⁵⁹ Rostow, *How it all began*, p. 131. Rostow begins Chapter 4, on science, invention, and innovation, with the statement: “It is the central thesis of this book that the scientific revolution, in all its consequences, is the element in the equation of history that distinguishes early modern Europe from all previous periods of economic expansion” (p. 132).

authoritative proponents of the “Commercial Revolution” thesis in the 1950s and early 1960s was converted to it. Davis had argued in 1962 that

Colonial trade introduced to English industry the quite new possibility of exporting in great quantities manufactures, other than woollen goods, to markets where there was no question of the exchange of manufactures for other manufactures . . . The process of industrialization in England from the second quarter of the eighteenth century was to an important extent a response to colonial demands for nails, axes, firearms, buckets, coaches, clocks, saddles, hankerchiefs, buttons, cordage and a thousand other things.⁶⁰

In another work published the same year, he stated that the opportunities offered for large exports of ironwares and later of cottons “played a vital part in the building of those industries to the point where technical change transformed their momentum of growth.” These points were repeated and made even more strongly in a work published in 1967:⁶¹

The expansion of the American market for iron- and brass-ware was on so great a scale that it must have contributed very significantly to the eighteenth-century development of those industries in England, and so to the process of rationalisation, of division of labour, of search for new machines and new methods which helped so much towards the Industrial Revolution.

Davis turned full circle in 1973 when he wrote:

The innovations in metallurgy made in this period [the first three-quarters of the eighteenth century] were vital to the extension of the Industrial Revolution in the next century; they played no part in instigating it. Expansion of this modest kind could have continued indefinitely . . . had it not been for the appearance of a particular innovation, brought in because of economic necessity but achieving its extraordinary results for reasons that were partly non-economic. This innovation was, of course, the transformation of cotton-spinning technology.⁶²

By 1979, Davis’s argument on the primacy of autonomous technological development had become more explicit and bolder. It is conceded that overseas exports contributed much to “the modest industrial expansion of the middle decades of the eighteenth century”; but its overall importance is discounted, because this early modest industrial expansion “did not lead to the Industrial Revolution.” Strongly affirming his position, he wrote:

⁶⁰ Ralph Davis, “English Foreign Trade, 1700–1774,” *Economic History Review*, 2nd ser. vol. XV, 1962, p. 290.

⁶¹ Ralph Davis, *The Rise of the English Shipping Industry in the Seventeenth and Eighteenth Centuries* (London: Macmillan, 1962), p. 393; Ralph Davis, *A Commercial Revolution, English Overseas Trade in the Seventeenth and Eighteenth Centuries* (London: Historical Association, 1967), p. 20.

⁶² Ralph Davis, *The Rise of the Atlantic Economies* (London: Weidenfeld and Nicolson, 1973), p. 311.

I share the view that overseas trade did not have an important *direct* role either in bringing about the Industrial Revolution or in supporting the first stage of its progress. . . . The new growth that took off and violently accelerated in the 1780s arose in a quite different sector of industry, and arose in that particular decade for an entirely new and *direct* reason. The initiative came from the supply side, from technical change in the manufacture of cotton.⁶³

The authoritative voice of Ralph Davis, a well-known historian of English overseas trade and shipping, may have spurred several economists in the late 1970s and early 1980s to develop supply arguments with increased boldness. By arguing that the socio-economic developments that occurred in England up to 1780 made little or no contribution to the growth and development of English industrial production that began in the latter date, Davis also seems to have prepared the ground for some fashionable subsequent economists' models of English technological development during the era of the Industrial Revolution. For purposes of maintaining the flow of the narrative and showing the full evolution of their ideas, it is necessary to follow continuously the works of this group of economists to some point in time beyond the limit of the second historiographical period stated earlier in this chapter. It will be shown later in the chapter that even among these hard-line supply economists, there is some evidence of mellowing in the course of the 1990s, as the new operating historiographical forces work themselves out. But clearly the full development of their ideas went beyond the end of the period and they have shown much resistance to the new ideas that began to unfold forcefully from the mid-1980s.

Probably the most persistent of these economists is Joel Mokyr. In 1985, he argued that "Cost-reducing and factor-increasing changes occupy the center of the stage: supply rules supreme." Adding: "The old schoolboy view of the Industrial Revolution as a 'wave of gadgets' may not be far off the mark after all. . . ."⁶⁴ Then in 1991, he developed a model of technological development, derived from evolutionary biology, to stress the point that the technological innovations that produced the Industrial Revolution in England were all a matter of chance: "The evolution of technological history, just like our biological past, is not one of necessity; things could have gone differently. Among *ex ante* roughly equivalent outcomes there is an element of chance and luck."⁶⁵

⁶³ Ralph Davis, *The Industrial Revolution and British Overseas Trade* (Leicester: Leicester University Press, 1979), pp. 9–10.

⁶⁴ Joel Mokyr, "Demand vs. Supply in the Industrial Revolution," in Joel Mokyr (ed.), *The Economics of the Industrial Revolution* (Savage, MD: Roman and Littlefield, 1985), pp. 101, 109.

⁶⁵ Joel Mokyr, "Evolutionary Biology, Technological Change and Economic History," *Bulletin of Economic Research*, 43:2 (1991), p. 134.

Under this model, the Industrial Revolution in England is presented as the product of an accidental development of technology in the late eighteenth century. Once England made that technological lucky-dip, the drastic reduction of production costs led to the capture of overseas markets, one after another, until England became the workshop of the world in the nineteenth century. So, as the argument goes, the phenomenal growth of exports in the late eighteenth and nineteenth centuries was the effect, rather than the cause, of the technological innovations of the period. This line of analysis is at the center of an extensive review of the literature on the Industrial Revolution by Mokyr, in which the authority of Ralph Davis is invoked specifically, among others.⁶⁶ Although Wrigley's thesis of organic and inorganic economies in England is based on the chance endowment of abundant mineral energy resources, with no specific deployment of the technological lucky-dip argument, ultimately the analysis boils down to the same thing. The chance abundance of mineral energy resources became important only after the technology that required their use was developed. For the whole process to be a matter of chance, the development of the technology must also be accidental. And, like the supply economists, but contrary to Walt Rostow, Wrigley believes that the various stages of the development of the organic economy up to the time of Adam Smith's *Wealth of Nations* (1776) were irrelevant to the development of the inorganic economy from the late eighteenth century.⁶⁷

It is appropriate to end the exposition of the independent internal forces argument with a contribution by Ronald Findlay. This is so, because the role played by J. A. Hobson for the "Commercial Revolution" thesis of the first historiographical period, stated earlier in this chapter, was performed in a different way by Findlay for the autonomous internal forces argument of the second period. In his 1982 paper, he faintly supported the supply side technological argument on the basis of his analysis of British terms of trade movement between 1780 and 1800. But this is qualified so strongly, with much emphasis on the role of overseas trade, that it not only mellowed the uncompromising tone of the "manna from heaven" technological argument, as Findlay characterized it, but virtually amounted to a rejection of the thesis. As he put it:

The analysis of the trade-growth nexus in the formative period of the Industrial Revolution given here seems to imply that the causal arrow runs from growth (in

⁶⁶ Mokyr, "Introduction: The New Economic History," pp. 1-131; see the quotation from Ralph Davis on pp. 68-69. Readers may find it frustrating to trace Mokyr's quotation in Davis's book, *The Industrial Revolution and British Overseas Trade*. This is because the quotation is taken from several pages (9-10 and 62-63) and only two are stated (62-63).

⁶⁷ E. A. Wrigley, *Continuity, Chance and Change: The Character of the Industrial Revolution in England* (Cambridge: Cambridge University Press, 1988).

the form of technological change in the manufacturing sector) to trade rather than in the reverse direction that the literature appears to have emphasised. However, the ‘manna from heaven’ nature of technical progress as it appears in simple formal models needs to be supplemented with common sense. To begin with imagine that the doubling of efficiency in the manufacturing sector that we arrived at in the previous section took place in a closed economy. . . . Under these circumstances it is difficult to imagine the crucial innovations being diffused as rapidly and pervasively as they were, particularly since the dynamic cotton textile industry was much more export-oriented than any other. . . . Trade and growth, like trade and the flag, are inextricably intertwined in the first take-off.⁶⁸

As noted previously, while explanations of the Industrial Revolution stressing the primacy of independent internal forces in England were on the ascendancy between the late 1940s and early 1980s, some proponents of the “Commercial Revolution” thesis refused to be silenced. The well-known Cambridge economic historian, Phyllis Deane, is one of them. In her book, *The First Industrial Revolution*, first published in 1965, she proclaimed that the commonest way “by which an economy can develop from a pre-industrial to an industrial state is to exploit the opportunities open to it from international trade.”⁶⁹ She noted the severe constraints on the expansion of trade among the pre-industrial economies of Europe owing to the limited range and similarity of goods produced: “For pre-industrial Europe the obvious way to achieve economic growth was to extend the range of its trading relationships and to open up markets in other continents . . .” Because of its small size, the limited range of its natural resources, and its geographical location, Deane pointed out, Britain had a unique set of incentives to succeed in this general European drive for trading opportunities outside Europe.⁷⁰ The success came in the eighteenth century in the form of a world-wide English trading network, built around the British colonies in the Americas, of which the West Indian islands, “administered by a British plantation *elite* on the basis of a slave society, constituted the most valuable and intimate link.”⁷¹ For Deane, the importance of the British American colonies derived from the opportunity they offered British merchants to expand their trade with Europe on the basis of tropical products that could not be produced in Europe and yet had developed quickly to become near necessities among a large population of European consumers.⁷² Deane’s analysis placed technical change at the very center of the industrial

⁶⁸ Ronald Findlay, “Trade and Growth in the Industrial Revolution,” in Charles P. Kindleberger and Guido di Tella (eds.), *Economics in the Long View: Essays in Honour of W. W. Rostow: Volume I, Models and Methodology* (New York: New York University Press, 1982), pp. 178–188; the quote is from pp. 186–188.

⁶⁹ Phyllis Deane, *The First Industrial Revolution* (Cambridge: Cambridge University Press, 1965; 2nd edition, 1979), p. 53.

⁷⁰ *Ibid.*, p. 54. ⁷¹ *Ibid.*, p. 55. ⁷² *Ibid.*, p. 60.

revolution. But she did not believe that technical change in eighteenth-century England was an accidental development, “a manna from heaven.” As she saw it, technical change in eighteenth-century England occurred in a specific socio-economic context:

The eighteenth-century environment was generally favourable to technical change. Over a large part of the century, beginning somewhere before the middle and accelerating in the second half, there seems to have been a tendency for the demand for British manufactures to exceed their supply. The resultant stimulus to technical change was reflected in the wide interest in innovation. Innovation was fashionable, if not yet common, and it was sometimes, though by no means always, highly profitable.⁷³

For the leading sector in the technological revolution, the cotton textile industry, Deane argued that, but for rapidly growing overseas exports, the expansion brought about by the new technology would have been halted sooner rather than later:

Prices of cotton yarn fell from 38s. per lb. in 1786 and 1787 to under 10s. in 1800 and 6s.9^d. in 1807. Demand proved to be elastic, and as prices fell the amounts sold expanded more than proportionately. Even so, the market would have been readily saturated by the immense capacity of the factory system, had it not been possible to exploit the international contacts which British merchants had been building up for the previous century and to supply a steady succession of new foreign markets.⁷⁴

Earlier, in a joint paper, Deane and Habakkuk had argued that the expansion of overseas exports was the principal factor in the acceleration of growth in British industrial production in the last two decades of the eighteenth century. They explained the explosive growth of British domestic exports during these decades in terms of the wars of the period, which kept away Britain’s main European rivals from overseas markets, and the power of the British navy, which kept the sea-lanes secure for British merchants. As they put it,

although British industrialists were confronted by inflation and high taxation during the war period, British merchants drew on sources from which many of their competitors were debarred to supply expanding markets in the old world and the new. This, rather than the lowering of costs in domestic industry, explains the expansion of exports in the war period. Indeed there is little evidence – even in the cotton industry – that there had been a large absolute fall in the price of the final product by the end of the first decade of the nineteenth century. True, the spinning section had enjoyed a spectacular fall in costs and the cost of the raw material had declined sharply, but the weaving and finishing sections were still operating with much of the same techniques as they had used for centuries, and wages were inflated by the wartime labour shortage. It is significant, for example, that the

⁷³ *Ibid.*, p. 92. ⁷⁴ *Ibid.*, p. 92.

declared value of cotton manufactures did not fall below the official value until 1815.⁷⁵

The “Commercial Revolution” thesis was also upheld in the 1960s by the French economic historian, François Crouzet. Writing generally about European economic development in the eighteenth century, he declared:

The eighteenth century can be truly called the Atlantic stage of European economic development. Foreign trade, and especially trade with the Americas, was the most dynamic sector of the whole economy (for instance, French colonial trade increased tenfold between 1716 and 1787), and furthermore the demand from overseas was stimulating the growth of a wide range of industries as well as increased specialization and division of labour. Owing to the superiority of sea transport over land transport, the eighteenth-century European economy was organized around a number of big seaports, the most prosperous being those with the largest share in the growing colonial trade, such as Bordeaux or Nantes; each of these had, not only its own industries, but also its industrial hinterland in the river base of which it was the outlet.⁷⁶

Efforts were also made in the 1970s to present empirical evidence contradicting the argument of Deane and Cole that the growth of English domestic exports in the eighteenth century depended on the independent growth of English demand for imports from the British colonies in the Americas. The evidence presented shows that imports from the British North American colonies retained for consumption in England constituted a small fraction of the goods produced and traded by those colonies between 1701 and 1775, and yet these continental colonies accounted for about 42 percent of the increase in English domestic exports during this period. For the British West Indian islands, it was demonstrated that the growth of their export and import trade in the eighteenth century did not depend on the autonomous growth of incomes in England as implied by Deane and Cole. Initially, sugar production and export by the British Caribbean colonies depended on the taking over of an existing demand in England, previously supplied by Portuguese producers in Brazil. Subsequent

⁷⁵ Phyllis Deane and H. J. Habbakkuk, “The Take-Off in Britain,” in W. W. Rostow (ed.), *The Economics of Take-Off into Sustained Growth: Proceedings of a Conference held by the International Economic Association* (London: Macmillan, 1963), pp. 63–82; see pp. 77–78 for the analysis of the role of international trade, and p. 79 for the quote.

⁷⁶ François Crouzet, “Wars, Blockade, and Economic Change in Europe, 1792–1815,” *Journal of Economic History*, Vol. XXIV, No. 4, December 1964, p. 568. In a postscript to the 1985 reprint of the article, Crouzet says he may “have somewhat overestimated the role of seaborne trade (and especially colonial trade) in the eighteenth century European economy, and so the impact of its decline during – and after – the wars.” François Crouzet, *Britain ascendant: comparative studies in Franco-British economic history* (Cambridge: Cambridge University Press, 1990; translated version of the 1985 French edition by Martin Thom), p. 316.

rapid expansion in the second half of the seventeenth century was due mainly to the success of the English colonies in taking over European markets earlier supplied by Brazilian producers. In due course, cheap British colonial sugar created new demand in England. Before the successful challenge by producers in the French Caribbean some time in the eighteenth century, the market for Caribbean products in England and the rest of Europe had been very much widened by the general changes in taste, consumption pattern, and in income brought about largely by the commercial revolution of the seventeenth and eighteenth centuries. Taking into account the growth of English domestic exports to Portugal and Spain, which depended on their American colonies, and to Western Africa and Asia during the same period, it was concluded that the growth of English domestic exports in the eighteenth century did not depend on the autonomous growth of incomes in England as Deane and Cole had argued.⁷⁷ A similar conclusion was reached in 1983 in a paper employing regression analysis by Hatton, Lyons, and Satchell.⁷⁸

The persistence of the “Commercial Revolution” thesis in the 1970s and early 1980s can also be found in the work of Douglass North. In particular, Chapter 12 of his 1981 book, *Structure and Change in Economic History*, tightly linked technical change to improved property rights and market expansion. The defining element of the Industrial Revolution is shown as “an acceleration in the rate of innovation.” But the revolution in technological innovation is viewed as an endogenous development whose history is traced to the expansion of markets and the associated improvements in property rights specification.⁷⁹ As North expressed it,

economic historians of the Industrial Revolution have concentrated upon technological change as the main dynamic factor of the period. Generally, however, they have failed to ask what caused the rate of technological change to increase during this period: often it would appear that in arguing the causes of technological progress they assume that technological progress was costless or was spontaneously generated. But in sum, an increase in the rate of technological progress will result from either an increase in the size of the market or an increase in the inventor’s ability to capture a larger share of the benefits created by his invention. . . . The Industrial Revolution, as I perceive it, was initiated by increasing size of markets,

⁷⁷ Joseph E. Inikori, “International Trade and the Eighteenth-Century Industrialisation Process in England: An Essay in Criticism,” Unpublished Paper Presented at the Institute of Historical Research Seminar, University of London, February 7, 1975. See also Joseph E. Inikori, “The slave trade and the Atlantic economies, 1451–1870,” in *The African slave trade from the fifteenth to the nineteenth century* (Paris: UNESCO, 1979), pp. 56–87.

⁷⁸ T. J. Hatton, John S. Lyons, and S. E. Satchell, “Eighteenth-Century British Trade: Homespun or Empire Made?” *Explorations in Economic History*, Vol. 20 (1983), pp. 163–182.

⁷⁹ North, *Structure and Change*, pp. 158–170.

which resulted in pressures to replace medieval and crown restrictions circumscribing entrepreneurs with better specified common laws. The growing size of the market also induced changes in organization, away from vertical integration as exemplified in home and handicraft production to specialization.⁸⁰

Finally, in 1982 William Darity, Jr., pioneered econometric modeling of the relationship between African slavery in the Americas and industrialization in Europe. The model was designed to test the validity of the propositions made by three Caribbean historians, two in the 1930s through 1940s, mentioned earlier in Chapter 1, and one in the 1970s. The last one concerns the negative impact of the Atlantic slave trade on African economies, a subject that is outside the confines of the present study. As stated previously, the first two argued that African slavery in the Atlantic world was a critical factor in the development of industrial capitalism in Europe in the eighteenth and early nineteenth centuries. Using a model deliberately constructed to make it difficult for this proposition to be supported, Darity still reached the conclusion that “Even a ‘least-likely’ test is unable to dismiss their central hypotheses.”⁸¹

It can thus be seen that between the late 1940s and early 1980s, explanations of the Industrial Revolution stressing the role of overseas trade remained visible. However, the resilience of the “Commercial Revolution” thesis during the period notwithstanding, it is fair to say that the period belongs to arguments centered on independent internal forces in England. This was a period, particularly the late 1960s and 1970s, when arguments that centered on the dominant role of agriculture, socio-political structure, or exogenous technical progress were presented with unshakable confidence. Explanations stressing the role of overseas trade were treated at best with polite contempt.⁸²

⁸⁰ North, *Structure and Change*, pp. 165–167.

⁸¹ William A. Darity, Jr., “A General Equilibrium Model of the Eighteenth-Century Atlantic Slave Trade: A Least-Likely Test For the Caribbean School,” *Research in Economic History*, Vol. 7 (1982), pp. 287–326, p. 320 for the quote. The Caribbean historians referred to are Eric Williams, C. L. R. James, and Walter Rodney.

⁸² In some of the leading departments of economic history in British universities, there were no specialists in eighteenth-century international trade in the 1970s. International trade was never an important focus of the seventeenth and eighteenth-century seminars at the Institute of Historical Research run by F. J. Fisher and A. H. John, respectively, in the late 1960s and 1970s. If you were in the London School of Economics in the 1970s and you told your colleagues in the economic history department that your research was on the impact of international trade on the English economy in the eighteenth century, the polite response would invariably be, “oh, did it have any impact?” It is not a surprise that of the voluminous literature on the Industrial Revolution written in the 1960s and 1970s, there is not a single book-length study of the role of overseas trade, apart from edited volumes containing collections of papers by several authors.

The evidence suggests that the historiography of the Industrial Revolution has moved a full circle, and the role of overseas trade has begun to move to center stage once again. The new trend, which seems to have started in the late 1980s, is still in its early stages. It is difficult, therefore, to write about it with outright certainty. However, the more recent literature clearly indicates that various strands of the "Commercial Revolution" thesis are becoming increasingly fashionable after being relegated to a defensive position for about four decades. What follows is only a selection of some of the recent works representing the new trend.

It is significant that the emerging new trend is very much connected with re-interpretations of the role of the slave-based Atlantic economy in the development of industrial production in England between the middle decades of the seventeenth and the middle decades of the nineteenth century. Between 1979 and 1992, this author published a series of papers re-interpreting the contribution of the Atlantic slave trade and African slavery in the Americas to the transformation of the English economy and society in terms of expanded trading opportunities, shifting emphasis away from the narrow focus on profits from slave trading and slavery.⁸³ I concede that profits from slave trading and slavery were important for the development process in England and demonstrate that the British slave trade was highly profitable for the larger slave trading firms in the late eighteenth century, but insist:⁸⁴

The emphasis on profits in the explanation of the role of the slave trade and slavery in the British industrial revolution is misplaced. The contribution of the slave trade and slavery to the expansion of world trade between the fifteenth and nineteenth centuries constituted a more important role than that of profits. The interaction between the expansion of world trade and internal factors explains the British industrial revolution better than the availability of investible funds. This is the more so because it is now known that industries provided much of their investment funds themselves, by plowing back profits. In other words, capital investment during the years leading to the industrial revolution was related not so much to the rate of interest on loans (depending on the availability of investible funds) as to the growth

⁸³ Inikori, "The Slave Trade and the Atlantic Economies;" Joseph E. Inikori, "Market Structure and the Profits of the British African Trade in the Late Eighteenth Century," *Journal of Economic History*, Vol. XLI, No. 4 (Dec. 1981), pp. 745-776; Joseph E. Inikori, "Slavery and the Development of Industrial Capitalism in England," *Journal of Interdisciplinary History*, Vol. XVII, No. 4 (Spring 1987), pp. 771-793; Joseph E. Inikori, "Slavery and the Revolution in Cotton Textile Production in England," *Social Science History*, Vol. XIII, No. 4 (1989), pp. 343-379; Joseph E. Inikori, "The Credit Needs of the African Trade and the Development of the Credit Economy in England," *Explorations in Economic History*, Vol. 27 (1990), pp. 197-231; Joseph E. Inikori, "Slavery and Atlantic Commerce, 1650-1800," *American Economic Review*, Vol. 82, No. 2 (1992), pp. 151-157.

⁸⁴ Inikori, "Market Structure and the Profits of the British African Trade," pp. 745-746.

of demand for manufactured goods, which provided both the opportunity for more industrial investment and the industrial profits to finance it.

An important part of the re-interpretation pertains to the geographical focus of the analysis. In contrast to the Eric Williams debate that limited discussion to the British Caribbean, I argue that African slavery in Spanish America, Brazil, the United States, and the non-British Caribbean all played very important roles in the development process in England as did slavery in the British Caribbean: "The Atlantic region must be seen as a single interdependent economic region within which the major forces operating on the individual economies were significantly dependent upon the operation of the whole system."⁸⁵ An array of empirical evidence is marshalled to demonstrate that maritime activities and production for market exchange (as opposed to subsistence production) in the main regions of the United States, from the colonial period to the Civil War, depended on the slave-based economy of the Atlantic as did production for Atlantic commerce in Brazil, a good deal of Spanish America, and all of the Caribbean. Because the bulk of Portuguese and Spanish trade with their European partners during the period depended heavily on slave-generated surpluses in their American colonies, English exports to Spain and, more so, those to Portugal are closely related to African slavery in the Americas.⁸⁶ Thus, while my analysis is generally focused on the role of overseas trade, it is argued specifically that the most dynamic part of English overseas trade from 1650 to 1850 was trade with the slave-based economies of the Atlantic.

Several conferences held in the 1980s, leading to the publication of edited volumes in the late 1980s and early 1990s, strongly support and further extend this author's argument.⁸⁷ The first one, held in Bellagio, Italy, in 1984, brought together some of the leading specialists in the field. Apart from the consensus that emerged from the papers examining the contribu-

⁸⁵ Inikori, "Slavery and the Development of Industrial Capitalism in England," p. 771.

⁸⁶ See in particular Inikori, "Slavery and Atlantic Commerce," pp. 152-155; Inikori, "Slavery and the Development of Industrial Capitalism in England," pp. 783-792; Joseph E. Inikori, "Africa in World History: The Export Slave Trade and the Emergence of the Atlantic Economic Order," in B. A. Ogot (ed.), *The UNESCO General History of Africa. V. Africa from the Sixteenth to the Eighteenth Century* (Paris and Berkeley, California: Heinemann, UNESCO, and University of California Press, 1992), pp. 74-112, more specifically, pp. 83-93.

⁸⁷ See Barbara L. Solow and Stanley L. Engerman (eds.), *British Capitalism and Caribbean Slavery: The Legacy of Eric Williams* (Cambridge: Cambridge University Press, 1987); Barbara L. Solow (ed.), *Slavery and the Rise of the Atlantic System* (Cambridge: Cambridge University Press, 1991); and Joseph E. Inikori and Stanley L. Engerman (eds.), *The Atlantic Slave Trade: Effects on Economies, Societies and Peoples in Africa, the Americas, and Europe* (Durham, NC and London: Duke University Press, 1992).

tion of slavery to the Industrial Revolution in England, there was so much agreement among the participants in the discussion of these papers that one participant could not help reminding the others that they were throwing away the scholarship of more than a decade.⁸⁸ The other two conferences were held at Harvard and Rochester, respectively, in 1988. The edited volume from the former, published in 1991, contains papers whose overall thrust shows unmistakably the central role of African slavery in the Americas in the growth of multilateral trade in the Atlantic basin in the seventeenth and eighteenth centuries.⁸⁹ In relation to the subject of this chapter, the more directly relevant of these papers is the one by Patrick O'Brien and Stanley Engerman.⁹⁰

O'Brien and Engerman argue strongly in support of the leading role of exports in the industrialization process in England between 1688 and 1802, pointing out the weaknesses in the calculations of the gains from trade by economists, such as Thomas and McCloskey. They show that between 40 and 50 percent of the nonagricultural workforce in England and Wales during the period was employed in production for export.⁹¹ They demonstrate further that increases in overseas sales accounted for much of the increment in manufacturing output in the country during the period:

Between 1700 and 1801 the nonagricultural population of England and Wales increased by 3.14 million people. Over the century, the growth of domestic exports provided enough net revenue (in the form of wages, interest, and profits) to sustain about 70% of the previously mentioned increment at reasonable levels of subsistence. These essentially taxonomic exercises in quantification help illustrate the importance of exports for the development of the British economy over the eighteenth century. They reinforce traditional and contemporary perceptions

⁸⁸ Broadly speaking, the papers which examined the contribution of slavery to British economic development were written and presented by Barbara L. Solow, Joseph E. Inikori, David Richardson, Selwyn H. H. Carrington, and Richard B. Sheridan. As mentioned earlier in the chapter, Richardson's arguments contain some elements of the British derived trade growth argument of Deane and Cole. But, on the whole, there is a clear consensus among these authors that African slavery in the Americas was a critical factor in British industrialization from the point of view of trading opportunities. For these papers, see Solow and Engerman (eds.), *British Capitalism and Caribbean Slavery*. The participants who discussed these papers included, among others, William A. Darity, Jr., Stanley L. Engerman, Patrick O'Brien, David Eltis, and Herbert S. Klein. It was David Eltis who reminded other participants of the scholarship of more than a decade being thrown away by the consensus in the discussions.

⁸⁹ See Solow (ed.), *Slavery and the Rise of the Atlantic System*.

⁹⁰ Patrick K. O'Brien and Stanley L. Engerman, "Exports and the growth of the British economy from the Glorious Revolution to the Peace of Amiens," in Solow (ed.), *Slavery and the Rise of the Atlantic System*, pp. 177-209.

⁹¹ O'Brien and Engerman, "Exports and the growth of the British economy from the Glorious Revolution to the Peace of Amiens," in Solow (ed.), *Slavery and the Rise of the Atlantic System*, pp. 177-209.

that the revolution in industry and the growth of employment outside agriculture continued to depend, in large measure, as they had done since Tudor times, on the sales of manufactured goods (particularly textiles) beyond the borders of the kingdom.⁹²

In terms of the regional distribution of England's export, O'Brien and Engerman hold that commerce between Britain and the Americas was "effectively responsible for most of the long-run expansion in sales overseas" between 1688 and 1802, and that about 85 percent "of the *increment* to exports sold overseas from 1697 to 1802 was absorbed by colonial or neocolonial markets (such as India and the United States after 1783)."⁹³ They conclude that "the demand for industrial goods that emanated from productivity growth in agriculture accounted for a far lower proportion of the increment to the sales of industrial output from 1700 to 1800 than exports . . ."⁹⁴

The foregoing argument represents a fundamental movement away from arguments advanced earlier in 1982 by Patrick O'Brien.⁹⁵ At that time he had argued that the plantation economies of the southern regions of the United States, the Caribbean, Latin America, Africa, and Asia made no significant contribution to the accelerated rate of economic growth experienced by Western Europe after 1750:⁹⁶

Around 1780–90 when something like 4 percent of Europe's gross national output was exported across national frontiers, perhaps less than 1 percent would have been sold to Africa, Asia, Latin America, the Caribbean, and the southern plantations of the young United States. . . . For particular countries such trade would be more important; especially for smaller maritime powers such as Portugal, Holland, and Britain, where ratios of domestic exports to gross national product probably approached 10 percent by the second half of the eighteenth century; but less than half of these sales overseas consisted of merchandise sold to residents of the periphery.

Continuing, O'Brien quoted Braudel to the effect that food supplies and population size were the critical factors in European development, and concluded:

Such factors, to which I would add improvements to agriculture and technical progress in industry, continued to determine the destiny of Europe throughout the

⁹² *Ibid.*, p. 189. ⁹³ *Ibid.*, pp. 193 and 200.

⁹⁴ *Ibid.*, p. 208. See Patrick K. O'Brien, "Agriculture and the Home Market for English Industry, 1660–1820," *English Historical Review*, Vol. 91 (1985), pp. 773–800, where it is argued that agriculture made very little contribution to the growth of demand for manufactured goods in England in the eighteenth century.

⁹⁵ Patrick O'Brien, "European Economic Development: The Contribution of the Periphery," *Economic History Review*, 2nd series, Vol. XXXV, No. 1 (1982), pp. 1–18.

⁹⁶ O'Brien, "European Economic Development," pp. 3 and 4.

mercantile era. As long as oceanic trade remained as a tiny proportion of total economic activity it could not propel Europe towards an industrial society.⁹⁷

This change of position between 1982 and 1991 by Patrick O'Brien illustrates the new trend in the historiography of the Industrial Revolution which began in the later 1980s. The trend can be further observed in the last set of conference papers mentioned earlier, the 1988 Rochester conference.

Four of the Rochester conference papers were devoted to the contribution of African slavery in the Americas to the development of industrial capitalism in England, Europe, and the United States. These papers were written and presented by this author, Ralph A. Austen and Woodruff D. Smith, Ronald Bailey, and William Darity, Jr., respectively. All the five authors demonstrated in various ways the critical role of slavery, through the growth of multilateral trade in the Atlantic basin, in the early rise of industrial capitalism in Europe and the United States, but more so in England. The identical position taken by these scholars, which is consistent with that of the Bellagio conference, did not escape the editors of the volume, who asked rhetorically: "Can one interpret this as the emergence of a new trend in the historiography of the Atlantic slave trade? Or is it merely another temporary fluctuation? Only time can tell."⁹⁸ What is pertinent to note, Ralph Austen and Woodruff Smith⁹⁹ argue the role of slave-produced sugar in the development of consumerist culture in Western Europe, and its contribution to the evolution of industrial capitalism in the region, in a way very similar to the arguments of Gillespie, Gilboy, and Barnes in the 1920s and 1930s, shown earlier in this chapter.

Immanuel Wallerstein's 1989 volume adds to the growth of the new historiographical trend. Criticizing arguments that stress the primacy of the domestic market in England, he writes:

Much has been made by historians of the impact of the British home market. This has always seemed curious to me in two respects. Why would this account for technological advance in an industry which found so large a part of its outlet in foreign trade (and was so dependent on foreign imports, tied in turn to having something to sell in return? And was not the French home market large or larger? Léon gives what seems to me a far more plausible answer to the question why, precisely at this point, there occurred this leap in British productivity. 'Might one not think that the attraction of the [French] home market came to bear with all its force

⁹⁷ O'Brien, "European Economic Development," p. 18.

⁹⁸ Joseph E. Inikori and Stanley L. Engerman, "Introduction: Gainers and Losers in the Atlantic Slave Trade," in Inikori and Engerman (eds.), *The Atlantic Slave Trade*, p. 12.

⁹⁹ Ralph A. Austen and Woodruff D. Smith, "Private Tooth Decay as Public Economic Virtue: The Slave-Sugar Triangle, Consumerism, and European Industrialization," in Inikori and Engerman (eds.), *The Atlantic Slave Trade*, pp. 183-203.

against any profound modification of the dynamics of foreign trade?’ That is to say, precisely because of profit levels at home, there was less pressure to become competitive abroad – which is why the Treaty of 1786 . . . was so important.¹⁰⁰

Similarly, Ronald Findlay, whose 1982 paper was discussed earlier in this chapter, has in recent years argued strongly in support of the leading role of overseas trade in the First Industrial Revolution. In a work published in 1990, Findlay declares that there is “little doubt that British growth in the eighteenth century was ‘export-led’ and that, among exports, manufactured goods to the New World and re-export of colonial produce from the New World led the way.”¹⁰¹ Findlay was also part of a four-man special panel on “The Origins of Uneven Development: The Rise of the West and the Lag of the Rest,” during the 1992 meeting of the American Economic Association.¹⁰² Like the three conferences discussed earlier in this chapter, all the three papers of the panel that examined the role of Atlantic commerce in the seventeenth and eighteenth centuries affirmed its critical contribution to industrialization in Western Europe, especially England. Findlay explained the early rise of Western Europe in terms of its political and military capacity to control and dominate the growing intercontinental trade of the seventeenth and eighteenth centuries. Forcefully managed opportunity to trade rather than plunder, he argues, was the critical advantage the West had during the period in question. Central to this growth of intercontinental trading opportunity was African slavery in the Americas: “The slave trade, horrible as it was, was part of a complex intercontinental network of production and trade that stimulated technical progress and investment in Europe and the New World . . .”¹⁰³

The more recent argument of Ronald Findlay is particularly important, because he is one of the two trade theorists whose authority was invoked by Joel Mokyr to support his 1993 argument on the leading role of exogenous technological change: “The role of foreign trade in the British Industrial Revolution is hotly contested. Some of the most prestigious scholars in the field have vehemently denied any essential role for exports.” The scholars mentioned are Thomas and McCloskey (1981 publication),

¹⁰⁰ Immanuel Wallerstein, *The Modern World-System III: The Second Era of Great Expansion of the Capitalist World-Economy, 1730–1840s* (San Diego, California: Academic Press, 1989), p. 80.

¹⁰¹ Ronald Findlay, *The “Triangular Trade” And The Atlantic Economy of the Eighteenth Century: A Simple General-Equilibrium Model* (Princeton, NJ: International Finance Section, Department of Economics, Princeton University, 1990), p. 22.

¹⁰² The others are William Darity, Jr., Amitava Krishna Dutt, and this author. For the four papers, see *American Economic Review*, Vol. 82, No. 2 (1992), pp. 146–167.

¹⁰³ Ronald Findlay, “The Roots of Divergence: Western Economic History in Comparative Perspective,” *American Economic Review*, Vol. 82, No. 2 (1992), p. 160.

Ralph Davis (1979 publication), and trade theorists, Charles Kindleberger (1964 publication), and Ronald Findlay (1982 publication).¹⁰⁴ With reference to Ronald Findlay, at least, it can be said that Joel Mokyr is yet to observe the new trend in the historiography of the First Industrial Revolution. While it is too early to say with certainty that the new trend will reestablish the dominance of “Commercial Revolution” explanations that characterized the pre-1940s historiographical period, there is clear indication from current evidence that arguments based on autonomous domestic forces have lost much of their appeal and are now on the defensive, especially those of supply economists derived from exogenous technological innovation.

3.2 FACTORS RESPONSIBLE FOR THE CHANGING EXPLANATIONS

In 1959, as the standard of living debate raged on, Max Hartwell wrote:

Perhaps the most important methodological problem in the writing of history is to discover why different historians, on the basis of the same or similar evidence, often have markedly different interpretations of a particular historical event.¹⁰⁵

Hartwell’s methodological problem appears to be limited to historians writing within the same temporal and geographical location, in which case the differing interpretations may be due to the social origin and disciplinary training of individual historians. When the problem is expanded to include differences in interpretation between historians writing within different temporal and geographical locations, the factors in the explanation take on a more dynamic form. The focus of analysis becomes over time changes in the factors that determine the establishment of dominant interpretations. For economic historians, such factors would include the quantity and quality of empirical evidence; the theoretical framework that informs the interpretation of evidence; and the ideological considerations that, wittingly or unwittingly, impinge on scientific investigations. It is clear that the over time changes in interpretation discussed earlier in the chapter were caused by factors other than changes in the quantity and quality of the empirical evidence on the Industrial Revolution. Certainly, changes in the evidence cannot explain the circular movement of the interpretations. The discussion that follows centers, therefore, on the last two factors.

Over time changes in theoretical perspectives can be viewed as a major factor responsible for the changing explanations of the causes of the Industrial Revolution. Of course, the amount and sophistication of theory employed by economic historians differ considerably. Economic history

¹⁰⁴ Mokyr, “Introduction: The New Economic History,” pp. 68–69.

¹⁰⁵ Hartwell, “Interpretations of the Industrial Revolution,” p. 81.

occupies a border territory between history and economics, for which reason its practitioners often come from history and economics, apart from those professionally trained as economic historians (especially in British universities). While the three categories of economic historians employ theory, explicitly or implicitly, to differing degrees, there is little doubt that their writings are influenced in some way, directly or indirectly, by prevailing economic theories. As Arthur Lewis put it:

Most economic historians explain economic events in terms of the economic theories current at the time of writing (or worse still, current in their undergraduate days when they were learning their economic theory), and a new crop of economic theories is liable to be followed by a new crop of historical articles rewriting history in terms of the new theory.¹⁰⁶

However, the causal dynamics also move in the other direction: economic theories do also change because of increased knowledge of history or the cumulative effects of observation of contemporary events. Thus in his study of theories of economic growth from the eighteenth century to the 1980s, Rostow reports:

As I worked forward in this story, I found it increasingly important to relate writers to the particular times in which their views were formed and, sometimes, to the particular narrow interval when they set down a line of argument. The various growth formulations clearly bear the marks of particular passages of economic history intimately observed by their authors.¹⁰⁷

In relating changes in economic theories to changing explanations of the Industrial Revolution by historians, we, therefore, consider both changes in theory and in the circumstances determining them as combined sources of influence on historians' interpretations. We begin with over time changes in growth theories and the circumstances. These are related subsequently to the changing interpretations.

As is well known, the first set of systematic and elaborate economic theories available to students of the Industrial Revolution was produced by the classical economists, the best known of whom include David Hume, Adam Smith, Thomas Malthus, David Ricardo, John Stuart Mill, and Karl Marx. Two aspects of their ideas are important for our present purpose: the growth theory embodied in their work, and the role of overseas trade in that theory.

The classical economists began their analysis with an economy in a "rude state," that is, an economy in which subsistence agricultural production

¹⁰⁶ W. Arthur Lewis, *The Theory of Economic Growth* (London: George Allen & Unwin, 1955), p. 15.

¹⁰⁷ W. W. Rostow, *Theorists of Economic Growth from David Hume to the Present, With a Perspective on the Next Century* (New York: Oxford University Press, 1990), p. 7.

was overwhelmingly dominant, for which reason the division of labor, technology, transportation, organization of production and distribution in agriculture and manufacturing, were all at a low level of development. This situation gave rise to a stationary state of income per head at the subsistence level. They then enquired into the factors that would operate over time to move this economy into the path of growth and regularly push income per head above subsistence. The central factor they discovered was capital accumulation arising from increasing division of labor. Growing division of labor was seen as the most powerful force that propelled labor productivity to higher levels in three ways. As Adam Smith put it:

This great increase of the quantity of work, which in consequence of the division of labour, the same number of people are capable of performing, is owing to three different circumstances; first to the increase of dexterity in every particular workman; secondly to the saving of time which is commonly lost in passing from one species of work to another; and lastly, to the invention of a great number of machines which facilitate and abridge labour, and enable one man to do the work of many.¹⁰⁸

In their growth theory, the classical economists assigned a leading role to trade (foreign and domestic), but more so to overseas trade. We have seen that capital accumulation is the central element in the classical system. But in the system, capital accumulation is dependent on market expansion that produces economies of scale through increases in the division of labor and specialization. Given the kind of economy that formed their point of departure – an economy dominated by subsistence agricultural production – opportunity for sustained large-scale overseas trade was expected to provide the impetus for the expansion of the market sector of the domestic economy, leading to the general commercialization of socio-economic life, which is the basis of growing division of labor and specialization. The classical economists certainly knew British history well. Their expectation of the role of foreign trade fits very well the role of raw wool export in the commercialization of English agriculture.¹⁰⁹

Three aspects of the writings of the classical economists on international trade may be distinguished: the role of imports in the development of manufacturing; the vent-for-surplus effect of international trade; and the gains

¹⁰⁸ Adam Smith, *Wealth of Nations*, Vol. I, p. 9, quoted by Phyllis Deane, *The Evolution of Economic Ideas* (Cambridge: Cambridge University Press, 1978), p. 35.

¹⁰⁹ Rostow makes a similar but more general point: "Smith had the force of expansion in foreign trade primarily in mind as an instrument for moving the economy away from its original rude state. Historically, the commercial revolution of the previous two and one-half centuries was a powerful living reality to Smith's generation"; Rostow, *Theorists of Economic Growth*, pp. 509–510. Malthus and Ricardo were responsible for the development of a more rigorous linkage of the classical system to agriculture.

from international trade through the allocation of resources in accordance with comparative advantage. The role of imports in the development process was elaborated by David Hume. Hume demonstrated that imported manufactures would provide the incentives for agricultural producers to redouble their efforts and be more innovative, and would in the end create the environment for the growth and development of domestic manufacturing. "When a nation abounds in manufactures and mechanic arts," he said, "the proprietors of land, as well as the farmers, study agriculture as a science, and redouble their industry and attention." He added: "Foreign trade, by its imports, furnishes materials for new manufactures . . . If we consult history we shall find, that in most nations, foreign trade has preceded any refinement in home manufactures, and given birth to domestic luxury."¹¹⁰

The vent-for-surplus element in the classical theory of international trade is generally overlooked by modern economists, who treat Ricardo's comparative advantage as the sole element that characterizes the classical theory. The first modern economist to refer to it was John Williams, who, curiously, still treated Ricardo's comparative advantage as the defining element of the classical theory of international trade.¹¹¹ Myint was the first modern economist to treat the vent-for-surplus principle as an integral part of the classical theory of international trade.¹¹² He traced it to Adam Smith:

¹¹⁰ E. Rotwein (ed.), *David Hume*, pp. 11–13, quoted by Rostow, *Theorists of Economic Growth*, p. 22. Rostow argues that Hume was influenced by his observation of the impact of imported East Indian cotton textiles on West European economies in the 17th and 18th centuries: "Like all men and, especially, women of his time, Hume was conscious of the quite extraordinary and, ultimately, revolutionary impact on Europe of the expansion, despite inhibitions, of Indian cotton textile imports . . . The memorable contemporary description of the impact on French women of Indian calicoes early in the eighteenth century holds generally for Western Europe: 'Fruit défendu, les toiles deviennent la passion toutes les filles d'Eve françaises.' ('Forbidden fruit, cotton cloth became the passion of every French daughter of Eve.') . . . there could be no more vivid or historically important illustration of Hume's doctrine. Foreign trade did yield an attractive luxury; the demonstration effect set in motion a 'fermentation' in Western Europe (and a profit incentive) that finally resulted in the textile machinery required to manufacture the cotton yarn that European hands were too clumsy to produce by methods long used in India. There is a serious sense in which the British industrial revolution of the late eighteenth century was the first import-substitution takeoff" (p. 22).

¹¹¹ John H. Williams, "The Theory of International Trade Reconsidered," *The Economic Journal*, Vol. XXXIX (June, 1929), pp. 195–209; see pp. 203–205 for a discussion of the vent-for-surplus principle in relation to J. S. Mill's criticism of the principle.

¹¹² H. Myint, "The 'Classical Theory' of International Trade and the underdeveloped Countries," *The Economic Journal*, Vol. LXVIII (June, 1958), pp. 317–337, reprinted in Deepak Lal (ed.), *Development Economics*, Vol. III (Aldershot: Edward Elgar, 1992), pp. 29–49.

Between whatever places foreign trade is carried on, they all of them derive two distinct benefits from it. It carries out that surplus part of the produce of their land and labour for which there is no demand among them, and brings back in return for it something else for which there is a demand. It gives a value to their superfluities, by exchanging them for something else, which may satisfy a part of their wants, and increase their enjoyments. By means of it, the narrowness of the home market does not hinder the division of labour in any particular branch of art or manufacture from being carried to the highest perfection. By opening a more extensive market for whatever part of the produce of their labour may exceed the home consumption, it encourages them to improve its productive powers, and to augment its annual produce to the utmost, and thereby to increase the real revenue and wealth of society.¹¹³

Myint identified two leading ideas in this text by Smith: the idea that overseas trade helps to solve the problem of under-utilization of resources arising from the narrowness of the domestic market by providing overseas outlets for the extra produce of those resources, over and above what the narrow home market could absorb, being the vent-for-surplus theory of international trade; and the idea that international trade helps to broaden the extent of the market, which increases overall productivity of the trading country through improved division of labor, which Myint termed “the ‘productivity’ theory.” Myint then compared the productivity theory with Ricardo’s comparative advantage theory:¹¹⁴

The ‘productivity’ doctrine differs from the comparative-costs doctrine in the interpretation of ‘specialisation’ of international trade. (a) In the comparative costs theory ‘specialisation merely means a movement along a static ‘production possibility curve’ constructed on the given resources and the *given techniques* of the trading country. In contrast, the ‘productivity’ doctrine looks upon international trade as a dynamic force which, by widening the extent of the market and the scope of the division of labour, raises the skill and dexterity of the workmen, encourages technical innovations, overcomes technical indivisibilities and generally enables the trading country to enjoy increasing returns and economic development. . . . (b) In the comparative costs theory ‘specialisation,’ conceived as a reallocation of resources, is a completely reversible process. The Adam Smithian process of specialisation, however, involves adapting and reshaping the productive structure of a country to meet the export demand, and is therefore not easily reversible.

John Stuart Mill objected to the Smith’s vent-for-surplus principle, arguing instead:

The expression, surplus produce, seems to imply that a country is under some kind of obligation of producing the corn or cloth which it exports; so that the portion which it does not itself consume, if not wanted and consumed elsewhere, would

¹¹³ Adam Smith, *Wealth of Nations*, Vol. I, Cannan edition, p. 413, quoted by Myint, “The ‘Classical Theory’ of International Trade,” p. 30.

¹¹⁴ Myint, “The ‘Classical Theory’ of International Trade,” pp. 30–31.

either be produced in sheer waste, or, if it were not produced the corresponding portion of capital would remain idle, and the mass of productions in the country would be diminished by so much. Either of these suppositions is erroneous. . . . If prevented from exporting this surplus it would cease to produce it, and would no longer import anything, being unable to give an equivalent; but the labour and capital which had been employed in producing with a view to exportation would find employment in producing those desirable objects brought from abroad; or . . . substitutes for them. . . . And capital would just as much be replaced, with the ordinary profit from the returns, as it was when employed in producing for the foreign market.¹¹⁵

Mill's argument clearly derived from Ricardo's comparative advantage principle. It is not surprising, therefore, that it shares exactly the same logic with the arguments of modern economists, who are more exposed to Ricardo's theory of international trade (upon which much of neoclassical trade theory itself is based) than to Smith's vent-for-surplus and productivity theory. John Williams's criticism of Mill and the Ricardian theory applies equally to most neoclassical economists' perception of gains from international trade:

It is to be doubted whether Mill today [1929], or indeed the Mill of his later years, the writer of the chapter on the 'Tendency of Profits to a Minimum,' would care to stand by this passage [the one quoted above] in reference to England. . . . What Mill overlooked was the entire absence, under assumptions of predominant foreign trade, of comparable alternatives in purely domestic production . . . He failed to see, indeed, that but for specialisation in world trade such concentration of labour and capital on little land would not be possible. What is more significant, perhaps, he failed to see the relation of international trade to national economic development, spread over time. . . . He failed to see that England's capital and labour were *products* (results) of international trade itself, but for which they would not have existed in any comparable degree.¹¹⁶

Addressing Ricardo's comparative advantage principle, which he apparently regarded as representative of the whole classical theory of international trade, Williams declared:

The classical theory assumes as fixed, for purposes of the reasoning, the very things which, in my view, should be the chief objects of study if what we wish to know is the effects and causes of international trade, so broadly regarded that nothing of importance in the facts shall fail to find its place in the analysis. It is the writer's [Williams] view . . . that the relation of international trade to the development of

¹¹⁵ J. S. Mill, *Principles*, Book III, pp. 579–580, quoted by Williams, "The Theory of International Trade," pp. 203–204. John Williams attributed the expression, "vent for surplus," to J. S. Mill, who used it to describe Adam Smith's foreign trade theory, criticizing the notion as a "surviving relic of the Mercantile Theory" (Williams, "The Theory of International Trade," p. 203).

¹¹⁶ Williams, "The Theory of International Trade," pp. 204–205.

new resources and productive forces is a more significant part of the explanation of the present status of nations, of incomes, prices, well-being, than is the cross-section value analysis of the classical economists, with its assumption of given quantities of productive factors, already existent and employed . . .¹¹⁷

In general, because of the nature of the issues they addressed, the kind of contemporary economic processes they observed, and their attention to history, the classical economists were long-term development oriented in their theories. They were also less rigorously deductive and more historical in their reasoning. The most deductively rigorous of them all was Ricardo. That Adam Smith's vent-for-surplus and productivity principles of international trade captured the socio-economic reality of the England of their time far more accurately than the more rigorously deductive Ricardo's comparative advantage theory may be a sad comment on overly deductive reasoning in economic analysis.

Yet economic analysis became increasingly abstract and rigorously deductive from the second half of the nineteenth century. In addition, economic theorizing moved away from issues of growth. Apparently believing that the Industrial Revolution had solved for all time the problem of growth which dominated the attention of the classical economists, Marshallian economics could afford to take for granted the growth of the wealth of nations and focus on marginal change and social welfare. Rostow puts it succinctly:

Both orthodox and heterodox economic analysts of the 1870–1914 period . . . more or less silently agreed [that] the analysis of economic growth could be dropped from the agenda. Both groups assumed the existence of an ongoing, viable, expanding economic system. Although the lines between them were not sharp, one group was devoted primarily to refining theoretical knowledge of how it worked, the other to diagnosing and remedying, in more or less radical ways, its inhumanities. But by and large the theory of economic growth was placed by both groups on protracted holiday.¹¹⁸

There was very little change in the first four decades of the twentieth century. The most important development of the period was the so-called Keynesian revolution. But Keynes did not address issues of long-term development and socio-economic transformation. His focus was the short-term problem of an advanced industrial economy operating below capacity. Hence, all long-term variables – quantity and skill of labor, technology, production structure, organization, consumers' tastes, and social structure – are held constant.¹¹⁹ The other major development of the period, preceding Keynes, was Joseph Schumpeter's *The Theory of Economic Development*, first published in 1911. But, unlike the classical economists, whose

¹¹⁷ *Ibid.*, p. 196.

¹¹⁸ Rostow, *Theorists of Economic Growth*, p. 155.

¹¹⁹ *Ibid.*, p. 279.

focus was on an economy in a “rude state,” the point of departure for Schumpeter’s long-term development analysis was, again, an advanced industrial economy.¹²⁰

Thus, between 1880 and the 1940s, classical theory of economic growth provided the only economic ideas that were useful in the historical study of an economy which progressed from a “rude state” to that of mechanized, large-scale industry. To the extent that historians searched for relevant analytic ideas in their production and interpretation of evidence, the available ideas were embodied in classical growth theory. The fact that the classical economists were less rigorously deductive and more historical in their approach made their ideas quite accessible to historians. It is, therefore, fair to conclude that the dominance of the “commercial revolution” interpretation of the Industrial Revolution in the 1880–1950 historiographical period owed something to classical growth theory. A careful examination of the “commercial revolution” arguments presented earlier in the chapter will certainly reveal traces of Adam Smith’s vent-for-surplus and productivity principles of gains from overseas trade, as well as David Hume’s notion of the role of imports in the development process. In fact, the basic principles concerning import-substitution industrialization can be traced to Hume. It is significant that Ricardo’s comparative advantage theory of international trade found little room in the writings of the 1880–1950 period.

Things changed radically between the 1940s and 1970s. First, two world wars and the Great Depression shook the world economy to its very foundation. The collapse of world trade forced both scholars and administrators to lose confidence in the ability of international trade to operate as the propelling force for long-term development. Then there was the anti-colonial movement which ended European colonial rule and led to the establishment of politically independent nations in Asia, Africa, and the Caribbean. The anti-colonial movement generated anti-imperialist ideologies that out-lived colonial rule and were important in the academic debate on the economic costs and benefits of colonial rule. The association of international trade with colonialism added to the pessimism about foreign trade arising from the collapse of the international economy in the early decades of the twentieth century. What is more, the observed lessons of the non-market model of development in the Soviet Union and China in the 1950s and 1960s diminished even further the appeal of the market-oriented development process. These circumstances very much determined the kind of

¹²⁰ As Rostow argues, “Schumpeter was a rather parochial economist of the advanced industrial world, above all, of post-takeoff Germany, Britain, and the United States. It was logical that his initial insight should lead him, in the end, to speculate on the probable fate of capitalism rather than on the emerging problems of growth and modernization in the developing world.” *Ibid.*, pp. 234–235.

growth models that were fashioned, which in turn, together with those circumstances themselves, influenced scholars' interpretation of history during the 1950–1980s historiographical period. These factors are worth examining in some detail, starting with the growth models.

As Arthur Lewis wrote in 1980, with the benefit of hindsight:

The collapse of international trade in the 1930s had seemed irreversible, so much so that Keynes had even declared that we didn't need much of it anyway. So in the 1940s and 1950s we created a whole set of theories which make sense if world trade is stagnant – balanced growth, regional integration, the two-gap model, structural inflation – but which have little relevance in a world where trade is growing at 8 percent per annum. Also many countries, basing their policies on the same assumption, oriented inwards mainly towards import substitution.¹²¹

Two types of neoclassical growth theory developed during the period. There was formal growth theory, which was adopted by mainstream economics; the other was development-oriented and became a marginal branch of economics called development economics. Formal growth theory focused exclusively on the problems of the advanced industrial economies of the West, while development economics addressed itself to the long-term development problems of the Third World nations.¹²² Formal growth theory derived essentially from Keynesian economics and its focus was the cyclical problems of mature industrial economies. It employed basically the same macro-economic variables – savings, investment, and labor – with the accelerator and multiplier principles of Keynes to develop a long-term growth theory from Keynesian static and short-run analysis. From the original Harrod-Domar models to later modifications and refinements, the focus was to construct a mathematical model that connects these variables in a way that could demonstrate a long-run stable growth path.¹²³ Virtually all the models took demand for granted and had no room for international trade. Technical progress was frequently treated as exogenous, and non-economic factors were not considered.

This general character of formal growth model has attracted considerable criticism even from sympathetic commentators. The most frequently cited critic is K. Berrill, who wrote in 1960:

This article stems from a discontent with current theoretical models of economic growth which have become increasingly elegant while remaining hopelessly unrealistic. . . . These are marked by three features which seem particularly objectionable in that they misread the process of growth and conceal the most important elements

¹²¹ W. Arthur Lewis, "The Slowing Down of the Engine of Growth," *American Economic Review*, LXX (September, 1980), pp. 555–564, reprinted in Lal (ed.), *Development Economics*, Vol. III, pp. 73–74.

¹²² Deane, *Evolution of Economic Ideas*, pp. 196–197.

¹²³ *Ibid.*, pp. 197–204; Rostow, *Theorists of Economic Growth*, pp. 332–349.

in past expansions. The first and fundamental objection is that the models are posed in terms of closed and homogeneous national economies. This means that foreign trade is given very little part to play and that the country is assumed to move forward in one piece so that regional differences are left out of account. The second objectionable feature is that the economy is divided only into two sectors, consumer goods and investment goods. No attempt is made to distinguish the separate roles of agriculture, transport or utilities and least of all the separate roles of particular staple crops or industries. . . . The third drawback in modern growth models, and it is perhaps surprising that it should occur after Keynes, is that demand plays a passive role.¹²⁴

The general view is that formal growth models failed to capture the contemporary reality of even the mature industrial economies in the 1950–1970 period. In particular, those models were incapable of explaining the phenomenal growth of the industrial economies during the period, which was caused by technological innovation and the expansion of international trade. More important for our present purpose, however, formal growth models were totally ill-equipped to deal with the problems of economies in a process of long-term development from a “rude state.” Those problems were addressed by growth models constructed by development economists during the same period.

Development economists, concerned with Third World economies that were progressing from a “rude state,” saw much similarity between their own objects of study and those that confronted the classical economists. Their growth theories were, therefore, derived from classical theory rather than Keynesian economics as formal growth models did. Their growth models were less formal and often took non-economic factors into consideration. Even so, several of the development economists still failed to overcome the export pessimism of the period. For purposes of illustration, we consider briefly a few of their more representative writings. Arthur Lewis and H. Myint would serve this purpose well.

Arthur Lewis recognized the role of non-economic factors in the development process and allowed for the possibility of change being initiated by non-economic factors. But he did not believe that any set of non-economic factors could prevent development when opportunities for growth are presented.¹²⁵ In his more elaborate growth theory published in 1955, Lewis gave much room to international trade, believing as Adam Smith did, that overseas trade would be the main propelling force to move the predominantly subsistence economy from its “rude state” into the path of development:

¹²⁴ K. Berrill, “International Trade and the Rate of Economic Growth,” *Economic History Review*, 2nd series, Vol. XII, No. 3 (1960), p. 351. See also Rostow, *Theorists of Economic Growth*, pp. 350–351.

¹²⁵ See his statement this volume on p. 17 on the conditions for the continuance and change of social institutions; Lewis, *Theory of Economic Growth*, p. 143.

Accordingly, at low levels of economic activity, production for the foreign market is usually the turning point which sets a country on the road of economic growth. To make an upward movement by producing for the home market is at this stage extremely difficult. . . . At low levels innovation for the home market is unusual. . . . Innovation comes, therefore usually first of all in foreign trade. . . .¹²⁶

But his highly influential paper, "Economic Development with Unlimited Supplies of Labour," published in 1954, and his book, *The Evolution of the International Economic Order*, published in 1978, both minimize the role of foreign trade in the development process.¹²⁷ The economy with unlimited supplies of labor is expected to develop on the basis of cheap labor that is transferred from the subsistence sector to the capitalist sector under conditions of autarky – conditions of a closed economy, without international trade. The closed economy assumptions are relaxed only after the expansion of the capitalist sector has absorbed the surplus labor. At this point wages begin to rise, profits fall, and investments decline. The economy then opens up to overcome this predicament by either encouraging the immigration of labor from other labor surplus economies or by exporting capital to such economies to take advantage of their surplus supplies of labor.

The model says nothing about the market where the products of the cheap labor will be sold nor about the incentives that would encourage capitalists to invest their capital in the capitalist sector, given the initial character of the economy and the closed economy assumptions. One would have thought that, given his eloquent statement quoted above, Arthur Lewis would recognize that, short of the Soviet model, sustained export expansion represents the best opportunity for an economy at the stated level of activity to develop through the exploitation of its surplus resource, labor. Somehow, he could not overcome the prevailing export pessimism of the time. As late as 1978, Arthur Lewis still wrote:

[I]nternational trade became an engine of growth in the nineteenth century, but this is not its proper role. The engine of growth should be technological change, with international trade serving as lubricating oil and not as fuel. The gateway to technological change is through agricultural and industrial revolutions, which are mutually dependent.¹²⁸

¹²⁶ *Ibid.*, pp. 275–276.

¹²⁷ W. Arthur Lewis, "Economic Development with Unlimited Supplies of Labour," *Manchester School of Economic and Social Studies*, XXII (May, 1954), pp. 139–191, reprinted in Lal (ed.), *Development Economics*, Vol. I, pp. 117–169; W. Arthur Lewis, *The Evolution of the International Economic Order* (Princeton, NJ: Princeton University Press, 1978).

¹²⁸ Lewis, *Evolution of the International Economic Order*, p. 74. In his 1955 book, Arthur Lewis had said: "The fact that an expansion of manufacturing production does not require an expansion of agricultural production if it is backed by a growing export of manufactures is particularly important to those over-populated countries

While Lewis's apparent preoccupation with the export pessimism of the 1950s forced him to construct a closed economy model of growth, H. Myint, as was shown above, appreciated the relevance of Adam Smith's vent-for-surplus and productivity theory of international trade to the conditions of many Third World economies in the nineteenth and early twentieth centuries. Though Myint's model was addressed specifically to economies with surplus land, it can be applied equally to Lewis's economy with surplus labor. In fact, only the introduction of an expanding export market makes Lewis's model realistic.¹²⁹

Thus some variants of the post-war growth models in development economics favored export-led growth. However, such models had little influence on the historiography of the Industrial Revolution between the late 1940s and the early 1980s. The dominant ideas came from mainstream economics and they flowed from formal growth models. This was the more so, because the Industrial Revolution attracted many economists trained in formal growth theory between 1950 and the 1970s. This was the age of cliometrics, counterfactuals, and the "new economic history." As Hughes, to whom the term "new economic history" has been traced,¹³⁰ wrote:

Young men who came into economic history from economics in the 1950s and early 1960s to look for the economist's equivalent of 'laws of nature' in the historical record had their primary training in the 'new' and the 'new-old' economics. They seemed to understand little of the methods and motives of the old-time 'fact' men in economic history, and went to work rewriting economic history, revising much of the older interpretation, but also pushing the old-framework aside altogether and producing entirely new information by new methods, statistical techniques and data processing.¹³¹

which cannot hope to increase their agricultural output for food as rapidly as their demand for food however much they may try. . . . This is very obviously the case with the British economy. The Industrial Revolution was accompanied by an Agricultural Revolution [note the sequence], but home demand soon outstripped the possibilities of agricultural production, and from the end of the Napoleonic War to the outbreak of the American Civil War, what set the pace for the growth of the British economy was the fact that British exports of manufactures were growing by nearly 6 percent per annum, cumulatively" (Lewis, *Theory of Economic Growth*, pp. 278–279).

¹²⁹ Other development economists who stressed the positive role of international trade in the development process include Jacob Viner, Gottfried Haberler, and Peter Bauer. For a discussion of the confrontation between export-led and import-substitution models in development economics, see Rostow, *Theorists of Economic Growth*, pp. 422–425, and Hollis Chenery, Sherman Robinson, and Moshe Syrquin, *Industrialization and Growth* (New York: Oxford University Press, 1986).

¹³⁰ Lance E. Davis, "And it will never be literature," *The New Economic History: A Critique*, in Ralph L. Andreano (ed.), *The New Economic History: Recent Papers on Methodology* (New York: John Wiley and Sons, 1970), p. 67.

¹³¹ J. R. T. Hughes, "Fact and Theory in Economic History," in Andreano (ed.), *New Economic History*, p. 48.

Economic history in British universities had its share of this development, although to a more limited extent because of the established tradition of economic history as an independent discipline in many British universities. The fact remains, however, that both in the United States and in Britain the economists who moved into the history of the Industrial Revolution were largely responsible for the establishment of a new dominant interpretation between 1950 and the early 1980s. As one would expect from their formal models, most of them discounted the role of overseas trade. They generally treated technological innovation as exogenous and computed gains from international trade in terms of Ricardo's static comparative advantage theory, which enabled them to argue, like Mill, that the resources employed in producing for export between 1650 and 1850 could have been employed to produce for the home market in England without much loss in growth. The influence of their writings, together with the prevailing export pessimism of the time, also persuaded other students of the Industrial Revolution to minimize the role of overseas trade during the 1950–80 historiographical period.

All of this was further reinforced by the mixture of academic and ideological debates on the economic costs and benefits of colonialism, which soon became part and parcel of a raging cold war. Various strands of Marxian theory, including dependency theory, discounted the positive role of international trade in the development process and quite often asserted it was negative, for reasons that were probably connected with the achievements of non-market strategies in the U.S.S.R. and China, and the association of international trade with colonialism, among others. Three aspects of this Marxian scholarship, speaking broadly, are important for our present purpose. There were serious Marxists like Robert Brenner who employed Marxist theory to argue that class struggle arising from agricultural development, rather than overseas trade, was the main factor in English economic development in the seventeenth and eighteenth centuries.¹³² Reasoning somewhat similarly, other Marxist scholars argued that international trade under European colonialism distorted the class structure of colonized societies and gave rise to under-development – something that did not happen in Western Europe where class structures are said to have evolved on the basis of internal forces undisturbed by external pressure.¹³³

¹³² See the papers in Aston and Philpin (eds.), *The Brenner Debate*.

¹³³ See the voluminous literature on dependency theory, of which the following are some of the best known: the first issue of *Latin American Perspectives*, 1, no. 1 (1974), devoted entirely to the subject; so also are the special issues of the same journal, vol. 8, nos. 3 and 4 (1981), entitled, *Dependency and Marxism*; Henry Bernstein (ed.), *Underdevelopment and Development: The Third World Today* (New York: Penguin Books, 1973); André Gunder Frank, *Capitalism and Underdevelopment in Latin America* (New York: Monthly Review Press, 1967); Robert A. Packenham, *The Dependency Movement: Scholarship and Politics in Development Studies*

Finally, other scholars of the period, who included non-Marxists, tried to show that economic development in Western Europe was based on plunder and exploitation of colonized peoples. The best known of the latter group of scholarly publications is Eric Williams, *Capitalism and Slavery*.

These publications did two things: They placed on the heads of Western peoples responsibility for the economic problems of former colonial territories in the Third World; and they questioned the moral basis of Western development. It is no surprise that reaction to them during the 1950–80 historiographical period tended to follow predictable lines – with important exceptions on all sides. Scholars in the West defended Western societies against all the charges, while those in the Third World and the Socialist Bloc strongly supported the said publications. To illustrate, Peter Duignan and L. H. Gann wrote in 1975:

In the colonial period, it is charged, there was growth without development; because of increased population pressure on the land, African living standards remained stationary or rose only slightly. The story of colonialism was, then, the tale of *How Europe underdeveloped Africa*. Our own conclusions are at variance with this interpretation.¹³⁴

In a book published in 1980 after his death, Bill Warren wrote on the same subject:

There is no evidence that any process of underdevelopment has occurred in modern times and particularly in the period since the West made its impact on other continents. The evidence rather supports a contrary thesis: that a process of *development* has been taking place at least since the English industrial revolution, much accelerated in comparison with any earlier period; and that this has been the direct result of the impact of the West . . .¹³⁵

More ideologically explicit, Bauer wrote in 1981:

Acceptance of emphatic routine allegations that the West is responsible for Third World poverty reflects and reinforces Western feelings of guilt. It has enfeebled Western diplomacy, both towards the ideologically much more aggressive Soviet bloc and also towards the Third World. And the West has come to abase itself before countries with negligible resources and no real power. Yet the allegations can be shown to be without foundation. They are readily accepted because the Western public has little first-hand knowledge of the Third World, and because of widespread

(Cambridge, Mass.: Harvard University Press, 1992). See also Walter Rodney, *How Europe Underdeveloped Africa* (London: Bogle-L'Ouverture, 1972; revised edition, Washington: Howard University Press, 1981).

¹³⁴ Peter Duignan and L. H. Gann, "Economic Achievements of the Colonizers: An Assessment," in Peter Duignan and L. H. Gann (eds.), *Colonialism in Africa, 1870–1960: Volume IV, The Economics of Colonialism* (Cambridge: Cambridge University Press, 1975), p. 673.

¹³⁵ Bill Warren, *Imperialism: Pioneer of Capitalism*, edited by John Sender (London: Verso, 1980), p. 113.

feelings of guilt. The West has never had it so good, and has never felt so bad about it.¹³⁶

The debate on the role of overseas trade in the first Industrial Revolution, especially the slave-based Atlantic commerce, was conducted in the 1950–80 period against the background of this global ideological ferment. This explains why Eric Williams's *Capitalism and Slavery* provoked such a voluminous literature during the period.¹³⁷ Without arguing that arguments on either side were consciously ideological, traces of the influence of the international ideological environment of the time, albeit indirect, can be observed in the literature. One or two illustrations will suffice. In 1955 Ashton wrote:

The rapid development of English industry has been attributed to the exploitation of colonial peoples and to profits wrung from the slave trade. But it was after the Americans had won their independence, and at a time when the West Indian economy was in decline, that the pace quickened.¹³⁸

Thirty-eight years later, Joel Mokyr charged quite explicitly that scholars who argue in favor of a positive contribution by the British empire to the process of economic development in England do so because they dislike the Industrial Revolution: "It seems somehow tempting for those who do not have much sympathy for British capitalism to link it with imperialism and slavery." He cites Stanley Engerman, who is reported to have said in 1972: "In this version history becomes a morality play in which one evil (the Industrial Revolution) arises from another, perhaps even greater evil, slavery and imperialism."¹³⁹ Thus, just as the association of international trade with colonialism seems to have affected somewhat the attitude of Third World scholars to the role of foreign trade in development during the 1950–80 period, the views of Western scholars concerning the contribution of overseas trade to the Industrial Revolution appear to have also been affected in some way by the charges of exploitation that put into question the moral basis of Western development.

To summarize, effort has been made to show that the dominance of interpretations of the Industrial Revolution centered on autonomous domestic

¹³⁶ P. T. Bauer, *Equality, the Third World and Economic Delusion* (London: George Weidenfeld and Nicolson, 1981), p. 66.

¹³⁷ For a survey of the literature, see Richard B. Sheridan, "Eric Williams and *Capitalism and Slavery*: A Bibliographical and Historiographical Essay," in Solow and Engerman (eds.), *British Capitalism and Caribbean Slavery*, pp. 317–345; see also in this same edited volume, Hilary McD. Beckles, "'The Williams Effect': Eric Williams's *Capitalism and Slavery* and the Growth of West Indian Political Economy" (pp. 303–316), which discusses, *inter alia*, the support for *Capitalism and Slavery* among Caribbean scholars.

¹³⁸ Ashton, *An Economic History of England*, p. 125.

¹³⁹ Mokyr, "Introduction: The New Economic History," p. 75 and footnote 67, p. 75.

forces during the 1950–80 historiographical period was due to a combination of several factors. The collapse of the international economy under the impact of two world wars and the Great Depression led to export pessimism that affected the perceptions of historians and the growth theories constructed by economists. The movement into the study of the Industrial Revolution by a sizable number of economists trained in neoclassical formal growth theory accelerated the momentum of change. And the appeal of the non-market model in the socialist world combined with anti-colonial scholarship to make market-oriented development largely unpopular during the period. While all of these factors made their contributions, individually and collectively, the greatest weight must be attached to the export pessimism associated with the collapse of the international economy and the neoclassical formal growth theory to which it gave birth.

From the 1980s, new forces affecting historians' interpretations of the past, which have been building up over the preceding decades, began to emerge forcefully. As Arthur Lewis stated in the quotation presented earlier, international trade grew cumulatively at about 8 percent per annum between 1950 and 1970. This enabled the industrial nations of the West, operating under favorable terms of trade, to experience a phenomenal rate of growth. Meanwhile, most nations in the Third World implemented ISI policy. These countries fell into three categories: Some started their industrialization process with import-substitution strategy but quickly moved into aggressive export promotion as the limits of the pre-existing domestic market were being reached; others persisted with import-substitution until the difficulties of a limited domestic market forced them into export promotion; and yet others continued with import-substitution in spite of the difficulties. The result is that the first group of countries (the Asian tigers: South Korea, Taiwan, Hong Kong, and Singapore) completed their industrialization successfully and joined the club of industrial nations; the second group began to make more progress after export promotion strategy was adopted (Brazil, Chile, and some other Latin American and Asian countries, in particular, Thailand); finally, the third group, which includes India, made very little progress in their industrialization drive during the period.¹⁴⁰

Neoclassical formal growth theory constructed in the 1950s and 1960s could explain neither the growth experience of the industrial nations during the period nor the industrialization experience of the Third World nations. As theory diverged increasingly from observed reality, new theories more

¹⁴⁰ Balassa, *The Process of Industrial Development*; Hollis Chenery, Sherman Robinson, and Moshe Syrquin, *Industrialization and Growth* (Oxford: Oxford University Press, 1986); Jacques Hersh, *The USA and the Rise of East Asia since 1945: Dilemmas of the Postwar International Political Economy* (London: Macmillan, 1993).

closely related to real world observation began to be fashioned in the mid-1980s. The main difference between the new theories and those of the 1950s and the 1960s is in the treatment of technological change and international trade. As was noted earlier, formal growth theories, to which Harrod-Domar gave birth, paid little attention to international trade and treated technological innovation as exogenous, “a manna from heaven.” The new theories regard technological change as an endogenous variable that is affected by market size and trade expansion. For this reason international trade features prominently in the new theories. Summarizing their survey of the new growth literature, to which they themselves have contributed greatly, Gene Grossman and Elhanan Helpman observe:

Many growth theorists raised in the neoclassical, Solovian tradition took technological progress to be an exogenous and fortuitous process. Several common features distinguish recent efforts to endogenize innovation within general equilibrium models of long-run growth.¹⁴¹

And they conclude:

Casual observation and more systematic empirical research suggest that countries that have adopted an outward-oriented development strategy have grown faster and achieved a higher level of economic well-being than those that have chosen a more protectionist trade stance. . . . The approach to modeling endogenous innovation and endogenous human capital formation that has been proposed here may provide a means for improving our understanding of the connection between the international trade environment including the trade policy regime and long-run growth performance.¹⁴²

Added to the construction of more realistic growth theories, the collapse of the Soviet Union and the adoption of the market system by the former Soviet republics, Eastern Europe, and China have all helped to make the importance of trade in the growth process more generally appreciated. Postwar export pessimism finally seems to have left the scene. Neoclassical formal growth theorists now willingly admit the limitations of their theories and, together with administrators who based their public policies on those theories, regret the mistakes of the preceding decades. It is a

¹⁴¹ Gene M. Grossman and Elhanan Helpman, “Trade, Innovation, and Growth,” *American Economic Review*, Vol. 80, No. 2 (May, 1990), pp. 86–87.

¹⁴² *Ibid.*, pp. 90–91. See also Gene M. Grossman and Elhanan Helpman, *Innovation and Growth in the Global Economy* (Cambridge, Mass.: MIT Press, 1991). Paul M. Romer is often cited as one of the originators of the new growth theories. See Paul M. Romer, “Increasing Returns and Long-Run Growth,” *Journal of Political Economy*, Vol. 94, No. 5 (1986), pp. 1002–1037. In another paper he states: “The economics profession is undergoing a substantial change in how we think about international trade, development, economic growth and economic geography” (Paul M. Romer, “The Origins of Endogenous Growth,” *Journal of Economic Perspectives*, Volume 8, Number 1 (1994), p. 19).

combination of all these factors that is forcing the new trend in the historiography of the Industrial Revolution shown earlier in the chapter.

The reaction by Crafts, one of the leading neoclassical formal growth theorists in the field, helps further to make the point. As he puts it:

Interpretations of the experience of economic growth in Britain during the Industrial Revolution and the later nineteenth century have in recent times been based on the traditional neoclassical growth model and growth accounting. In the last ten years or so, however, economists' theorizing about growth has changed dramatically with the development of endogenous growth models and increased emphasis on the roles of human capital formation and of research and development.¹⁴³

Crafts still holds that some aspects of technological change in the first Industrial Revolution, "macroinventions," were exogenous. However, he believes that some of the new growth theories, especially the Grossman-Helpman type, provide helpful insights for more realistic interpretation of the Industrial Revolution. Further, he admits that the new growth theorists have "found useful ways of formalizing ideas long discussed by economic historians, and the way may now be open for some fruitful interaction between economics and economic history." Crafts specifically suggests that "given the extensive emphasis placed on comparative market size by new growth theory, a substantial effort should be made to find ways to investigate this hypothesis properly."¹⁴⁴ Thus, just as postwar export pessimism and the neoclassical formal growth theory to which it gave rise were principally responsible for inward looking interpretations of the Industrial Revolution in the 1950–1980 period, so also do we conclude that the disappearance of postwar export pessimism and the construction of more realistic growth theories by economists are the main factors driving the new trend in the historiography of the Industrial Revolution.

3.3 ASSESSING THE CONTENDING EXPLANATIONS

We have now seen the over time changes in the historiographical environment that influenced the changing interpretations of the Industrial Revolution between the 1880s and the present. In this last part of the chapter we propose to probe further the merits and demerits of the contending explanations. Emphasis in the preceding discussion was on the relative strengths and weaknesses of the theoretical frameworks that informed the competing explanations. Of course, inappropriate theory usually leads to error in historical analysis. But even where the underlying theoretical perspective is appropriate, a particular historical explanation may still fail to be suffi-

¹⁴³ N. F. R. Crafts, "Exogenous or Endogenous Growth? The Industrial Revolution Reconsidered," *Journal of Economic History*, Vol. 55, No. 4 (December, 1995), p. 745.

¹⁴⁴ Crafts, "Exogenous or Endogenous Growth?" p. 768.

ciently persuasive if relevant evidence is not properly marshaled to present a convincing proof. In the discussion that follows, a clear distinction is drawn between argumentation, assertion, and detailed proof. It is contended that much of the competing and changing explanations of the causes of the Industrial Revolution, examined earlier, contain much assertion and argumentation, and very little detailed historical proof. It is contended further that such proof can be best offered on the basis of recent regional studies whose implications are yet to be fully incorporated into the national studies of the Industrial Revolution. We employ the detailed regional evidence presented in Chapter 2 to confront the competing interpretations discussed earlier and to offer a systematic empirical and logical proof of the leading role of overseas trade in the Industrial Revolution, and the leading position of Atlantic commerce in the overall growth of trade during the period.

Undoubtedly, the determination of the source and course of inventive activities and technological innovation ultimately occupies the commanding height in the competing explanations of the Industrial Revolution. There is a clear consensus in the literature that while changes in the organization of production were important, in the final analysis it was the technological breakthroughs of the late eighteenth and nineteenth centuries that transformed British industry and society irrevocably and turned Britain into the workshop of the world. The most important area of disagreement in the literature is, therefore, how to explain the technological breakthroughs. As we have seen, there are two broad groups of explanation; one is based on autonomous internal forces in England and the other is centered on the impact of overseas trade. The former group contains two opposing views: One presents the technological innovations of the period as fortuitous developments unrelated to markets and trade, the manna-from-heaven view of technical change; while the other sees the changes in technology largely as a function of growing market demand, which was led by growing home consumption as opposed to expanding overseas demand.

Right from the start historians generally rejected the manna-from-heaven view of technical change during the Industrial Revolution. As previously shown, both Cunningham and Hobson, writing in the nineteenth century, anticipated Mokyr's argument based on evolutionary biology and rejected it. In more recent times, Eric Hobsbawn and David Landes, among others, have persistently attacked it.¹⁴⁵

¹⁴⁵ Eric J. Hobsbawn, "The General Crisis of the European Economy in the 17th Century," *Past & Present*, 5 (1954), pp. 33-53; 6 (1954), pp. 44-65 and *Industry and Empire* (London: Pelican Books, 1969). David S. Landes, *The Unbound Prometheus: Technological Change and Industrial Development in Western Europe from 1750 to the Present* (Cambridge: Cambridge University Press, 1969) and "The Fable of the Dead Horse; or, The Industrial Revolution Revisited," in Mokyr (ed.), *The British Industrial Revolution*, pp. 132-170.

The empirical evidence presented in Chapter 2 makes it hard to believe that technological change during the Industrial Revolution was a matter of chance. As shown, the major inventors were practical men searching for solutions to observed practical problems. For example, Abraham Darby, who invented the smelting of iron with mineral fuel, was an ironfounder making iron-cast pots. His invention resulted from his efforts to produce pig iron suitable for his own use. Also, Henry Cort, the inventor of the puddling process, was a Navy agent in London. His invention came from his efforts to procure high quality iron suitable for naval and ordnance purposes. The history of Boulton and the steam engine shows similar entrepreneurial connection with production and markets. What is more, the influence of the market is strongly indicated by the location of the major inventors' activities in regions where the main industrial sectors requiring the inventions had become comparatively large and were expanding more rapidly relative to other regions in England. Thus the major inventive activities connected with the iron industry were located in the West Midlands, with the exception of Henry Cort's work that was aimed at state demand and, therefore, located in London, the seat of the central government.

The contending arguments on whether trade stimulated technological change or accidental (exogenous) technical change propelled trade expansion can be assessed with the aid of available regional studies as presented in Chapter 2. As we have seen, technological innovation in woollen textile production occurred during the Industrial Revolution, mostly in the West Riding of Yorkshire. This is an important historical development whose implications for the debate on the causes and course of technological innovation during the Industrial Revolution have not been fully explored. We know that the main production centers for the woollen textile industry were for several centuries located in the southern counties in the West Country and East Anglia. It was only in the course of the eighteenth century that the West Riding emerged as the leading region in the production of woollen textiles in England as was shown earlier. The failure of the West Country and East Anglia to initiate technological change in the woollen textile industry, despite their domination of the industry for several centuries, is very pertinent to any assessment of the contending explanations. Even more pertinent are the factors behind the concentration of the industry in the West Riding and the course of output expansion in the region.

As we have seen, woollen textile production in the West Country and East Anglia stagnated in the eighteenth century, while it expanded in the West Riding. It was also shown earlier that the main reason for this differing regional experience was the success of the West Riding in taking export markets in Europe away from the southern counties and in securing rapidly growing markets in the Americas. Again, we saw that the superior export performance of the West Riding was due mainly to its superior

export sales practice. The evidence shows clearly enough that several decades of overseas sales expansion and general growth of output and concentration of the industry in the region preceded the growth of technological innovation in woollen textile production in the West Riding. Thus, technological progress in the West Riding and its failure in the West Country and East Anglia can both be explained in market terms. Here we have a clear example of export-led technological progress, which is contrary to the technology-led trade expansion argued by Ralph Davis and Joel Mokyr that was presented earlier in this chapter.

In general, the debate on the relative contribution of domestic demand and overseas markets can also be confronted with the evidence from regional studies. The home market argument is usually conducted at the national level, with agricultural prosperity and population growth as its foundation. The national focus is completed when emphasis is placed on the national integration effects of investments in internal transportation improvements in the eighteenth century. The argument is that eighteenth-century investments in internal transportation improvements led to regional specialization, which widened the domestic market for regions with a competitive edge in particular industrial sectors. As expressed by Rick Szostak in an elaborate work on the subject:

While the role of market widening in the emergence of workshops can be questioned, it is clear that it played a key role in the process of regional specialization. Whereas previously high-cost producers had been able to maintain a hold on local markets due to the heavy expense of importing goods from elsewhere, now it was increasingly possible for low-cost regions to export their produce throughout the kingdom. . . . writers in both the primary and secondary literature attribute particular cases of regions losing or gaining particular industries to peculiar local causes. . . . However, the overriding reason for the concentration of various industries in particular regions during the eighteenth century is the drop in transport costs.¹⁴⁶

Based on this assumption, Szostak heavily discounts the role of overseas trade and gives the pride of place to internal trade:

By concentrating on the internal transport networks of England and France, this work focuses on internal rather than external trade. I am in agreement with most of the modern literature and at least some contemporary writing in recognizing that it was the internal market that was of primary importance during this period. There had been a certain tendency in the literature to try to attribute a major role in the Industrial Revolution to English foreign trade. This tendency arose partly because international trade leaves better record for the historian rather than internal trade. Moreover, contemporary writers – especially those of mercantilist bent – tended to

¹⁴⁶ Rick Szostak, *The Role of Transportation in the Industrial Revolution: A Comparison of England and France* (Montreal & Kingston: McGill-Queen's University Press, 1991), pp. 12–13.

devote more of their energy to discussing foreign trade. Even some industrialists, such as Boulton and Wedgwood, spoke of their need for foreign markets, though they sold the bulk of their output within England. It is now commonly recognized that the links between foreign trade and industrialization are weak.¹⁴⁷

But on what evidence does Szostak base his claim of the national integration and regional specialization effects of internal transport investments in the eighteenth century? As he admits:

In order to show that the market was widening in the eighteenth century, one would need evidence that particular goods from particular areas were circulated within a particular region in 1700, a larger region in 1750, and even larger region in 1800. Unfortunately, as Hey says about the Sheffield trades, ‘The evidence for domestic sales is scrappy.’ I have already noted that the greater availability of data on foreign trade has encouraged historians to underestimate the importance of the home market. The same paucity of data makes it extremely difficult to detail the expansion of the geographical market any producer deals with. There is some mention of people establishing relations in areas of the country with which they had not been in contact before. For example, in the cast iron trade, ironfounders ceased to deal with isolated regional markets but sold instead on a national basis. Such evidence, however, is fragmentary.¹⁴⁸

Thus, by his own admission, Szostak’s argument has no real empirical foundation. In fact, the argument is at variance with the evidence produced by regional studies as shown in Chapter 2. In the first place, as the evidence shows, the main effect of internal transportation investments in the eighteenth century was regional rather than national. John Langton’s work in the 1980s, which generated further research on the subject, all of which are shown above, makes it clear that canal construction, by far the most important transportation investment during the period, created highly integrated regional economies in England, within which industrial producers operated largely in isolation from those in other regions, while at the same time competing in overseas markets. Again, as shown above, subsequent research, including a collective work sponsored by the Economic History Society and the Institute of British Geographers, all support Langton’s main finding. This led to the report of the editors of *Atlas of Industrializing Britain, 1780–1914*, cited: “The flows of goods along the canals and turnpikes of Lancashire and Yorkshire are clearly greater than flows out of the region, *except for the export funnels of Liverpool and the Aire.*”¹⁴⁹ The evidence shows further that it was the nineteenth-century investment in railway construction that eventually destroyed regionalism and created an integrated national economy for the first time in England. Szostak seems to be unaware of these regional studies of the effects of eighteenth-century

¹⁴⁷ Szostak, *The Role of Transportation*, pp. 44–45.

¹⁴⁸ Szostak, *The Role of Transportation*, p. 98.

¹⁴⁹ See footnote 213, Chapter 2. Emphasis added.

internal transportation investments, as there is no reference to any of them in his book.

Second, evidence from other regional studies, also presented above, shows that the regions in which revolutionary industrial development occurred in England between 1750 and 1850 were those that were heavily engaged in production for overseas markets – Lancashire, Yorkshire, and the West Midlands – and they sold a vastly greater proportion of their output overseas than they did in other regions in England. The case of the woollen textile industry already mentioned in this chapter shows clearly enough that success in overseas markets was the main factor behind the extraordinary performance of the leading regions in the Industrial Revolution, just as the loss of export markets was largely responsible for industrial stagnation in the West Country and East Anglia. As shown in Chapter 2, the West Riding took over markets in Europe from the West Country and East Anglia but did not displace them in their own regional home markets, which continued to provide outlets for their products. The connection of Lancashire cotton textile to overseas markets was even greater.

Third, evidence from regional studies also shows that the initial effects of population growth was regional rather than national. It is important to note at this point that population growth in England during the Industrial Revolution was a dependent rather than an independent variable. A summary of the evidence from recent research shows that changes in demographic behavior arising from growing employment opportunities in the non-agricultural sector, especially commerce and industry, were principally responsible for sustained population growth during the period.¹⁵⁰ This means that expanding overseas exports by creating more employment contributed to the growth of population and the expansion of the domestic market. This is why, as shown in Chapter 2, population growth in the main export producing and rapidly industrializing regions of the north of England – Lancashire and Yorkshire – was the fastest in the whole country. In this way, the fast growing regions largely created their own labor force through natural increase and did not depend in a significant way on net immigration from other regions in England.

Now if the rapidly industrializing regions of the north of England did not depend in a significant way on the other regions for their labor and for the sale of their products, then the home demand argument based on agricultural prosperity and population growth cannot stand. This is so, because, as shown in Chapter 2, agricultural prosperity during the period occurred in the southern counties where industrial production stagnated. This

¹⁵⁰ See Inikori, "Slavery and the Development of Industrial Capitalism in England," reprinted in Solow and Engerman (eds.), *British Capitalism and Caribbean Slavery*, pp. 89–91.

appears to confirm the argument of Patrick O'Brien, and of O'Brien and Engerman, all stated earlier in this chapter, that the growth of agricultural incomes contributed very little to increments in the purchase of industrial products between 1700 and 1802. This is not to say that the home market did not grow during the period or that its growth did not make an important contribution. What is needed is a proper understanding of the course and significance of the home market expansion.

The import of the evidence presented in Chapter 2 is that the expansion of *entrepôt* overseas trade and the growth of agricultural productivity between 1660 and 1730, while population stagnated, stimulated the growth of the domestic market for manufactured goods. Much of the increase was initially supplied with imported manufactures. But in due course import substitution industrialization displaced imported manufactures in the domestic market. Many counties in England were involved in the production of import-replacing products, whose sales were generally limited to local regional markets. In this process, regions with limited resources were compelled at an early date to pursue overseas markets aggressively. Aided by the successful imperial and commercial policies of the central government and by their own internal conditions, these regions secured large and growing overseas markets, which enabled them to grow much faster than other regions that continued to produce mainly for their regional domestic markets. The size of the market served and the pace of its growth also ensured that the principal export producing regions would initiate technological innovation, thereby increasing their competitive edge and further expanding their exports. As Maxine Berg and Pat Hudson have noted:

If the increase [in woollen textile production] had been uniform in all regions, it could have been achieved simply by the gradual extension of traditional commercial methods and production functions. But Yorkshire's intensive growth necessarily embodied a revolution in organization patterns, commercial links, credit relationships, the sorts of cloths produced, and production techniques. The external economies achieved when one region took over more than half of the production of an entire sector were also of key importance.¹⁵¹

Meanwhile, the lagging regions continued to serve the bulk of their own regional domestic markets, which grew albeit slowly. This means that the latter regions continued to maintain some level of vitality that was important in their ability to adjust quickly and effectively when the railways finally exposed them to direct competition with the leading regions in the nineteenth century.

¹⁵¹ Maxine Berg and Pat Hudson, "Rehabilitating the industrial revolution," *Economic History Review*, XLV, 1 (1992), p. 38.

A regional approach to the study of the Industrial Revolution thus makes for a better understanding of the relative contribution of overseas trade and the home market. Similarly, comparative regional studies shed considerable light on the Brenner's debate concerning the role of agrarian structure in West European economic development. As mentioned earlier in this chapter, Robert Brenner dismissed the importance of overseas trade in the Industrial Revolution and argued that the class structure produced by the development of capitalist agriculture in England in the fifteenth and sixteenth centuries was the principal cause. The main weakness of this argument, which has been attacked by several writers, is Brenner's presentation of class struggle as the main determinant of development without showing the factors in the historical process that produced the classes and over time changes in their relative strengths and weaknesses, as well as over time changes in the way the members of the classes perceived their self-interests. To show that agrarian class structure was not a sufficient condition for West European development, critics point to the similarity between England's agrarian structure and those of renaissance Italy and seventeenth-century Holland, countries where the agrarian class structures in question developed much earlier than in England without producing an industrial revolution.¹⁵² What has been overlooked in this debate is evidence from regional studies in England that is even more helpful in clarifying the issues.

As shown in Chapter 2, regional studies by the main authorities all show unambiguously that much of the agrarian development in England between 1086 and 1660 was limited to counties in the South of England, that is, counties lying to the south of a line drawn from The Wash to the Severn estuary. It was in these counties of early settlement and population concentration that the combination of demography, foreign trade, and central government activities and policies produced a highly commercialized agrarian system and expanding proto-industrialization, especially the counties of East Anglia. For much of the period, the counties to the north remained agriculturally backward. This was even more so in Lancashire and Yorkshire. As earlier shown, feudal features still characterized the agrarian class structure of mid-Tudor Lancashire: "Local magnates retained considerable autonomy; some still exercised feudal rights of wardship and marriage over their tenants, and labor dues and payment in kind were widespread elements in the relationship between small farmers and their landlords."¹⁵³

Now if Brenner's agrarian class structure were the principal cause of the Industrial Revolution, clearly the leading regions would have been in the South of England. But, as we have seen, it was agriculturally

¹⁵² See Krantz and Hohenberg (eds.), *Failed Transitions to Modern Industrial Society*; Inikori, *Slavery and the Rise of Capitalism*; Hobsbawm, "The General Crisis of the European Economy."

¹⁵³ See footnote 79, Chapter 2.

backward Lancashire and Yorkshire that led the way, while East Anglia with its progressive agrarian class structure stagnated. Need we recall Arthur Lewis's point that backward social structures are whittled away over time when opportunities for growth are presented?: "The continuance of a social institution in a particular form depends upon its convenience, upon belief in its rectitude, and upon force. If growth begins to occur, all these sanctions are eroded. . . ." ¹⁵⁴ This is not to argue, as Wrigley does, that the socio-economic and political changes between 1086 and 1776 – the organic economy period – were irrelevant to the Industrial Revolution, which created the inorganic economy. ¹⁵⁵ As argued in Chapter 2, the long drawn-out institutional changes going back to the late Middle Ages were important in providing the political conditions for the development of the leading regions and in facilitating the quick spread of development from the leading to the lagging regions once the railways created an integrated national economy in the nineteenth century.

It is thus fair to say that in general the arguments and assertions of the proponents of the "Commercial Revolution" thesis are valid. What has been wanting is a detailed empirical and logical proof. What is new in the analysis presented so far is the employment of evidence from regional studies to offer such proof. Evidence from national output statistics and trade figures may help to further strengthen the proof.

Based on national estimates of industrial output, Crafts computed that increases in overseas sales accounted for 58 percent of the increments in British industrial output between 1700 and 1760 and between 1780 and 1800, respectively. ¹⁵⁶ This is in general agreement with the result of the "taxonomic exercise" by O'Brien and Engerman stated earlier in this chapter. And they both agree with the evidence of Deane and Cole, also mentioned earlier, which shows that industries producing largely for exports grew much faster than those producing mainly for the home market during the period. The importance of this evidence in the explanation of the Industrial Revolution can only be appreciated fully when it is realized that the faster growth of overseas sales observed at the national level was in fact concentrated in key industrial sectors and in a few strategic regions. As noted earlier, the revolutionary impact of fast growing overseas sales, from the point of view of technological innovation, the reorganization of production, and similar other changes, was considerably greater than the national aggregate statistics indicate because of the sectoral and regional concentration.

One more aspect of the proof being constructed, which is demanded by the central theme of this study, is the geographical location of the main

¹⁵⁴ Lewis, *Theory of Economic Growth*, p. 143; see quote on p. 17 this volume.

¹⁵⁵ Wrigley, *Continuity, Chance and Change*.

¹⁵⁶ Crafts, "British Economic Growth," pp. 197–198.

dynamic sector of British overseas trade during the period being examined. This is a relatively easy problem that can be resolved with the use of the available trade statistics. These show that between 1699/1701 and 1772/74, increased sales of English manufactures in Western Africa and the Americas accounted for 71.5 percent of the total increase in overseas sales of English manufactured goods; East India accounted for 11.8 percent; and Europe (including Ireland) accounted for the remaining 16.7 percent. The bulk of the increase in Europe came from southern Europe (mainly Portugal and Spain); sales in northern and northwest Europe actually declined absolutely during the period.¹⁵⁷ For the 20-year period 1784/86–1804/06, increased sales in Western Africa and the Americas accounted for 60 percent of the increases in British manufactures exported; Europe (including Ireland) accounted for 36.8 percent; and the Near East, Asia, and Australia accounted for the remaining 3.2 percent. And for the half century between 1804/06 and 1854/56, Western Africa and the Americas accounted for 29.7 percent, the Near East, Asia, and Australia for 47.9 percent, and Europe 22.4 percent of the increases in British export of manufactured goods overseas.¹⁵⁸ Thus, between 1699 and 1806, the growth of British overseas export of manufactures was virtually dependent on Western Africa and the Americas. The dependence was even greater than the figures indicate, because much of British exports to Portugal and Spain during the period (as is shown in the next chapter) depended on the colonial economies of Portuguese Brazil and Spanish America. In the half century that followed, Western Africa and the Americas continued to be important, but the most dynamic sector of British export trade had become Asia, Australia, and the Middle East, in that order. In Asia, India was particularly important. In the last period, markets outside Europe accounted for 77.6 percent of the increment in the sales of British manufactures overseas.

It is appropriate to end this chapter with a comparison of British import substitution industrialization and the more current experiences of the developing countries. The recently industrialized economies of Asia (often referred to as the Asian Tigers) share much in common with the British Industrial Revolution. Both industrialization processes started with import substitution. But unlike the import substitution strategy of many present day developing countries, the process in England and that of the Asian Tigers quickly moved into export-led growth as the limits of the narrow domestic market approached. What is more, just as the export pessimism and neoclassical formal growth theory of the 1950s and 1960s misdirected economists and historians away from outward-looking to inward-looking explanation of the Industrial Revolution between the 1950s and 1970s, so did the same circumstance prevent mainstream economists from observing

¹⁵⁷ Computed from Davis, "English Foreign Trade, 1700–1774," Table on p. 120.

¹⁵⁸ Computed from Davis, *The Industrial Revolution*, Table 38, p. 88.

the explosive export-led industrialization of the Asian Tigers in the 1960s and 1970s. Preoccupied with autonomous internal forces under conditions of autarky, economists saw little chance of growth in open economies, such as South Korea, Taiwan, Hong Kong, and Singapore. They predicted that economies, such as India, Brazil, and Mexico, with their autarkic industrialization processes, had the best chance of successfully completing their industrialization in the 1960s and 1970s: "The world of the 1960s was still convinced that the path to successful development lay with inward-looking import substitution rather than with more outward-looking export expansion."¹⁵⁹ Comparing the two sets of successful ISI processes and contrasting them with the failed processes of today and those of Italy and Holland in the more distant past, may help to bring out more sharply the critical role of overseas trade in the Industrial Revolution.

Recent studies have identified two types of ISI and their critical stages. The first is a process in which autarkic policies are pursued throughout and import substitution is followed to its ultimate end. This case shows four observable phases: 1) a period of primary-product export, usually raw materials or food or both, which helps to create a domestic market for manufactures, initially imported; 2) the production of import-replacing manufactures with the aid of a variety of state policies, the first stage of which is devoted to the production of consumer goods (ISI₁); 3) the extension of import substitution to consumer durables and intermediates (ISI₂); and 4) final extension of import substitution to capital goods (ISI₃). The second type combines autarkic import substitution with aggressive export promotion. The first two phases are exactly the same as in the first type, but in phases (3) and (4), rather than continuing to rely on autonomous internal forces, the expansion of manufactured exports takes the center stage: 3) growth of manufacturing output is led by exports of labor-intensive goods; 4) extension of import substitution to consumer durables, intermediates, and capital goods aimed primarily at export markets and, therefore, upgrading exports.¹⁶⁰

As shown in Chapter 2, the industrialization process in England followed the second pattern. Of course, being the very first of its kind, it took a considerably long time to complete. In fact, the first major import substitution industry in England, the woollen textile industry, began its unbroken history in the fourteenth century, several centuries before the more broadly based ISI that started in the late seventeenth and early eighteenth centuries. But even so, the pattern fits very well the one described earlier: a long period

¹⁵⁹ George Hicks, "Explaining The Success of the Four Little Dragons: A Survey," in Seiji Naya and Akira Takayama (eds.), *Economic Development in East and South-east Asia: Essays in Honor of Professor Shinichi Ichimura* (Pasir Panjan, Singapore, and Honolulu, Hawaii: Institute of Southeast Asian Studies and East-West Center, 1990), pp. 21–22.

¹⁶⁰ Stephan Haggard, *Pathways from the Periphery: The Politics of Growth in the Newly Industrializing Countries* (Ithaca, NY: Cornell University Press, 1990), p. 25.

of raw wool exports and imports of woollen manufactures preceded the establishment of the woollen textile industry in England, and within a few decades the growth of the industry became export-dependent and remained so into the eighteenth century and beyond; similarly, the broadly based ISI of the late seventeenth and early eighteenth centuries was preceded by the growth of primary exports (especially grains) and entrepôt overseas trade, and within a few decades the major import substitution industries (mainly textiles and metal ware) became largely dependent on overseas sales for their growth and development.

Of the more recent experiences of ISI, those of South Korea and Taiwan fit the second pattern previously described, and that of England, very closely. South Korea and Taiwan exported primary products from 1900 to 1945, went through the first stage of import substitution, 1945–64 for South Korea, and 1945–60 for Taiwan. As the limits of the pre-existing domestic market for consumer goods approached at the beginning of the 1960s, rather than move into ISI₂, they expanded the production of labor-intensive consumer goods, which they knew could only be sold overseas.¹⁶¹ The export-led expansion of consumer goods production that resulted created the proper market size and the competitive incentive for widespread technological innovation in consumer goods production and for the establishment of import substitution industries in consumer durables, intermediates, and capital goods. The latter industrial sectors also became export-dependent as the structure of manufactured exports was transformed over time.

The first type of ISI was followed by India and most Latin American countries, especially Brazil and Mexico. From the sixteenth to the beginning of the twentieth century, Brazil was a major exporter of primary products – sugar in the sixteenth and seventeenth centuries and coffee in the nineteenth. But the devastating social and political consequences of the collapse of the international economy, following the two world wars and the Great Depression, provoked export pessimism in Brazil, leading to a faithful pursuit of autarkic ISI in all its stages from the 1930s. Not until the 1970s did the slow pace of autarkic industrialization compel efforts to promote export expansion. Every one of the developing countries that followed this pattern of industrialization, including India, has come out with a long-term dismal performance. Those that made a bold shift to export promotion, such as Brazil, depending on the timing and the condition of the international economy, have achieved some impressive positive change in their performance in recent years.¹⁶²

Table 3.1 presents a comparative view of the industrialization process in three countries – England, South Korea, and Brazil – that are reasonably

¹⁶¹ Haggard, *Pathways from the Periphery*, pp. 23–29.

¹⁶² Bela Balassa, *The Process of Industrial Development and Alternative Development Strategies* (Princeton, NJ: Princeton University, Department of Economics, International Finance Section, 1981), pp. 17–18.

Table 3.1. *Trade and Comparative Performance of Import Substitution Industrialization Strategies*
(current price, £ sterling for England, U.S.\$ for others)

	England				South Korea				Brazil			
	1700	1760	1801	1851	1960	1970	1980	1990	1960	1970	1980	1990
Population (in millions)	5.1	6.1	8.7	16.7	25.0	32.2	38.1	42.8	72.6	95.8	121.3	150.4
Gross Domestic Product (in millions)	54.4	66.8	198.6	446.6	3,810	8,887	58,250	236,400	24,080	35,546	237,930	414,060
GDP Per Capita	10.7	11	22.8	26.7	152	276	1,529	5,523	332	371	1,962	2,753
Industrial Product (in millions)	10.3	15.5	54.3	179.5	762	2,577	25,882.5	106,380	8,428	13,507	88,034	161,483
Export of Industrial Product (in millions)	3.8	8.3	28.4	67.3	14.4	975.7	15,968.7	62,243.5	142.0	709.9	10,065.5	21,557.7
Percentage of Industrial Product Exported	36.9	53.5	52.3	37.5	1.9	37.9	61.7	58.5	1.7	5.3	11.4	13.3
Industrial Product Per Capita	2	2.5	6.2	10.7	30.5	80	679.3	2,485.5	116.1	141.0	725.8	1,073.7

Sources and notes: For England, the population figures are from Wrigley and Schofield, *Population History*, pp. 208 and 209; the GDP figures are from Crafts, *British Economic Growth*, p. 13 (the 1700 figure is for 1688), except the figure for 1851 taken from Deane and Cole, *British Economic Growth*, p. 166, scaling down the figure for Great Britain by applying the ratio of England's to Britain's income in 1801; the Industrial Product and Industrial Export are from Crafts, *British Economic Growth*, p. 132 (the figures are for Great Britain); Crafts's figures for Gross Industrial Product (GIP) have been reduced to value added, using his ratio of 1.52, for purposes of comparison with the figures for South Korea and Brazil. For South Korea, the population figures are from Andrew Mason and Lee-Jay Cho, "Population Policy," in Lee-Jay Cho and Yoon Hyung Kim (eds.), *Economic Development in the Republic of Korea: A Policy Perspective* (Honolulu, Hawaii: East-West Center, 1991), p. 304, and World Bank, *World Development Report* (New York: Oxford University Press, 1992), p. 219; the figures for GDP, Industrial Product, and Industrial Product Export are computed from World Bank, *World Development Report*, 1982, 1983, 1992, and 1994 (the export figure for 1960 was computed by applying the percentages in the structure of merchandise export (*World Development Report*, 1982, p. 127) to the value of merchandise export taken from David C. Cole and Princeton N. Lyman, *Korean Development: The Interplay of Politics and Economics* (Cambridge, Mass.: Harvard University Press, 1971), p. 134, and that for 1970 is the annual average for 1970–72, computed from Paul W. Kuznets, *Economic Growth and Structure in the Republic of Korea* (New Haven: Yale University Press, 1977), p. 70). For Brazil, the population figures are from Benjamin Keen and Mark Wasserman, *A History of Latin America* (3rd edition, Boston: Houghton Mifflin, 1988), p. 572, and World Bank, *World Development Report*, 1992, p. 219; the figures for Gross Domestic Product (GDP), Industrial Product, and Industrial Product Export are computed from World Bank, *World Development Report*, 1982, 1983, 1992, and 1994 (the export figures for 1960 and 1970 are computed with figures taken from *World Development Report*, 1994, p. 191, and Victor Bulmer-Thomas, *The Economic History of Latin America Since Independence* (Cambridge: Cambridge University Press, 1994), p. 331). The Industrial Product Exports include manufactures, fuels, minerals, and metals.

representative of the patterns discussed in the preceding paragraphs. Because of the huge differences in prices, the English values are not directly comparable to those of South Korea and Brazil. But the percentages can be compared. As can be seen, a large proportion of the industrial product in England was exported quite early in the process, 36.9 percent, compared with 1.9 percent for South Korea in 1960. This is largely due to the English woollen textile industry whose import substitution development was completed several centuries earlier, as already stated. Other than this, the proportions of the industrial product exported in both countries during comparable periods are quite similar. On the other hand, the contrast with Brazil is very clear. After about 30 years of industrialization, only 1.7 percent of the industrial product in Brazil was exported in 1960, and 10 years later, only 5.3 percent in 1970, as compared with 37.9 percent for South Korea in the same year and 53.5 percent for England in 1760, a roughly comparable stage of industrialization.¹⁶³ The proportion of the industrial product exported in Brazil has increased considerably since the 1970s, following the adoption of export promotion. But it still remains very low when compared with South Korea in the same years and with England in comparable years.

The degree and pace of expansion of export production are clearly reflected in the overall growth of industrial output and industrial product per capita, as shown in Table 3.1. The industrial product of Brazil was roughly 11 times that of South Korea in 1960, but by 1990 it was less than two times, and in 1993 the two were almost equal – \$164,356 million for Brazil and \$142,257 million for South Korea.¹⁶⁴ A more realistic comparison is the industrial product per capita. This is a more accurate measure of the degree of industrialization. As can be seen, that of Brazil was about three times that of South Korea in 1960, but by 1990 South Korea's industrial product per capita was more than twice that of Brazil, and in 1993, it was more than three times – \$3,226 for South Korea and \$1,050 for Brazil¹⁶⁵ – a complete reversal of positions in just 33 years. All of these are, again, captured by changes in GDP per capita, with South Korea about one-half of Brazil in 1960, and Brazil about one-half of South Korea in 1990 and much less than one-half in 1993 – \$7,660 for South Korea and \$2,930 for Brazil.¹⁶⁶

¹⁶³ Published World Bank figures for Korea and Brazil show gross values for exported manufactures and value added for total industrial product. The English figures in Table 3.1 are presented in the same way to make them comparable. The export percentages will be lower if exports and total industrial product are expressed in the same value.

¹⁶⁴ For the 1993 figures, see World Bank, *World Development Report* (New York: Oxford University Press, 1995), p. 167.

¹⁶⁵ Computed from World Bank, *World Development Report*, 1995, pp. 163 and 167.

¹⁶⁶ *Ibid.*, p. 163.

One major contributory factor in the differing experiences just shown is the extent of utilization of resources, especially labor, but also natural resources in many instances. Sustained expansion of manufactured exports led to very low overall unemployment rates in South Korea, 8.2 percent in 1963, 4.5 in 1970, 5.2 in 1980, and 2.4 in 1991, as compared with Brazil where the unemployment and underemployment rate has been generally over one-third.¹⁶⁷ Yet, Brazil is one of the better cases among the uncompleted industrialization processes of our contemporary times. Taken together with the unsuccessful processes in renaissance Italy and seventeenth-century Holland, what comes out is that sustained expansion of manufactured exports or lack of it could ultimately make the difference between completion and non-completion of the industrialization process. It is significant that the only truly successful cases of industrialization since the 1950s have been export-led. As the proportions of industrial output exported during comparable stages of industrialization show, industrialization in England and in South Korea can both be validly described as export-led. England secured, largely through her naval superiority, a disproportionate share of world trade centered around the rapidly growing commerce of the Atlantic world from the sixteenth to the nineteenth century. Similarly, South Korea and the other Asian Tigers secured, under different circumstances, a disproportionate share of world commerce between the 1960s and 1980s, relative to other developing countries of the time. Aided by the United States and Japan,¹⁶⁸ and compelled by limited natural and abundant human resources, South Korea pursued aggressive export expansion at a time when autarkic industrialization was favored by economists and most developing countries. This enabled South Korea, and also the other Asian Tigers, to capture a relatively large share of world trade, which grew at a rate of 8 percent per annum during the period. Yet, it can be argued that the role of overseas trade in the transformation of the English economy and society was even greater than was the case in South Korea. As shown in Chapter 2, the development process in England was led in an unbroken manner by overseas trade right from medieval times to the nineteenth century, as compared with the rather short period for South Korea and the other Asian Tigers.

¹⁶⁷ Cho Soon, *The Dynamics of Korean Economic Development* (Washington, DC: Institute of International Economics, 1994), p. 19; Victor Bulmer-Thomas, *The Economic History of Latin America Since Independence* (Cambridge: Cambridge University Press, 1994), p. 312.

¹⁶⁸ Jacques Hersh, *The USA and the Rise of East Asia since 1945: Dilemmas of the Postwar International Political Economy* (London: Macmillan, 1993), pp. 39–73.