Making of Modern Europe: State, Economy and Empire

Module 2
Industrial Revolution: Great Britain's Leadership

Script

Why did the Industrial Revolution begin in Britain and not elsewhere?

One of the most intriguing debates pertaining to the industrial revolution happens to revolve around the question regarding the time and place of its inception. That is to say, why did industrialisation begin in the British Isles, rather than anywhere else? Also, why did it begin in the second half of the 19th century rather than at any other time? There is even a tendency to ask why industrialisation did not spread everywhere else in Europe in a uniform manner.

To answer the question, two things need be considered. First, whether there was any necessary precondition for the rise of industrial society or industrialisation; and second, whether these obtained only in Britain.

In this respect a number of false ideas need to be laid to rest. Some historians tended to believe that the abundance of coal in England was a sufficient condition for the phenomenon starting there – such a view

does not account for why the equally abundant coal deposits of Silesia did not trigger similar outcomes. Again, some historians argued that British climate, particularly the moist weather, proved determinant in the ascendancy of the textile industry. This too fails to answer why regions of Europe experiencing similar weather failed to generate similar dynamics. There can be no answer to this question if the factors attributed are non-economic in character.

Regardless of whether one believes the phenomenon to be evolutionary or revolutionary in character, historians are more or less agreed that the phenomenal expansion of commercial horizons in Europe served to institute some changes in European manufacturing sector. For historic reasons these changes in the realms of commerce and industry affected the economies of Western Europe more. In the early part of the 17th century, this commercial revolution made Amsterdam the principal centre of European commerce as also its principal destination for capital. Among the principal factors behind this ascendancy of the Dutch was their domination of the inter-state commerce in Europe as also the spice trade between the Europe and Asia. Towards the end of the 17th century however, owing to colonial and commercial presence in America and Asia, British and French commerce overtook the Dutch; London replaced Amsterdam as the biggest centre of maritime trade as also the largest destination of capital. One important component of British and

French colonial trade happened to be re-exports of colonial goods. Such re-exports served to create a market in America for tea from Asia, as also for Indian textiles in the markets of Europe. Silk and cotton textile imports from India, particularly calico became the rage in European markets.

The colonial connection presented simultaneously an opportunity as much as a threat. On the one hand was the appeal for markets spanning across continents; on the other hand was the threat of competition with distant centres of manufacture. In 1700, the woollen textiles industry forced a prohibition on the import of calico into England in a fierce bid to capture a relentlessly expanding market, as also to gain the competitive edge. British industry was faced with two alternatives at this stage. They could either try to target the most profitable section of the market, i.e. meet the demands of the affluent section of the society. Or else they could cater to the largest segment of the market, meeting the demand for essential commodities by the masses. The demands generated by the affluent sections of the society tended to be expensive commodities involving skilled craftsmanship with a high margin of profit. Accordingly these were often found to be lucrative ventures. On the other hand the market for low value items of daily use tended to generate much lower profit per unit, even though the spread of the market tended to be considerably greater. In order to increase per unit

profitability in such case, per unit cost of production had to be reduced, which in turn required technological innovations. Technological innovation was of pretty regular occurrence in the industrial sector of 18th century Europe, but unless the size of the market was reasonably big, such innovations frequently failed to pay their way. In fact as late as the early 19th century, the French industrialist Rothschild used to believe that the three ways of wasting money were to spend it on women, gambling and technicians; while the first two might actually give some satisfaction, the third was the surest way of wasting money.

In the 18th century, everywhere except Britain there existed a limitation of the size of the market all over Western Europe. Despite the loss of her colonies in the New World, Britain had managed to dominate the market in that part of the globe; besides the gradual British ascendancy in India strengthened the foundations of British colonial domination in Asia. Thus the only country that could rival Britain in the second half of the 18th century in terms of commercial horizons was probably France. But there exists an elementary uncertainty in external trade, which could be disrupted owing to natural disasters, political instability, shifts in the nature of demand, etc. In such circumstances, the domestic market could prove to be the saviour. Bigger the domestic market, greater the interest of the merchant to trade in that merchandise. Towards the close of the 18th century, the average standard of living of a Briton was higher

than his European counterparts. This was largely owing to the fact that, given innumerable trade barriers between and within states, long-distance commerce was limited only to luxury goods. As the various economies on the continent tended essentially to be a cluster of various regional economies, the there was neither any incentive nor any means of investing the surplus generated by the manufacturing sector.

Having no inland customs barriers due to historical reasons, the British Isles was already an economic unit by the 18th century, which also happened to be the single largest market in Europe. Thus British manufacturing sector catered not merely to the uncertain overseas market for luxury goods, rather the domestic market of goods for the majority of the people. By contrast, France on the eve of 1789 was divided into more than thirty-six generalites with inland tariff barriers, which caused the price of merchandise travelling from one generalite to another increase sharply.

Commercial ties between the north of France and the south were nominal, because inland customs barriers tended to make goods prohibitively costly. It was easier for merchandise produced in northern France to be sold to adjacent German speaking areas. Thus despite having a substantial colonial empire, French domestic market could never be consolidated into one economic unit before 1789.

For the German lands the case was even more complex because in the early 19th century, the German speaking people were divided into more than three hundred states, principalities and city-states, before Napoleonic reorganisation reduced the number to thirty-nine. This implied not merely the existence of as many customs areas as there were states, but also similar numbers of currency, weights and measures, and commercial codes. It is said, that along a particular stretch along the river Rhine spanning thirty-five miles, merchants had to keep seventeen distinct forms of currency to meet the demands of customs in the concerned principalities. In such fragmented economies, demand for industrial goods tended to be limited to that for necessary commodities. Thus the incentive to industrialise did not quite exist in the German lands before the threat posed by the British drove them towards some kind of economic integration.

Industrial Revolution in the British Isles

Backdrop of the great transformation

At hindsight, historians sometimes consider that the conditions were more conducive to industrialisation in Britain than anywhere else in Europe. But this realisation was not readily apparent to contemporary Europeans, nor indeed was the transformation of the manufacturing sector anticipated to be as revolutionary as it actually turned out to be.

The ground for industrial revolution was paved in Britain over a long period of time. One of its principal factors happened to be the exponential growth of population in the British Isles that Phyllis Deane spoke of as the 'demographic revolution.' Although demographic data is not quite complete, historians are by and large in agreement that the growth witnessed in British population from the 1740s did not slow down even temporarily. Such relentless growth in population was quite exceptional for a number of historical reasons. Before the systematic improvement of the health sector in the modern era, growth rate of population seldom exceeded 0.5-1%. Quite often natural disasters, warfare, famines, and bad harvest pushed up the death rate so high above the birth rate that population tended to decline in real terms. Again, once the factors causing upward movement of death rate disappeared, birth rate resumed its natural rhythm. From the beginning

of the 18th century, the death rate began to slow down in different parts of Western Europe owing to different reasons. Britain happens to be the best case in point. With adequate food being available to a large section of the population, the population of England and Wales increased at a rate of 3.5% all through the 1750s after remaining stuck at over 6 million for over four decades. The average rate of growth through the 1760s climbed up to about 7%, and stood at an average of 11% between 1780 and 1810, pushing the total population past the 9 million mark – i.e. the population grew by 50% in seven decades. The growth rate went past 16% in the 1820s. Similar trends could be seen for Ireland and Scotland as well.

Generally a growing population tends to push food prices upwards. However, this did not happen in 18th century Britain on account of a cluster of important changes in British agriculture during 1750-1850, which Deane speaks of as the 'agricultural revolution.' Indeed, the transformation of British agriculture could be said to have begun in the 16th century, with the Enclosure movement. As large swathes of agricultural land began to be enclosed for sheep-raising in order to meet the growing demand for wool, food prices began to climb upwards, and it began to appear remunerative to expand agricultural production for those who remained associated with it. By the 17th century, commensurate to the expansion of the wool industry, it had become necessary to expand the productivity of British agriculture. Hence

agricultural research became an integral feature of British agrarian sector. Towards the beginning of the 18th century, Jethro Tull's invention of a machine for sowing seeds was modified by 1730 in a manner that enabled continuous cultivation. The system was made more effective by the Rotherham plough, patented in 1730. But because these were better suited to large scale cultivation, they did not gain much currency in the first part of 18th century. Some resourceful rural entrepreneurs were enthusiastic enough to try and enclose the common lands and bring these under cultivation, but their example was not emulated before 1840s because food prices were not high enough. But as growing population after the 1740s pushed food prices upwards, the urge to increase productivity began to appear. As marginal farmers began to cling on to agricultural land hoping for better food prices, the agrarian sector began to witness something of a crisis. It was in this context that the more affluent farmers began to enclose lands with parliamentary sanction for increasing agricultural production. The outcome such initiatives become evident from a most cursory account of parliamentary legislation on this matter. Between 1700 and 1760, the parliament passed nearly 130 bills of enclosure; between 1760 and 1815 the number was as high as 1800. During 1727-60, 75,000 acres were brought under cultivation in this manner; during 1762-92, over 478,000 more acres of land were brought under cultivation; and by 1815, the figure was as high as 1 million acre. The use of Tull's invention and the

Rotherham plough began to grow popular in tandem with these developments. Use of machineries in sowing seeds and tilling increased productivity, and the introduction of steam-engine for the purpose of winnowing helped increase production even further. But it needs be remembered that productivity of British agriculture did not increase dramatically before the proliferation the widespread mechanisation of agriculture before the middle of the 19th century. Between 1760 and 1800, productivity of British agriculture grew by only 24%.

The agricultural revolution had two direct impacts on the industrial revolution. First, the marginal farmers displaced by the growing use of machineries in agricultural production and by the enclosure movement began to look for alternative occupation, thereby providing the supply of cheap labour which was pivotal to the rise of the factories. Second, the growth in agricultural production proportionate to the rise of population helped keep food prices low. Thus it was possible for the new industrial workforce living in the new industrial centres to procure their food at affordable prices. Had the food-prices been high during the early years of the industrial revolution, requiring higher wages, history could have been considerably different from the way it transpired.

The other phenomenon that proved crucial to both the agricultural and industrial revolutions was what Phyllis Deane calls the ‘commercial

revolution.' By the beginning of the 18th century, London had emerged as the centre of a global trading system, which had two components – the import-oriented American and Asiatic trade and the export oriented European trade. In this trading system, Britain's own contribution were the woollen textiles for the European market, which had reached its peak in the by the beginning of 18th century. During 1702-92, the volume of this trade increased 398% and its value rose by 421%. But in 1772-73, Britain's own exports to Europe were half of Britain's net export of her own products; by 1800, this became a third. That is to say, on the eve of the industrial revolution, the rate of Britain's export of her own produce was actually declining. The real source of profits in British trade with Europe happened to be re-exports of molasses, sugar, tobacco and indigo from the colonial plantations, and spice and cotton textiles from India. Official figures show that the total value of re-exports rose from £ 3.5 million to £ 9.5 million. In 1800, the opportunities generated by dislocation caused by the French revolution and the revolutionary wars pushed the figure above £ 18.5 million. Yet such re-exports were central to the emergence of London as the pivot of global commerce. Being the vortex of the global system, Britain found it reasonably easy to raise capital for industrial ventures.

The emergence of an integrated market in the British Isles proved essential to the process of the commercial revolution. In the absence of

any inland customs or tariff barriers, there were no legal impediments to the movement of commodities from one end of the Isles to the other ever since the United Kingdom came into being. The only impediment that existed was the problem of transportation. In the pre-industrial era, communications depended entirely on paved roads and their maintenance. As late as the 17th century, being under state supervision English roads were reputed to be among the worst in Europe. As a result of a series of private initiatives, however, in the early eighteenth century in the direction of construction and maintenance of new roads, bridges and canals, British communication system emerged as among the best in Europe by the middle of the 18th century. The turnpike roads were the best examples of private initiative. The Parliament used to delegate the responsibility of building and maintaining roads to private individuals or groups through Turnpike Acts; in return the delegated person/persons would charge tolls on road usage to realise the money they invested in the roads. By 1750, almost all the principal roads in London along with the various regions and counties were under the Turnpike authority's. But private initiative gained a new dimension from the middle of the 18th century. During 1700-50, on an average about eight roads were made over to Turnpike trusts. But, during 1751-72, an astonishing figure of 389 Turnpike trusts were constituted – a pace that was not seen for over 65 years that followed this period. Even though the quality of British roads did not improve remarkably before 1815, the

total area of the roadway network was far more extensive than in any other country of Europe.

However, before the age of the railways, waterways constituted Britain's principal means of cheap transportation. Apart from naturally navigable waterways, many canals dug by individual or private initiatives helped in giving Britain a navigational network of over a thousand miles. Because of the poor quality of roads, waterways were the preferred means of transporting bulk and heavy merchandise, and these proved economical as well. Thus when in the 18th century, the industrial revolution gave birth to a large number of new cities, the need to deliver coal (the principal fuel in 18th century Britain) accelerated the process of digging new canals. By 1800, the total coverage of navigable waterways in Britain exceeded 2,000 miles.

The combined effect of roadways and waterways made British communication systems so developed that the whole British Isles took the shape of a single large market. Because of the large size of the domestic market, the possibility of making huge profits with modest investment was quite considerable. Thus people associated with both agriculture and industry would occasionally take a shot at commerce. Even substantial landlords found it very normal to invest in domestic commerce, overseas trade or both. Hence, many people travelling from

Europe to Britain had the impression that England was ‘a Nation of Shopkeepers.’ In this milieu so conducive to commerce, the urge to meet the demands of the market became ubiquitous. Hence if any minor investment made possible some innovation that could increase the margin of profit, quite a number of people were willing and able to make such investments.

The British entrepreneurs thus did not hesitate to make the initial investments required to gradually mechanise the manufacturing sector, because even in the absence of overseas markets it was possible to sell any product in the continually expanding domestic market. By 1750, the rapid advances made in road and water transportation made it possible to transport products to and from any part of the country. Given the ease of access to the country-wide market, the chances of losing money by investing it in any enterprise proved slim. The rise of an integrated market created an atmosphere conducive to investment – unlike the situation of any other European country. The rise of railways later made this integrated market even more accessible. The willingness to invest in technology created the difference between British and French industry. As late as 1750, technologically there was not much to set France apart from Britain, but the cumulative technological transformation changed this condition by 1800.

The first industrial revolution began in Britain in this general backdrop of the 18th century.