

The difference between the pattern of industrialization in England and America

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INTRODUCTION

The Industrial Revolution is a transformative period that marks the shift from agricultural economies to industrialized societies. This period saw the mechanization of agriculture and the development of more efficient and powerful steam engines, as well as the construction of canals and railways for transportation. The two countries at the forefront of this revolution were England and the United States of America, each of which had distinct approaches to industrialization—this period brought enormous changes in production, transportation, and technology that transformed economic and social life. In this article, we examine the similarities and differences between the British and American models of industrialization and shed light on the factors that shaped their unique paths. By analyzing key aspects such as lifestyle, economic freedoms, labor force, government intervention, world wars, external factors, etc., we can gain a deeper understanding of how these countries transformed their economies in different ways and paved the way for Modern industrial societies have paved the way. Comparing how the Industrial Revolution unfolded in Britain and the United States provides insights into the spread of industrialization around the world in the 19th century.

COMPARISON OF PEOPLE'S LIFESTYLE BEFORE, DURING AND AFTER THE INDUSTRIAL REVOLUTION

By considering lifestyle factors, economists gain a more comprehensive understanding of economic phenomena and can provide more accurate and relevant insights for decision-making. Therefore, in this chapter, the lifestyle of the people of England and America has been examined before, during and after the Industrial Revolution.

Before the Industrial Revolution: Before the Industrial Revolution, most societies were engaged in agriculture.[1] In England, about 10% of the population lived in urban contexts, mostly in the cities of London, Bristol, Manchester and Birmingham. In America, this number was even lower (about 5 percent, in Boston and Philadelphia). Also, slavery in the American South made the rural and agricultural context more populated. In this period, houses and small workshops were the places of production of goods and industries existed manually.

During the Industrial Revolution: In Britain, the Industrial Revolution caused a rapid change from rural to urban life; So that in 1800, the urban population was 20%.[2] In 1850, this population increased to 50%.

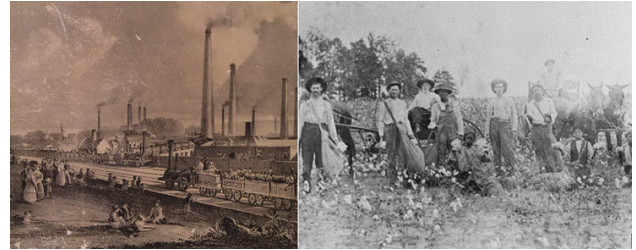


FIG. 1. People's lifestyle before (right) and after (left) the Industrial Revolution

Most people were engaged in one of the textile, iron and steel industries, or working in mines. Over time, various engineers were born and many factories also appeared. Although working conditions were often poor and long, there was a growing middle-class population supported by increased production from mechanization and steam power. In America, the Industrial Revolution led to urbanization, especially in the North (up to 15% of the population, in 1850, mostly in the Northern States [2]), but this effect was far greater than in England. However, the South remained largely agricultural with an economy based on slave labor. The lifestyle gap between the North and the South became more obvious during this period, and finally, this tension reached its peak during the Civil War (1865-1861) and led to the victory of the Republicans.

Post-Industrial Revolution: In Britain, the post-Industrial Revolution period saw improvements in living conditions and workers' rights. Long hours in mines and factories were reduced by labor laws, and the middle class was growing, with the urban population reaching 80% by 1900.[2] Over time, other industrial cities were also built. Education and social reform became more important, and the high cost of maintaining colonies led to decolonization. Class differences continued as the middle class grew, and more emphasis was placed on education and social reform. However, the gap between rich and poor remained significant. The British colonial empire reached its peak with colonies in Africa, Asia and the Pacific. However, the costs of maintaining this empire, along with social changes at home, led to a gradual process of decolonization in the 20th century.[3] In the United States in the post-Industrial Revolution period, with the victory of the North in the Civil War and the abolition of slavery, the quality of life of the people improved on average.[4] Also, the movements to protect workers in the 20th century and the approval of the law of 8 hours of work per day brought welfare growth. During this period, America received many immigrants and became a diverse and rapidly changing society.

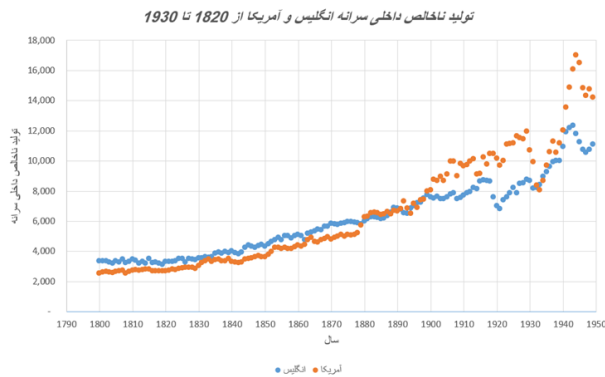


FIG. 2. UK and US GDP per capita from 1820 to 1930 using Madison Project 2020 data

MARKETS AND PRICE SYSTEM

The change from an agricultural economy to an industrial economy caused more productivity of production, which automatically caused the transformation of markets and price systems in both countries. In this chapter, the markets and price systems of the two countries have been investigated and compared.

As we explained in the previous section, before the Industrial Revolution, the majority of production included agriculture and the production of small workshops, but the process that England and America went through during the Industrial Revolution was different from each other. Industrialization in England took place on a very large scale and involved more population in the first century.[1] Therefore, the new production processes and the factory system created the mass production of goods, which resulted in the dominance of the international markets for England, which was the innovator of this system. The quality of English goods was higher than its competitors, and due to mass production, and accessibility, a larger mass of people were able to use these goods. The London Stock Exchange, which was established in 1801, also provided a great accumulation of capital for England. It is natural that with more production, people's living standards will rise. Therefore, the UK market expanded significantly. This happens gradually in other countries, but this process is usually in favour of the more developed country. For example, England, which was an innovator of the steam machine system and more modern textiles, strengthened its position in the consumer market of other countries, including America, by exporting quality and cheaper goods. America, imitating England, was expanding its factories, but this happened more slowly and more in the north of the country, and the south of the country was engaged in cotton cultivation for a long time, and the farmers usually had to work in factories and be more profitable. They migrated to the north.[5]

	Real GDP per worker	Real consumption income	The actual wage of the product
1770–1800	0.43	0.30	0.14
1800–1830	0.31	0.15	0.59
1830–1860	0.92	1.01	0.99

FIG. 3. Growth rates of real GDP per worker and real income (% per year) for the UK

WAGE SYSTEM

Pricing and wages of workers also changed with mass production and rising living standards. In both countries, before this, many people were either slaves or self-employed, but with the creation of factories, ownership of the means of production allowed factory owners to own the labor power. Because of this, a new class of income workers began to work on a fixed wage, hourly basis. This happened in England, half a century earlier, and America, especially in the southern part, was still governed by the old system. Over time, labor movements and unions improved these low wages and harsh conditions.

The main difference between these two countries in this matter was that America, despite its smaller export market, had more commercial freedoms for its citizens, which made it possible for a part of the middle class to reach the capitalist sector. The freer market and American economic policies usually considered more room for competition for wage rates and pricing, which for a century, could lead to the stability of the wage and price system.[6] For example, by comparing statistics, we can find out what changes occurred in England during the years 1770 to 1860 for wage rates and income and gross domestic product. The estimates reported in Table 1 show that real consumption incomes grew at a slower rate than real GDP per worker from 1770 to 1800 and from 1800 to 1830, about 0.13% and 0.16% per year, respectively. Slow down Between 1830 and 1860, real consumption incomes grew faster than real GDP per worker by 0.09% per year.

ECONOMIC FREEDOM

One of the main issues that greatly helped America achieve economic competition was the issue of economic freedom. England, which was one of the superpowers long before the Industrial Revolution, had certain economic systems mixed with the government. Landlords and aristocrats who had secured their place in the government were opposed to the change in business methods that industrialization required and were in favour of the old mercantile system. However, the industrial economy, which replaced the aristocracy with factory owners and capitalists, weakened the government's power to control other countries' markets. On the other hand, the American legal system the Declaration of Independence

and the Declaration of Human Rights and Citizenship naturally fully provided commercial freedoms to citizens and enabled the existence of the private sector.

Of course, England had a great economic dominance in the world for a long time and was the largest exporter, but from the point of view of economic freedom, it was more closed than America. The impact of America's economic freedoms remained hidden until the 20th century due to the distance between its industry and England, and finally, it was able to show itself during the First World War.[1]

Another parameter of economic freedom was the ability to work in any industry without restrictions. The working conditions at the beginning of the industrial revolution were extremely poor, and women and children were used as laborers in England.[1] But during the 20th century, these conditions became better in both countries. America also provided more freedom for slaves with the law to abolish slavery.

HOW TO MIGRATE FROM AGRICULTURE TO INDUSTRY THE FORMATION OF PRODUCTION LINES AND THE RISKS AND ACHIEVEMENTS OF THIS MIGRATION

Most industrial inventions occurred in England in the 18th century.[1] The existence of a large number of factories optimized production in iron and steel, textiles, etc., but in America, the first successful factory was established in Pawtucket, Rhode Island in 1793.[7] The conditions were different. This production line, which also included assembly, made it possible to replace parts, which was a big step forward. England had more factory optimization costs due to the existence of old factories, and its main challenge was the development of road and railway infrastructure and transportation.

The accumulation of capital in the London stock market facilitated the possibility of this development. The growth of the factory system had to keep pace with the old infrastructure and standards of the past. But in America, where there were no large old factories, the establishment of factories was usually done in such a way that the defects of the infrastructure were not noticed. For example, most manufacturing plants were built close to ports and there was less need for a transportation system for export, and as workers migrated, cities developed around factories. The accumulation of natural resources in America was such that the coasts had good access to primary resources. For this reason, the railway system in America was developed in a concentrated manner in the Northeast, and England, this infrastructure had to be provided for the whole country.[2] The process of industrialization in England was associated with less risk, because factories were gradually built in densely populated cities and surrounding villages, and with more investment in infrastructure, it made it easier to change jobs from agriculture, but this happened in America, which often Along with interstate migration came more risk. Therefore, the growth of urbanization in England was much

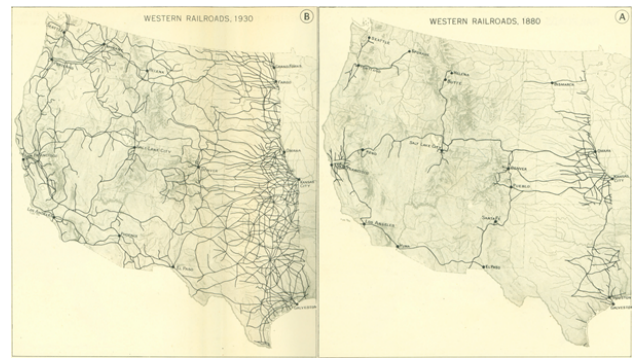


FIG. 4. American railroads in the 1880s and 1930s

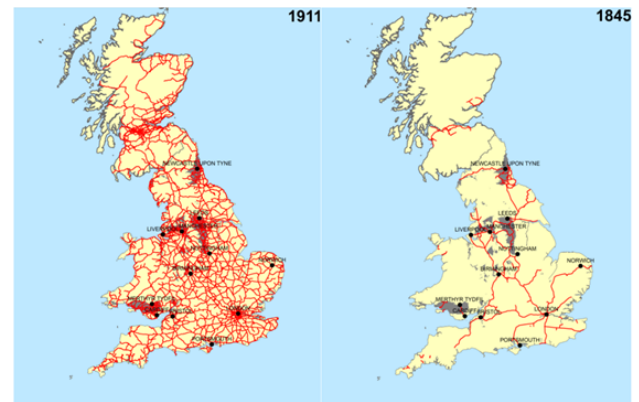


FIG. 5. England's railway lines in 1845 and 1911

higher than in America.

URBANIZATION

With the growth of urbanization, countries were facing new challenges that they were not familiar with in rural life before. Each of the countries, to face the challenges and improve urban life, took some ways and approved some laws that are discussed in this chapter.

One of the main challenges of this rapid growth is the issue of health and education. Congestion and inadequate urban hygiene should be solved with the support of medicine and urban planning. Therefore, England, which had more urbanization in the 19th century, passed the Public Health Act in 1848, and a little later, it compiled the building and town planning regulations. In America, where cities were not built for historical reasons (urbanization to defend against military attack, feudal structure, etc.), they usually became a better answer to the structure of urban expansion, so cities like New York, Boston, and Philadelphia, with the challenges They faced less expansion.

Unlike many European cities with historic layouts and structures, American cities were often designed with practicality and efficiency in mind. American cities had the flexibility to adapt and evolve by not paying attention to strict conservation

laws or the need to preserve historic aesthetics. This allowed more flexibility in urban planning and development. As cities expanded and populations increased, there was greater freedom to adapt and modify the urban landscape to accommodate changing needs, such as improved infrastructure, industrialization, and transportation networks. American cities can embrace new technologies, embrace industrialization, and accommodate large-scale construction projects without the constraints of strict preservation regulations or the need to preserve historic aesthetics. This facilitated the development of industries, the emergence of urban centres as economic hubs, and the attraction of investment and talent. The expansion and development of urban areas created new jobs, housing options and social networks.

Immigrants and people seeking economic opportunities can settle in cities, build new lives, and contribute to the growth and diversity of urban communities. A lack of focus on purpose allowed American cities to embrace modernization and progress. This mindset encouraged the adoption of new architectural styles, urban design principles, and urban planning strategies to suit the needs of a rapidly changing society. It facilitated the construction of innovative and functional urban spaces that reflected the aspirations and priorities of that time. In short, the lack of historical constraints in American cities allowed for adaptability, economic dynamism, and the ability to shape urban spaces based on the changing needs and demands of a rapidly evolving society.

PRIVATE INDUSTRIAL CAPITALISM SYSTEM AND POLITICAL SYSTEM

As we explained a little in the previous sections, with the spread of production optimization and increased production capacity in workshops, the value of production increased compared to other assets. Because of this, the power of the aristocrats, who owned most of the land, declined and gave way to capitalists, who were industrialists, in political administration and governance. This slow process, which took place for a century, was similar in both countries, but for the United States it was accompanied by ease; Because the American economic system had guaranteed individual freedom in trade for citizens since its establishment and commercial monopolies had not yet been formed. On the other hand, mercantilism, which was common in Europe during imperialism and colonialism to optimize exports, and was the main business model in England during the Long Parliament period (1664-1604), gradually gave way to the doctrine of *laissez-faire*.

This idea, which is a subset of libertarianism, minimizes government involvement in business. This idea, in America, which has been a democratic country full of natural resources and labor force since the beginning, caused a rare economic growth in this era and gave the country's politics a form of capitalism. On the other hand, in England, which has a history of being a parliament, faced with this doctrine and the liberalization of private trade, the socialist form prevailed over

politics. On the other hand, the economic dominance of the industrialized countries increased the power of these countries in the military and social welfare fields, which caused both countries to have the best industries in the world until the end of the 19th century, after which America overtook England.

Liberalism, which had a different definition in the 19th century than today, was built on the ideas of the Age of Enlightenment and embedded itself in the heart of the French Revolution the Declaration of Independence and the Declaration of Human Rights. The growth of industry was another factor that supported it. Middle-class industrialists were often liberal in the 19th century. Liberals supported Adam Smith's concept of free trade. They opposed guilds, price and wage restrictions favoured by traditional rural workers, as well as government tariffs, monopolies, and other speculative activities. The Liberals also supported investment in infrastructure, especially the construction of railways, and supported religious toleration, a change in the political process, but not full-scale democracy, a government ultimately in charge of elected representative bodies rather than a monarch.

In England, there was full private ownership of factories machinery and tools, but export policies limited the profit motive more than in America.

THE RISE OF THE MIDDLE CLASS

The Industrial Revolution greatly affected European society, especially British society. Three new sections emerged based on economic status and interests in society. The industrial elite, better known as the big bourgeoisie, consisting of large industrialists, capitalists and bankers, emerged as the wealthiest section of society. It came with wealth, power and influence. This elite included large business houses that achieved an honourable position in society. Two of the most prominent Prime Ministers in British history - Robert Peel and William Gladstone - came from such great business families. An educated middle-class elite, better known as the professional bourgeoisie, consisting of engineers, highly skilled technicians, doctors, and lawyers also became a powerful part of society. This section of the middle class proved to be the most potential source of manpower needed for growing industrial and commercial activities. The third segment of the population that emerged as a result of the Industrial Revolution was the working class—the vast masses of workers who flocked to towns and cities to work in factories, mines, and docks. Their number was increasing rapidly from the beginning of the 19th century. They lived in the most unhealthy conditions in slums. Working conditions in the factories were even worse. They had to work long hours for low wages. Not only men but also women and children were employed in large numbers. This situation, which was happening more intensely in Europe and England, became the foundation of communist ideas that left a great impact on the modern and industrial world forever.

The ruling authorities in England had to accept the harsh reality that with the rapid growth of wealth and social influ-



FIG. 6. British soldiers on the battlefield

ence, the industrial and professional bourgeoisie could not stay away from political power. This part of the bourgeoisie began to fight for a share in the government. One of the first victories of the middle class was made possible by the passage of the first historical reform law in 1832. This gave the middle class the right to vote and marked the end of the exclusive power of the aristocracy in politics. Also, the working class was considered a political force and with the growth of industrial activities, the number of workers increased rapidly. The people realized the power of labor after the Luddite uprising of 1819 and the Chartist movement of 1838-1848, and the government was forced to withdraw the Combination Act of 1799, which prohibited working-class agitation, in 1821 after the Luddite uprising.

THE SECOND WAVE OF THE INDUSTRIAL REVOLUTION, THE FIRST WORLD WAR AND ITS IMPACT ON ENGLAND AND AMERICA AND THE RELATIONSHIP BETWEEN THE TWO

World War I, which lasted from 1914 to 1918, had a profound effect on the Second Industrial Revolution, also known as the Technological Revolution, in the United States and Britain. This period, which began in the late 19th century and lasted until the early 20th century, was characterized by rapid industrial growth and technological advances. The war acted as a catalyst, accelerating the pace of these changes and shaping the economic and political relations between the two nations.

In the United States, the war stimulated the economy and led to a boom in industrial production. Before the war, the United States was experiencing significant industrial growth with advances in sectors such as steel, oil, and electricity. However, the outbreak of war created an immediate demand for arms, ammunition, and other war-related goods. This led to increased production and rapid expansion of the industrial sector. The United States became the "arsenal of democracy" and supplied not only its military but also its allies, including Britain. The war also led to significant technological innovations. For example, the need for efficient communication and coordination on the battlefield led to advances in telegraph

and telephone technologies. Similarly, the demand for rapid transport of troops and supplies led to advances in automobile and aircraft technology. These innovations in turn had lasting effects and transformed not only military life but also civilian life.

In Britain, the impact of the war on the Second Industrial Revolution was more complex. On the one hand, the war stimulated industrial production and technological innovation, as in the United States, on the other hand, the war also brought heavy economic costs. Britain had to divert a significant portion of its resources to the war effort, which strained its economy and led to a slowdown in some sectors. Despite these challenges, Britain also saw significant technological advances during this period. For example, the need to efficiently produce war goods led to advances in production technologies, such as the assembly line. The war also led to advances in the chemical industry with the development of explosives and new synthetic dyes.

The war also had a profound effect on relations between the United States and Great Britain. Before the war, the United States was a debtor nation and owed significant sums to European countries. However, the war reversed this situation. Britain and other European countries became heavily indebted to the United States, which emerged as the world's largest creditor and economic power.

As a result, World War I had a significant impact on the Second Industrial Revolution in the United States and Britain. It catalyzed industrial growth and technological innovation while shaping economic and political relations between the two countries. Despite the enormous human cost and suffering, the war also led to advances that transformed the modern world.

EXTERNAL FACTORS

During the Industrial Revolution, England and America experienced different climate and geographic factors that influenced their industrialization path. These cases are known as external (external) factors, which have been investigated in this section and their impact on the path of these two countries.

England's temperate maritime climate with mild, wet conditions benefited the textile industry, as the humidity helped prevent yarn breakage. The country's abundant coal reserves, especially in the Midlands and the North, and the proximity of coalfields to iron deposits, facilitated the development of industries such as iron and steel production. England's dense population and small size allowed for the rapid spread of new technologies and ideas, and its extensive coastline and navigable rivers supported trade and transport. In contrast, the United States had a more diverse climate due to its large size. The Northeast, where early industrialization took place, had a continental climate with cold winters and hot summers. Harsh winters in northern states made conditions difficult for workers and disrupted transportation. However, the diverse geog-

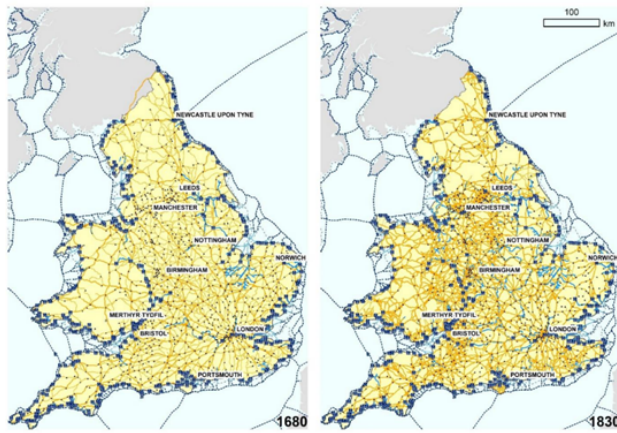


FIG. 7. The transport network in England in the 1680s and 1830s

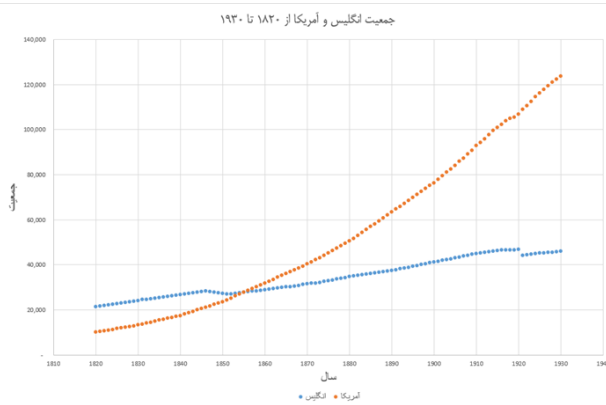


FIG. 8. A comparison of the population of England and the United States from 1820 to 1930 using data from the Madison Project 2020

raphy and climate of the United States supported a wide range of agricultural activities, providing raw materials for industry and food for a growing urban population. The vastness of the country allowed for large-scale industrialization with large factories and mass production techniques, and the development of railways played an important role in connecting different regions. Both countries experienced demographic changes during the Industrial Revolution. England saw rapid population growth due to improved agriculture and reduced death rates, which led to the shift from rural areas to cities. Similarly, the United States experienced significant population growth through natural increase and immigration, with immigrants attracted by job opportunities and land. Urbanization created concentrated markets for manufactured goods but also led to crowded living conditions and social challenges in both countries. Natural resources played a vital role in industrialization. England relied on coal and iron ore for steam engines, heating, machinery and construction. The proximity of these sources facilitated the growth of industries such as iron and steel production. In America, in its early stages as a new country, it had abundant natural resources, including coal,

iron ore, wood, oil, and agricultural resources. The diversity of resources in the United States supported a wider range of industries and allowed for industrialization on a larger scale. In short, while England benefited from its mild climate, proximity to resources, and small size, America's vastness and varied geography provided opportunities for large-scale industrialization and a wider range of industries. Both countries experienced demographic changes and relied on natural resources, with coal playing an important role in powering factories and railroads.

CONCLUSION

As a result, the models of industrialization adopted by Britain and the United States had certain similarities while also showing distinct differences shaped by different contextual factors and historical circumstances. Both countries experienced significant technological advances during the Industrial Revolution that played a pivotal role in changing their economies and societies. However, the specific work practices employed in each country contribute to the unique characteristics of their industrialization processes. The factory system, with workers concentrated in large-scale manufacturing facilities, became prominent in Britain, while the United States relied on the use of migrant labor, including immigrants and domestic immigrants, to fuel its industrial growth.

Government intervention and policy choices also had a significant impact on industrialization outcomes in both countries. Britain followed a liberalization approach characterized by limited government intervention and a focus on free trade that allowed market forces to shape industrial development. In contrast, the United States imposed protective tariffs to protect domestic industries from foreign competition and actively invested in infrastructure development such as the construction of canals and railroads to facilitate economic growth.

In addition, the geographical conditions and resources available in each country have influenced the course of industrialization and the standard of living for the respective population. With abundant coal reserves and proximity to waterways, Britain experienced early industrialization centred around coal mining, textile production, and iron production. Meanwhile, the United States had vast natural resources, vast lands, and favourable agricultural conditions that fostered various industrial sectors and facilitated westward expansion.

The industrial revolution had profound effects on the economic policies, governance and overall development of both countries. This led to the rise of the middle class, changing social structures and significant changes in the economy, technology, transportation, etc. While the Industrial Revolution brought enormous economic growth and power to the United Kingdom and the United States, it also brought its disadvantages and negative consequences, including challenging working conditions, socioeconomic inequalities, and environmental impacts.

In short, the Industrial Revolution was a period of transfor-

mation that fundamentally changed British and American society. Despite their differences, the industrialization models adopted by both countries led them to become economic powers and laid the foundations for the modern industrial world as we know it today.

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