

# Study on the impact of preindustrialization on social life

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**Abstract.** The Industrial Revolution marked a turning point in history, which promoted technological progress and the rapid improvement of productivity, income and living standards. However, it is inappropriate to view the period before the Industrial Revolution as stagnant, with little improvement in living conditions. The article shows that the pre-industrial revolution has a positive impact on agricultural development, trade and commerce, innovation, ideological form reform and living standard before the industrial revolution. Our paper shows that the development of the pre-industrial age promotes a transition from poverty to professional comfort and better quality of life.

**Keywords:** Pre-industrial Revolution; Better Quality of Life; Developments..

## 1. Introduction

When it comes to the industrial revolution, what often comes to our mind is a series of machinery represented by Jenny spinning machine and Watt steam engine, roaring the magnificent chapter that brought mankind into the industrial age. But if we whisper, the word industry will make us feel that agriculture and commerce are not so important in this process; and revolution gives us a hint that before the industrial Revolution (before 1760), it was stagnation. When we look at historical books, we tend to fall into a kind of thinking: care about the nodes of major events, but turn a blind eye to the long dormant period, which is nothing more than the trees. Industrialization (IR), which began in the late 18th century, is often referred to as an important turning point in human history that brought about rapid advances in technology. A significant improvement in living standards was achieved as a result of increased productivity, mechanization, mass production, urbanization, and economic growth.<sup>1</sup> The proposition that living standards had not changed meaningfully in the long run before IR might, however, be imprecise. Technological progress, such as increased productivity, economic development, and gradual improvements in living standards, were evident well before the 18th century, although at a slower rate than during this period. As we argue in this paper, there were significant improvements in living standards prior to the IR, even though the IR contributed to economic progress and technological advancement.

## 2. Pre-Industrial Developments and Living Standards

### 2.1 Agricultural Development

In the pre-industrial era, there were three major developments that improved living standards: the agricultural revolution, the Renaissance, and the Enlightenment, as well as trade and commerce. Living standards in the pre-industrial era were also improved by increased incomes and better nutrition. The first was the increase in agricultural productivity, when the British population tripled, but due to the island restrictions, the new land was not much, meaning that British farmers produced much more in 1800 than their predecessors in 1550. The high-yielding American crops (potatoes, corn, etc.) introduced in the great discovery era also benefited the other European powers, rather than the UK. In the 17th century, Britain adopted intensive agricultural production on the basis of the medieval quadruple system: the first land planted pasture, the second planted nitrogen-fixing crops such as peas, the third planted barley and wheat, the rest was livestock, and the land was circulated in turn. This system not only provides the land with continuous nutrients (cattle and sheep dung, pea nitrogen fixation, etc.), but also ensures enough livestock feed to provide meat and milk, which is a living food reserve. A horse could provide agricultural labor equivalent to about three manpower.

During this period, Britain had begun to cast mud on the farmland as fertilizer. The mud ore was generally far away from the farmland, so it was impossible to use this early "fertilizer" without a lot of energy. Studies show that the number of cattle and horses per unit of land in Britain during this period was much higher than that of other European countries, and these increased capacity not only met the needs of agriculture, but even the needs of early industry and transportation. A major contribution to the agricultural revolution in the early 16th century of Europe was the adoption of new farming techniques and technologies, such as seed cultivation methods and selective breeding of livestock, which led to crop yields increasing at 1% annually between 1500 and 1700. As an example, Allen et al. (2011) indicates that English real wage data indicate that income per capita increased over this period.<sup>2</sup>

A similar agricultural revolution took place in China before the industrial revolution, as new technologies and tools directly improved living standards. New farming instruments (such as seed drills) increased seeding productivity and agricultural production during the 16th centuries (Clark, 2007). It was possible to cultivate rice and wheat intensively through the use of dams and irrigation. In comparison with other countries around the world, the Chinese population enjoyed the highest living standards due to these advanced farming tools and skills, as illustrated in the Figure 2. Innovative agricultural practices increase agricultural productivity, which in turn increases incomes, sustains population growth, and results in fewer famines (Franck and Galor, 2021). It can be concluded that these agricultural developments prior to IR had a positive impact on improving the standard of living and the well-being of society. Figure 1 shows that pre-IR will still lead to an improvement in product supply and an increase in output (or, living standards) from Q1 to Q2.

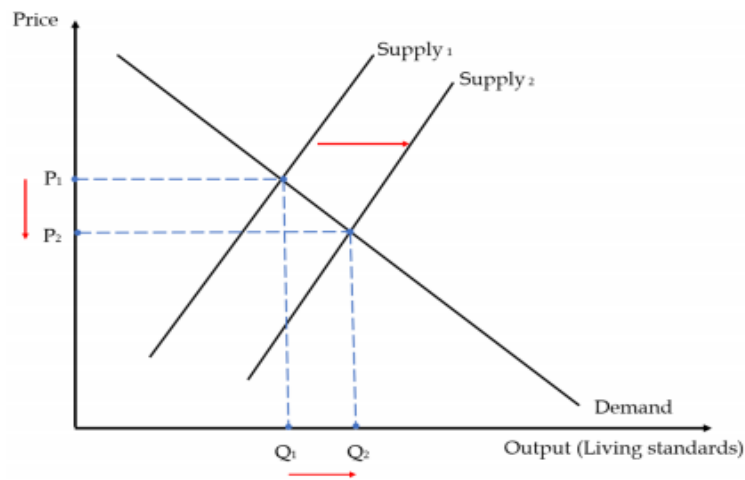


Figure 1: Supply and Demand of Produce

## 2.2 Trade and Commerce

Throughout much of human history, trade has played an important role in boosting economic growth and enhancing living standards by facilitating the exchange of commodities and technology between different countries based on the Ricardian model (Dornbusch et al., 1977). Ricardian theory predicts that trade will foster skills specification and innovation and improve consumer welfare (or living standards). One example is the Silk Road, which was established around 130 BC and connected Han Dynasty China with other countries in Europe and the Islamic world (see for Allen et al., 2011). Additionally, maritime trade between China and Southeast Asia expanded dramatically from the 9th century onwards. Following the Commercial Revolution in Europe, increased trade between medieval towns and cities created market access and business opportunities for merchants and skilled laborers, as documented in the study by Fouquet and Broadberry (2015). By improving river navigation, proto-industrialization increased trade and food supplies, allowing urban populations to expand. In Figure 3, it can be seen that international trade will result in a decrease in the domestic price,  $P_2$ . As a result of lower prices,

consumer welfare (b+d) is enhanced by increased consumption of goods,  $M_1$ , and, therefore, overall living standards are improved.

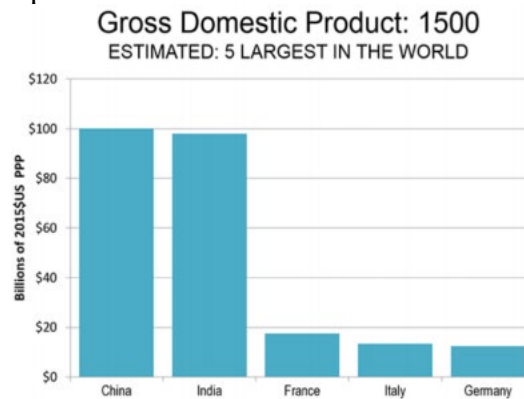


Figure 2: GDP in the Ancient China and World (Source: Cox,2015)

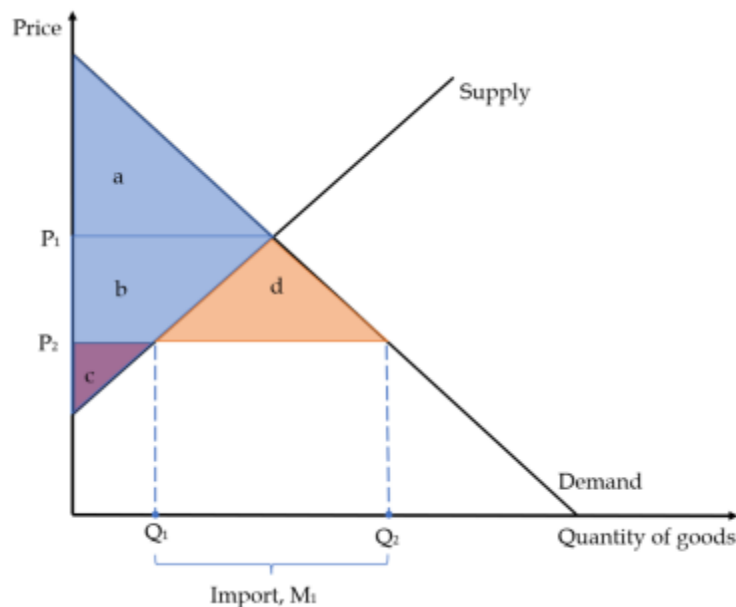


Figure 3: Trade and Living Standards

### 2.3 Innovation prior to Industrial Revolution

It is generally believed that technological innovation has triggered the industrial revolution. However, the famous British economist Hicks pointed out in the book *Theory of Economic History* that "the industrial revolution was not the result of technological innovation, or at least not of its direct effect, but the result of the British financial revolution". In fact, Hicks points out, most of the technological innovations used in the early days of the Industrial Revolution already existed long before the Industrial Revolution. However, the technological revolution has neither triggered sustained economic growth nor an industrial revolution. Because long-existing technological inventions lack large-scale, low-cost long-term funding support. In this way, it is difficult for these technologies to move from small-scale workshop stage to large-scale industrial production stage. During the Industrial Revolution, technological developments were unprecedented in scale and impact; however, meaningful progress also occurred early in history. Before the industrial Revolution, the level of science and technology in the West had been well developed, especially Newton's classical mechanics system, which laid a theoretical foundation for the industrial revolution and made it possible to improve the industrial production technology. During the Industrial Revolution, technological developments were unprecedented in scale and impact; however, meaningful

advancements also occurred earlier in history. Before the industrial Revolution, the level of science and technology in the West was well developed, especially Newton's classical mechanics system, which laid a theoretical foundation for the industrial revolution and made it possible to improve the industrial production technology. Gutenberg's invention of the printing press in 1439 revolutionized the spread of knowledge and ideas throughout Europe and beyond. Thus, the printing press contributed to scientific collaboration and discovery, thereby improving human living standards through the wider availability of literature, scriptures, and philosophical writings.

The development of navigation technologies such as the magnetic compass and astrolabe, as well as advances in ship design, have contributed to the expansion of maritime exploration since the 15th century. A compass and other navigational aids allowed for precise navigation on open seas far from land. This resulted in the exchange and establishment of new international trade relations between distant regions.

## **2.4 Urbanisation and Development of Institution**

First of all, before the industrial Revolution, that is, the Renaissance period was almost the first stage, during which human production and life were still very simple and simple. The urban form only needs to meet people's daily housing and transportation. The only large-scale planning and construction is the construction of churches and temples. Without the current problems of traffic and environment, the city can almost be arranged and developed at will in the hands of people or monarchs. A major pre-industrial development was the emergence of urban cities, which facilitated economic growth and improved living standards. Through urbanization, labor could be distributed more efficiently and specialized, resulting in an increase in productivity (Nardinelli,2008). A greater degree of human social networks also contributed to an increased exchange of ideas, goods, and technologies in cities.

The existing literature has shown that the reform of institutions also contributes to the improvement of living standards around the world (Donges et al., 2023). China's Song Dynasty was characterized by political and institutional reforms that increased economic growth in agriculture, finance, and mining. Around the same time, Chinese life expectancy reached its highest level compared to Europeans.

Urban areas also developed educational and financial institutions, helping train skilled labor force (Dittmar and Meisenzahl,2020;Valero and Van Reenen,2019). Bankers in urban areas provided credit and financial services to merchants and ventures. In general, the amalgamation of civic institutions and population in urban areas have generated significant economic growth.

## **3. The Ideological Reform and the Living Standards**

Between the 14th and 18th Centuries, the Renaissance and Enlightenment marked a profound change in the nature of European economics and social development suggested by Squicciarini and Voigtlaender (2015). The Renaissance and Enlightenment involved a movement that promoted scientific knowledge, literature, and the arts, laying the foundation for later scientific and industrial advancements. The seminal paper by (Acemoglu et al.,2011) shows that Renaissance and Enlightenment serve as social foundations for scientific and economic developments, which indirectly improve living standards by promoting technological and institutional reforms. The Renaissance was the eve of the Reformation. During this period, the important religious changes took place in the Christian world, and people began to re-examine the religious doctrine and traditional beliefs. People during the Renaissance period paid more attention to nature and mankind, emphasizing human freedom and reason, which disagreed with the religious beliefs and teachings of the Middle Ages. The changes and development of these historical backgrounds provided a broad social and cultural foundation for the rise of the Renaissance, and at the same time promoted the development and evolution of European history. The Renaissance period is an important period in the history of European art and literature. The art and literature of this period are full of humanism and the pursuit and worship of classical

culture. The Renaissance was also an important period in the history of European science and philosophy, which had a profound influence on the development of modern science and philosophy. The Renaissance scientists began to reexplore and study the scientific knowledge of the ancient Greek and Roman times, thus promoting the development of natural science. Through experiments and observations, they developed modern scientific methods and theories, and made important contributions in physics, astronomy, anatomy and other fields. Famous scientists include Copernicus, Galileo, Voltaire, Pasteur and so on. In terms of philosophy, Renaissance philosophers began to re-examine the tradition of classical philosophy, advocating human freedom and reason, and emphasizing the independence of individual and autonomy. They used classical philosophy to develop new philosophical trends, such as humanism and the Enlightenment. Famous philosophers include Rembrandt, Bacon, Descartes, etc. In general, Renaissance science and philosophy promoted the understanding of nature and the freedom and innovation of human thought. The achievements of science and philosophy in this period have laid the foundation for the development of modern science and philosophy, and have had a profound impact on the human society.

#### 4. Conclusion

There is no doubt that the Industrial Revolution marked a turning point in history, promoting technological progress and rapid increases in productivity, incomes, and living standards. However, it would be inappropriate to view the period before the Industrial Revolution as being stagnant with little improvement in living conditions. There were major developments that occurred over preceding centuries, with gradual but substantial changes as a result of agricultural advances, expanding trade networks, early technological innovations, infrastructure investments, intellectual and urban development. These developments improved productivity, decreased scarcity, expanded knowledge, increased income, improved health and nutrition, and fostered economic and institutional progress that incrementally increased living standards within the constraints of predominantly agrarian, pre-industrial economies (Kelly et al., 2023). Our paper suggests that the developments of the pre-industrial era catalyzed the change from poverty to prosperity and a better quality of life prior to IR.

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