ISSN 2959-6130

Analysis of the causes of sustained economic growth in and after the late 18th century

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Abstract:

Before the late 18th century, sustained economic growth was largely absent, but after that, the situation changed. The rarity of sustained economic growth before the late 18th century can attributed to institutional constraints on technological development and economic trade and a low-productivity equilibrium characterized by limited technological innovation and demographic pressures. After the late 18th century, the Industrial Revolution, institutional changes such as capitalism and colonialism, and demographic transitions all emerged. How these factors enabled sustained economic growth is analyzed in the essay.

Keywords: sustained economic growth; the late 18th century; institutional reform; technology breakthrough; demographic transition

1. Introduction

Imagine an optimal agricultural empire whose economic growth stability heavily relies on a delicate balance between the regeneration of its natural resources, population growth, and supporting institutional governance. It would be reasonable to assume that sustained economic growth would be rare for such a society. This leads to the question of why sustained economic growth was so rare before the later 18th century and why this changed.

This essay will explore why sustained economic growth, defined as a continuous increase in per capita income over a long period (Maddison, 2001), was largely absent before the late 18th century and the factors that triggered a shift towards consistent economic expansion. The analysis will draw on historical economic studies and demographic data to provide a comprehensive view. The first section of this essay will argue that sustained economic growth was rare due to (1) entrenched institutional constraints and limited technological development and (2) low-productivity equilibrium and demographic factors (Bloch, 1989; Epstein, 1998; Mokyr, 1990). The second section will discuss the transformation from the late 18th century, focusing on (1) technological and organizational breakthroughs, (2) significant institutional reforms, referred to as "Institutional Modernisation", (3) demographic transition (Allen, 1992; Hobsbawm, 1962; Landes, 1969; North & Thomas, 1973). This study argues that the emergence of sustained economic growth after the later 18th century would mainly be attributed to the balance between the supply, related to productivity and economic growth, and the demand, associated with the demographic transition. The improved institution plays a significant role in achieving such balance after the 18th century.

2. Analysis of the reasons for the rarity of sustained economic growth before the late 18th century

Regarding counter-argument, it is also reasonable to recognize that, although rare, sustained development has been witnessed during the pre-Industrial Revolution history of human civilization. Although the term "sustained economic growth or GDP has not been invested then, some economic achievements accomplished would be recognized, such as those in the Tang (618-907 CE) and Song (960-1279 CE) dynasties in China, the Gupta Empire (c. 320-550 CE) India, and the Byzantine Empire (c. 330-1453 CE) in Ancient Turkey. For example, the Song Dynasty is notable for its economic prosperity, advancements in technology, flourishing culture, and increased living standards (Mokyr, 1990). However, apart from these exceptions, the rarity of sustained economic growth before the late 18th Century can be primarily attributed to institutional constraints and a society limited by low productivity.

2.1 Institutional Constraints: limitations on technological development and economic

trade

The prevailing feudal system, the dominance of merchant guilds, and unfavorable institutional frameworks are critical constraints in pre-18th Century Europe that hindered innovation necessary for sustained economic growth. Firstly, the feudal system was known to inhibit significantly essential drivers of economic development, such as the free movement of labor and capital, due to its rigid social hierarchies and manorial economy (Bloch, 1989). By limiting economic mobility, such restrictions stifled innovation, inhibiting advancements that could have led to more significant economic growth. Secondly, restrictive conditions were further compounded by guilds that controlled production and trade with stringent regulations, curtailing technological advancements due to the lack of competitive pressure (Epstein, 1998). Finally, the widespread lack of efficient property rights and legal systems pre-18th Century led to an inefficient market for innovation and improvement (North & Thomas, 1973). This meant that individuals had neither access to capital nor the incentive to innovate, as there was little assurance that they would reap the fruits of their labor. Collectively, this confluence of factors created an environment where economic incentives for innovation and expansion were weak, preventing sustained economic growth. As such, these institutional constraints, prevalent in preindustrial societies, created a low-productivity equilibrium, making sustained economic growth rare.

2.2 Demographic Factors and Low-Productivity Equilibrium

It is important to note that the low-productivity equilibrium before the late 18th century was also driven by demographic factors such as high mortality rates, recurrent famines, and diseases such as the Black Death (Wrigley & Schofield, 1981). These limitations severely restricted European population growth, constraining the labor force and market expansion necessary for economic development. Furthermore, the prevalence of such demographic factors meant that even when technological innovations occurred, their widespread adoption and impact were inhibited by a lack of sufficient human capital. The Malthusian trap, where any productivity increases were offset by population growth leading to subsistence-level incomes, further entrenched this equilibrium (Clark, 2007). Thus, the interplay between technological stagnation and demographic constraints created a self-reinforcing cycle of low productivity, making sustained economic growth rare before the late 18th century.

3. Factors that led to sustained economic growth in and after the late 18th century

If we want to understand why the late 18th century heralded sustained economic growth, it is crucial to examine this transformative period's key events.

3.1 Technological and Organisational Breakthroughs

Historian David Landes argues that the Industrial Revolution, with its unprecedented technological innovations, facilitated sustained economic growth by fundamentally changing production processes and economic structures (Landes, 1969). Undoubtedly, the Industrial Revolution significantly improved productivity and capacity through mechanization and factory systems. Inventions such as James Watt's steam engine (1769) drastically increased manufacturing efficiency and throughput, catalyzing rapid industrial growth (Landes, 1969). This period saw the rise of industries like textiles, iron, and coal mining, transforming economies from agricultural to industrial powerhouses and fuelling explosive economic growth.

Simultaneously, the Agricultural Revolution was crucial in paving the way for industrialization. Innovations like crop rotation, selective breeding, and the enclosure movement significantly boosted agricultural productivity (Allen, 1992). In addition, the enclosure movement consolidated fragmented lands into more efficient, privately owned farms. Combined, the improved agricultural productivity and crop yields reduced the workforce needed on farms while ensuring a stable food supply for population growth. As a result, the surplus labor migrated to urban centres, providing the workforce necessary for burgeoning factories. Hence, by facilitating urbanization, the Agricultural Revolution enabled the rise of cities as economic centers, driving sustained economic growth through higher productivity and output. Urbanization, in turn, created larger markets and a labor pool for industrial enterprises (Mokyr, 1990).

Taking the UK as an example, In the 80 years or so of the Industrial Revolution, Britain established a strong textile industry, metallurgical industry, coal industry, machinery industry, and transportation industry. The invention of Jenny's textile machine and the reform of the steam engine in the middle of the 18th century significantly increased the productivity of industry (Gehani, 1998). Lenin (1989) pointed out that "in the middle of the 19th century, England monopolized the world market almost completely".

However, without the development of property rights, financial systems, and supportive legal frameworks, these innovations could not be fully capitalized upon. For instance, during the Song Dynasty, China saw significant in-

novations in agriculture and industry but failed to sustain economic growth due to a lack of concurrent institutional reforms (Mokyr, 1990). This underscores that without institutional modernization, technological advancements alone would not have catalyzed the sustained economic growth observed in the late 18th Century (North & Thomas, 1973). Thus, understanding the rise of sustained economic growth post-late 18th century requires analyzing the interplay between technological breakthroughs and institutional reforms.

3.2 Institutional Reforms: Capitalism, Colonialism, and Global Trade

This section analyses the historical accounts of the enabling institutional factors for sustained economic growth, specifically focusing on capitalism, colonialism, and global trade.

A deep analysis reveals that the institutional reforms that happened in the 18th century could be attributed to the mechanism of capitalism, the maximization of economic benefits. "The spirit of capitalism," Weber argued, "incorporates a philosophy of greed with utilitarianism." (Ghosh, 2014) Also, Karl Marx (1933) argued that the real goal of capitalists is not the use-value of commodities but restless and unending profit. In this context, in the early stages of the Industrial Revolution, humanity mainly considered the enormous wealth brought by the development of the Industrial Revolution, whereas there was no great vigilance about the vast damage it caused to the environment. Efficient financial institutions, robust property rights, and competitive markets characterized the rise of capitalism in Europe. Especially in Britain, these structures encouraged efficient resource allocation and risk-taking financial behavior, such as investments and business models based on technological innovations, boosting society's productivity overall (North & Thomas, 1973).

Taking a global perspective, it is equally, if not more, crucial to analyze how colonialism contributed to economic growth in Europe. Charting the Pacific Ocean, the colonial networks, strengthened by military power and political control, integrated global markets and created extensive resource networks. European colonial and later imperial powers exploited colonies for raw materials and new markets, funnelling wealth back to the home countries to fund further industrialization (Pomeranz, 2000). The British Empire is a case in point, where colonial resources such as Indian spices and tea, West Indian sugar, Egyptian cotton, and Australian wool were extracted and traded extensively. These resources were transported via the extensive British naval fleet to nations in Europe, North America, and Asia, enabling Britain to dominate global trade markets and fuel its economic growth and industrialization. This, in turn, supported its technological advancements and infrastructural developments, allowing it to expand its economic capacity and sustain economic growth (Israel, 1989).

Finally, trade liberalization and tariff reduction in the late 18th century contributed to sustained economic growth. Reforms, such as the Navigation Acts, allowed for the free flow of goods and capital. This increased the market size for industrialized nations through greater export demand while spreading technological innovations across borders, enhancing productivity globally (O'Brien, 1982). Hence, the combination of capitalist structures, colonial wealth, and expansive trade networks laid the foundation for the sustained economic growth seen post-late 18th century, marking a departure from the previously stagnant economic conditions.

3.3 Demographic Transition: Free From the Malthusian Trap

As mentioned before, the improvement in productivity and institutions could not lead to sustained economic growth, as the Malthusian trap usually created a self-reinforcing cycle of low productivity, making sustained economic growth rare before the late 18th century. However, the demographic transition during and after this historical period paved the way for sustained economic growth, and such a transition happened in two stages.

First, the rapid economic growth during the Industrial Revolution was in excess of population growth. (Britannica, 2018) Prior to the Industrial Revolution, the world's population was only about 300 million in the Neolithic Age. (May, 2012) Due to industrialization, technological progress resulted in an increase in the population, which was kept in check by food supply and other resources, which acted to limit per capita income. (Wilde, 2023) In the early eighteenth century, the population of England tended to remain static, but it had doubled within a hundred years of the Industrial Revolution. (Cartwright, 2023; Anderson, 1988) Between 1750 and 1850, the population of England nearly tripled, making a dramatic break from the past. (Koyama,2023) At this stage, rapid population growth empowers the process of industrialization and wealth accumulation.

In the second stage of demographic transition, the 18th century witnessed a significant reduction in fertility rates and population growth in various regions of the world, enabling economies to convert a larger share of the fruits of factor accumulation and technological progress into growth (see Figure 1, Oded, 2005). As a result, this historical period also witnessed a rise in the level of Income Per Capita and the demand for human capital, accompanied by improved living conditions over a long period

(Becker, 1981). Such demographic transition freed these industrialized countries from the Malthusian trap and achieved gradual, sustained economic growth.

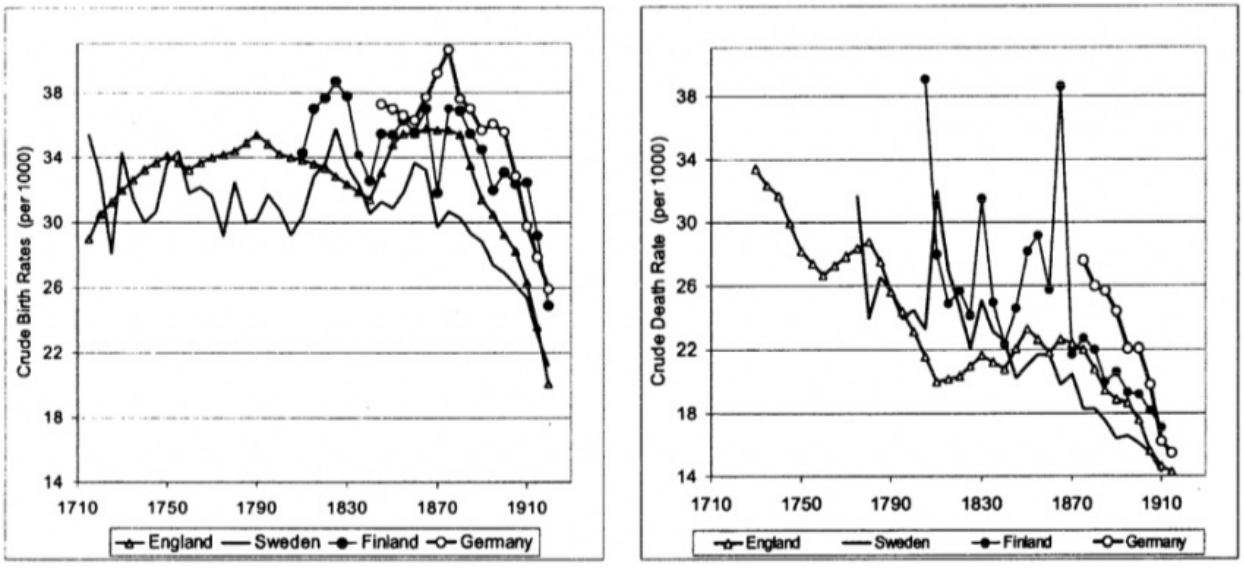

Figure 1. The decline in fertility and mortality in Western Europe (Andorka, 1978).

4. Conclusion

To summarise, prior to the late 18th century, entrenched institutional constraints and a low-productivity equilibrium characterized by limited technological innovation and demographic pressures were the most significant barriers to sustained economic growth. In explaining sustained economic growth from the 19th century onwards, the historical literature seems to appoint a crucial role to technological and institutional reforms, with labels such as the "Industrial Revolution", "Institutional Modernisation," and the "Industrial Leap." In addition, while capitalism and colonialism facilitated economic growth, the institutional change and demographic transition would further free industrialized countries from the Malthusian trap and enable them to embrace sustained economic growth in and after the 18th century.

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