FROM FACTORIES TO GHOST TOWNS: DISASTER OR DESTINY FOR BRITISH DEINDUSTRIALISATION IN THE AGE OF AI?

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ABSTRACT

During the 1970s and 1980s, the share of employment in traditional manufacturing industries declined significantly across advanced global economies, including those of the UK, US, Germany, France, and Japan. By the 1990s, only 0.2% of the total employment was employed in traditional industries and the manufacturing sector in these countries. Within the field of economic and social history, many historians and political economists argue that deindustrialisation, a term for the falling share of employment and decline in manufacturing industries, is evidence of an economic decline and has led to social division and inequality in society (Kamitake, 1990; Martin, 1988). Meanwhile, the counterparts of this believe that deindustrialisation was a natural economic phenomenon that came because of the need to increase the country's economic growth and prosperity and led to the creation of new jobs (Crafts, 2012; Tomlinson, 2014). In the age of Artificial Intelligence (AI), deindustrialisation has become more important than ever because of its ability to disrupt the labour market and employment rates. This research examines the impact of AI on labour markets, drawing insights from the economic history of the causes and impact of the peak of deindustrialisation during the 1970s and 1980s. Additionally, this research argues that deindustrialisation is a natural economic phenomenon that leads to growth and labour productivity of the national economy, and revolutionary changes such as universal basic income and governmental regulations are required to tackle the challenges escalated by AI.

INTRODUCTION

AI and traditional industries

Throughout the history and development of the field of economics, traditional industries have remained at the forefront of producing raw materials, goods, products, and services. Here, traditional industries refers to the manufacturing industries that range from farming and agricultural products to textile materials and defence equipment. As economist Kaldor (1973, p.193) suggests, the creation of such industries is crucial as it is 'richly endowed with capital' and has developed 'relatively high standards of living' across the advanced economies. In the UK, they played an even more important role in the expansion of the British Empire, where the Industrial Revolution of the 19th and 20th centuries enabled a high quality of life for the households and families in the country, increasing 'both the supply of marketed commodities and labour and the demand for market-supplied goods' (Vries, 1994, p.249). However, after the 1970s and 1980s, the share of the market and commodities in traditional industries has gradually shifted from manufacturing to the services sector, which has resulted in deindustrialisation in the UK and caused losses in the share of employment. Now, with Artificial Intelligence (AI) threatening to dismantle labour forces through its automation in the service industry, many economic historians, such as Acemoglu and Restropu (2019), believe that the impact of further deindustrialisation could be severe for issues such as persisting regional inequality, lowering labour productivity, changing employment rates, and decline in overall national prosperity in the UK. Hence, in this research article I aim to examine possible future labour outcomes threatened by AI in the services industry. I argue that deindustrialisation is rather a natural economic phenomenon that can lead to economic growth for the country while drawing lessons from the failures of Britain's 20th century industrial history.

LITERATURE REVIEW

The field of economic and social history is filled with critique, discussions, and data sets on the topic of deindustrialisation, with a variety of focus on its social, political, and economic consequences. Notably, as economist Kamitake (1990, p.50) reports, the Chancellor of the Exchequer in the UK from 1974-79, Denis Healey, became the first person to denote the word 'deindustrialisation' during his budget speech expressing his anxiety over the future of the industries and employment opportunities. Since then, many historians (Lever, 1991; Koistinen et al., 2014; Kollmeyer 2009) have argued on the topic, highlighting the falling share of employment from 1973 to 1990 as evidence of economic decline in the UK due to its linkages with the regional inequality, falling balance of payments, and changing geographies. In his work, Lever (1991) used the examples of different regions of Scotland, including the City of Glasgow, arguing that the process of deindustrialisation has disproportionately affected people's earnings. Meanwhile, Koistinen et al. (2014) assert that the concept of decline is itself in

correlation with the industrial loss, whereas Kollmeyer's (2009) empirical regression model suggests that manufacturing did not diminish but instead was outsourced, therefore can be reinterpreted to boost local production. On the contrary, Crafts (1996), Tomlinson (1996; 2014), and Ramaswamy and Rowthorn (1997) refuted those claims by arguing that the shift was crucial and necessary. Historian Crafts' (2012, p.17) engagement with the topic suggests that the British economy during the period of 1975-90 instead 'reversed the relative decline of the 1945-70', whereas Tomlinson (1996; 2014) emphasises that the phenomenon of deindustrialisation was 'inevitable' owing to its economic benefits. Additionally, Rowthorn and Ramaswamy (1997) believe that the service industries bring far greater wealth to the nation than manufacturing.

As Acemoglu and Restropu (2018) argue, AI has now again brought forward the debate of deindustrialisation, productivity, and decline with its capability of changing future employment patterns in the service industries. Scholars, including engineers and computer scientists Newton and Dhole (2023) and Chou (2018), have actively referred to the development of AI as a first step towards another industrial revolution owing to its future economic benefits. However, it has also raised concerns and challenges in academia, government, and the public because of its effects on employment rates and job losses (Acemoglu and Restropu, 2019). Although the topics of deindustrialisation and AI remain connected through their impact on labour markets, little has been talked about the extent of the relationship between them and if there is any lesson to learn from the history in the literature. According to Cazzaniga et al. (2024, p.12), AI's rise seems inevitable due to its ability to cut costs down for businesses while increasing their productivity and this raises a concerning threat for 30% of global employment. Therefore, more studies are required to test and determine the benefits and threats of its development to avoid the failures of the process of deindustrialisation during the 1970s. Hence, it is imperative and crucial to engage in the discourse and contribute to the growing body of research on the probable impact of AI on labour markets and its link with deindustrialisation.

METHODOLOGY

This article is divided into three parts in chronological order of the periodisation to examine Britain's economic history, changing times, and its implications on the future of AI in the country. The first section explores the causes of the economic climate that led to the rise of deindustrialisation in the UK while examining the data sets from the period of 1840 to the 1970s. Further, the first section engages with the wide range of historiography and existing data sets on employment rates and productivity. The second section critiques the impact of deindustrialisation and its negative effects on the social and economic fabric of British society. For this, the second section uses statistical techniques of employment rates from Layard and Nickell's (1985) model, oral history accounts from Gibbs's (2021) report, and primary sources including an excerpt from Gordon Brown's 2015 speech as evidence to contribute to my arguments. The last section attempts to form a synthesis from the first two sections to examine the possible future of labour market outcomes while focusing on the economic policy options to mitigate the effects of the risk. Overall, this article engages with economic indicators, statistical models, primary sources, oral history, and data sets to contribute to the growing debate of AI's effects on employment rates.

CAUSES OF DEINDUSTRIALISATION: A BRIEF OVERVIEW OF BRITISH CAPITALISM FROM 1840 TO THE 1970S

As Supple (1994, p.442) examines, the debate on the topic of British decline has remained one of the most contentious academic discourses 'over the last 100 years'. According to Tomlinson (1996, p.731), the decline is an ideology that can be defined as an economic state where the performance is in a deficiency which 'in principle' was 'avoidable or remediable'. Throughout the 19th century, the British Empire remained a powerful and dominant economic regime that did comparatively far superior on the economic indicators than its competitors due to its industrial strength. According to Crafts's (1989, p.422) quantitative analysis, the Total Factor Productivity (TFP) in the agricultural sector of France and Ireland remained at 84 and 93 respectively compared to Britain's 100 in 1840. The TFP here is a crucial indicator that displays the output, volume, and growth of the economy, where a better productivity rate indicates higher labour strength in converting resources into profitable products. Similarly, by 1870 49.2% of the male labour force was employed in British industries compared with 36.5% in the European industries, displaying a strong favourable position for Britain's economic hegemony against its competitors during the 19th century (Crafts, 1989, p.417).

However, for the first time in modern history, Britain's industrial dominance shrunk in the early 20th century, where the data from Tomlinson (2014, p.5) displays that the GDP per capita was in excess at the rate of 0.9%, 2%, and 1% in Germany, Italy, and France respectively from 1899 to 1913, displaying a clear decline in the status of the British economy. Additionally, from 1929 to 1939, the British economy went through a severe depression where the applicants' rate of unemployment rose from 10.7% in September 1929 to 25% in June 1939, demanding new economic reforms and ideology to challenge this crisis (Craft, 1987, p.420). Thus, the crisis of unemployment during the Great Depression led to the birth of new ideas, led by political economist John Maynard Keynes (1936), that remained at the forefront of Britain's economic policy from 1945 to the 1970s. Here, Keynesian economics can be defined as a political economy model in which the government reallocates spending power from the terms and conditions of free-market enterprises to itself, enabling the injection of credit, social security, and welfare

into the economy (Bornemann, 1976). Between 1945 and the 1970s, following the Keynesian model, Britain arguably went through the 'Golden Age' of its economy that saw the TFP rate rise to 1.3% from the previous average of 0.45% (1891-1950) (Crafts, 2012, p.17) with historian Fielding (2001, p.242) calling the period's growth rate 'the highest in the last hundred years.'

On the contrary, by the 1960s, the British economy failed to beat its competitors in the developed world where Britain's longstanding position in the GDP per capita grew from 6th to 11th between 1945 and the 1970s (Tomlinson, 2014). Similarly, the Keynesian economic model adopted throughout the post-war period and the oil price shock of the 1970s led to the inflation rate rising to 25% from the average of 5% from 1953 to 1969 (Laidler, 1976, p.486). Furthermore, the breakdown of the rising interest rates and inflation led to the fallout of Britain's longstanding industries and manufacturing regions due to the Keynesian-induced rise in costs, production, and wages. The crisis led to a fall in the share of employment which was enabled by the government's policies in a bid to protect the national hegemony and standing because of its cost-effective nature. In his work, O'Hara (2009, p.697-698) examines oral history from the post-war period and claims that British economists were ready to 'starve' the nation instead of serving it to beat its competitors. Here, as Crafts (1996, p.174) examines, the process of deindustrialisation in the 1970s and 1980s not only grew the economy and decreased inflation but also reversed the relative decline of the last century, with the GDP per head and productivity rate rising at 2.1% and 1.5% respectively compared with the Median Eurozone at 1.9% and 1.2%.

IMPACTS OF DEINDUSTRIALISATION: FALLING EMPLOYMENT RATES, REGIONAL INEQUALITY, AND SOCIAL DIVISIONS

During 2015's Labour Leadership Race, former Prime Minister Gordon Brown claimed in his 'Power for Purpose' speech that 'when the Tories entered government in 1979, unemployment stood at 1.3 million. 18 years later it was more than 2 million', expressing a deep discontent with the negative effects of deindustrialisation and the government responsible for it (Brown, 2015). According to Kamitake (1990, p.52), the UK's share in manufacturing exports stood at 9.3% in 1975 from the peak of 34% in 1899, reflecting and displaying a clear picture of the decline and competition for the British economy (See Fig. 1). Similarly, as Mounfield (1984, p.142) claims, the employment trends in the UK's manufacturing industries saw a decrease of 31% from 1951 to 1981, whereas the share of employment rate grew by 25% in the service industries, with the banking industry reporting a sharp 183% increase during the same period (See Fig. 2).

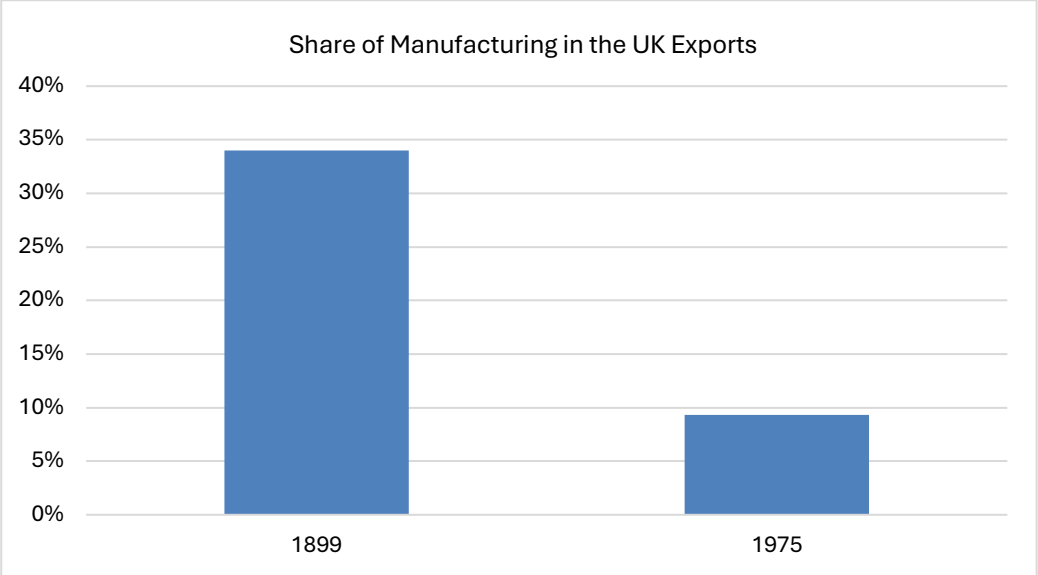

Figure 1: depicted from the data collected through the source (Kamitake, 1990, p.52)

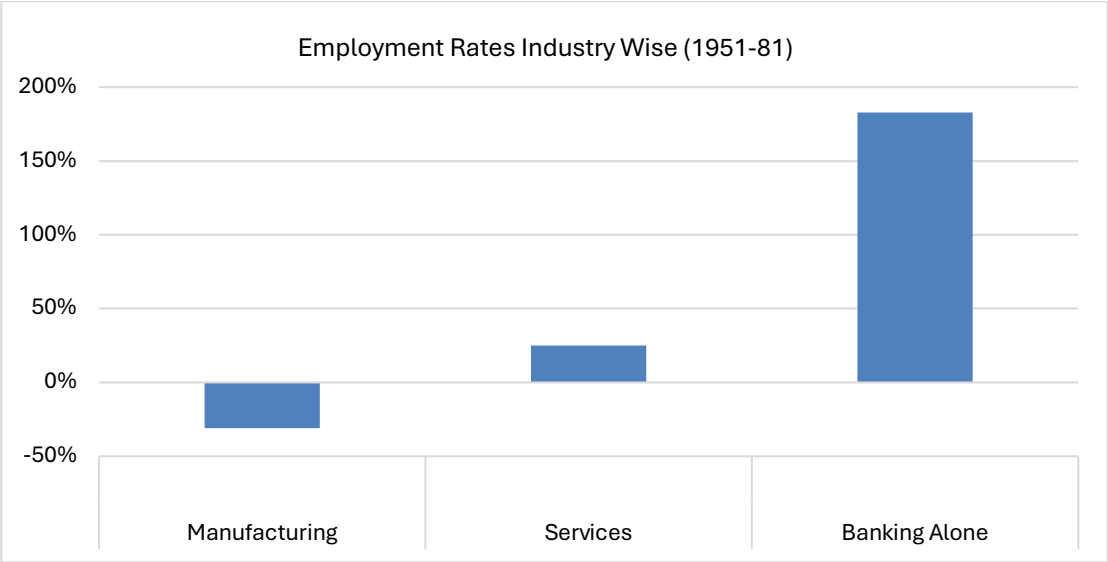

Figure 2: depicted from the data collected through the source (Mounfield, 1984, p.142)

The quantitative data here clearly suggests a shift in the demand for the UK's labour force towards the service industries, abandoning the working class and the regions dependent on traditional industries for employment. According to the mathematical model by Layard and Nickell (1985), the cause of the persistent unemployment was found to be the relationship between mismatch, labour demand, and structural unemployment. During 1975-1985, the unemployment rate remained averaged at 8% according to the Office of National Statistics (ONS, 2024). Here, emphasising Layard and Nickell's (1985) model, more than a 5% change in the employment patterns was brought about by changes in labour demand and structural unemployment, which meant that the employees working in the coal mines, factories, and textiles across the country were suddenly no longer needed and required an upgrade in skills to compete with the employees employed in banking and insurance services. Although the workers worked and lived in an industrial city, many felt the situation was unfair given the efforts and energy they had put into their work, and even the government withdrew its support for them because of deindustrialisation's connection with productivity (Gibbs, 2021).

During the 1980s, the Conservative government implemented major government policies including appointing the Monopolies and Mergers Commission to save up £300m through the closure of Coal Mining in Scotland due to its rising costs (Philips, 2013). As the report from Gibbs (2021, p.87) reflects, major coal miners complained about the closures of the mines, exclaiming 'It's finished! It's finished!' as they reflected on the history of feeling betrayed by the government. The event also triggered the great North-South divide based on income, where Scotland (which was at the heart of manufacturing industries) saw the unemployment rate averaging 19.5%, meanwhile it was only 7-8% in London where the new service industry boomed (Martin, 1988, p.397). Hence, deindustrialisation not only increased the country's productivity and growth but also caused widening social impacts that increased inequality and regional imbalances, creating social divisions within the community.

THE AGE OF AI: DISASTER OR DESTINY FOR BRITISH DEINDUSTRIALISATION?

As AI continues to boom, many economists and political commentators fear a repeat of the major episode of deindustrialisation which led to a rise in inequality and social divisions during the 1980s. AI usually works on the technology called 'automation' which follows and recognises data patterns, cognitive processes, and functions on advanced computational statistical algorithms to complete its work (Tyson et al., 2022, p.256). As Tyson et al. (2022) argue, the technology works and operates in a similar, if not advanced, manner as a human in the service industry. Here, technological growth has the potential to transform and completely reduce employment rates in the service industries due to its similarities to human capabilities and incentives for businesses to reduce costs while increasing productivity.

According to the IMF report, more than 40% of professional jobs are at risk in the UK, making it one of the highly vulnerable markets owing to governmental failures to protect the country's manufacturing capabilities during the 1980s (Cazzaniga et al., 2024, p.8). Similarly, only 29.8% of college graduates are expected to adjust to technology in the AI-equipped world if the structural changes in the employment sector hit the economy, whereas in the 1970s, only 5% of total labour was affected by the rise in service industries. (Cazzaniga et al., 2024, p.12; Layard and Nickell, 1989, p.79). Overall, if the pattern followed similar labour market outcomes post the 1980s deindustrialisation, the UK is set to lose more than 5.5% of the employment rate followed by an increase in the use of AI in businesses, leaving the professionals, managers, and financial analysts all at

risks of losing their job (Cazzaniga et al., 2024, p.15). As IMF's ex-chief economist Gita Gopinath remarked at her Glasgow University lecture in 2023, 'Given the threat of widespread job losses, it is critical for governments to develop nimble social safety nets to help those whose jobs are displaced', avoiding the risk of bringing the threat of structural employment and demand for labour shortages as an additional factor contributing to negative unemployment rates (IMF, 2023).

To avoid past failures, it is imperative for governments to play an active role in global AI development, where an extensive emphasis on regulations is required to minimise the impact on both the labour markets and the regional inequality which the Thatcher government failed to do during the 1980s. As Painter's (2016) research suggests, the implementation of universal basic income could be crucial in achieving a social safety net and ensuring the elimination of the risk of social divisions and inequality in the country. Since it would send out a pre-decided wage payment, the state could help enhance welfare and quality of life which has been impacted by AI's entry into market. As Worowitz et al. (2018) examine, any prediction for AI-related changes to the economy is unstable and will depend on the market and the ability of the technology to deliver the productivity levels if the patterns from the 1980s continue. As Acemoglu and Restropu (2018) suggest, if countries need to maintain their productivity and global standing, then the creativity and innovation of AI are crucial in building the future of the British economy.

CONCLUSION

In conclusion, the process of deindustrialisation is ultimately a natural economic phenomenon driven by independent market forces, with shifting economic demands and advancement in technologies. Additionally, the process has a significant historical association with economic and social upheavals in the UK since the 20th century. Despite the challenges of regional inequality, social divisions, and employment structural mismatches, the transition from traditional industries to services has contributed significantly to the UK's economic growth and has massively increased its productivity against its competitors. Today, the rise of AI presents a similar pathway for the labour market, posing both threats and opportunities.

As examined, the negative impacts of deindustrialisation during 1970s and the 1980s were linked to many economic and social failures, causing job losses, regional inequality, and social divisions. Policymakers must learn from past historically significant experiences to reduce negative impacts, such as job displacement and widening inequalities, through policies like universal basic income, skill development programs, and robust regulations to prevent its reoccurrence. If it is managed creatively, AI can act as a catalyst for innovation and economic progress for the UK to remain competitive on the global stage. The future of the British economy lies in leveraging automated technology to create a more inclusive, dynamic, and prosperous society.

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