1. Critically evaluate the productivity performance - British Service sector before WW1? 2. Explain Britain's relative economic decline in the context of failure to adopt new technology/ organisational methods/ hierarchical structures across different areas of the service sector?

Introduction

Between 1870 and 1914, Britain's early productivity lead in services was eroded, after rapid catch up from US and Germany. **Rubinstein** (1993) posits that Britain was never an industrial economy, rather a commercial and financial one whose comparative advantage always lay in that area.

Chandler (1990) believed Britain's network system to be under threat from a system of high-volume low-margin business organised on a hierarchical basis. **Lazonick (1986)** argues that the failure to adopt these new organisational methods in Britain was a principle cause of its relative decline. However, others point to the fact that British performance tended to be better in sectors where conditions continued to favour networks rather than hierarchies.

Railways: Penalties of an Early Start

Crafts, Leunig and Mulatu (2011) find total factor productivity growth of British railway to be sluggish: just 1.05% for UK between 1890-1910 compared to 2.1% for the US. **Dodgson** (2011) is even more pessimistic, showing UK growth is barely half the above estimate, using different weightings.

Clapham (1984) attributes much of this to penalties of an early start, however. The British rail network was relatively complete by 1870, increasing much less than US (50% v 374.2%). The physical capital lock-in thus prevented the adoption of best-practice at a time when technological change favoured hierarchical forms of organisation.

For **Chandler (1990)**, the pioneering of effective large scale managerial hierarchies on US railroads provided a template for Britain. **Kinghorn and Nye (1996)** note that although Britain's rail system was extensive, the fragmented structure of British railways prevented the development of an effective managerial hierarchy needed to achieve Chandler's fabled productivity gains.

Dodgson (1993) estimates cost function from data on 60 railway companies, and finds constant returns to scale, consistent with **Foreman-Peck's (1987)** findings - he therefore concludes there were no significant cost reduction benefits to achieve by amalgamation.

Much of the literature argues that Chandlerian forms of management are not the solution here, it much more fundamentally comes down to a lack of competition.

Crafts, Leunig and Mulatu (2011) point to large barriers to entry, no possibility of foreign competition, widespread collusion and mergers allowing poor management to persist as well as government regulation being largely ineffective.

McCloskey and Sandberg (1971) argue that poor management persists due to a lack of competitive pressures. Entrepreneurial failure is thus tied to non-competition: there is no forced exit for weak firms and poor management can persist - 'managerial inertia'

Shipping: Britannia Rules the Waves

Britain ruled the waves pre-1914: **Broadberry (1994)** notes that total factor productivity growth was 1.9% per annum between 1870 and 1914. Britain's rise to dominance in shipping coincided with a switch from sail to steam, however, sail was still used by British shippers on some routes well after 1900. Economic historian try and interpret this technological conservatism as 'entrepreneurial failure', yet Britain's merchant marine was very successful in this era.

Harley (1971) finds that British ship-owners switched rationally from sail to steam at different moments on different routes as relative cost conditions changed. In 1872, advantages lay with sail on long voyages. Over time, technological progress meant that steamships became more viable.

Hannah (1982) sees no evidence of entrepreneurial failure here: on short, Mediterranean routes of high value with lots of coaling stations, the advantage of sailing ships was less and British entrepreneurs adjusted accordingly. Entrepreneurs used old technology where most profitable and new technology where most profitable.

Boyce (1995) found despite the emergence of large scale shipping lines organised on a hierarchical basis, Britain continued to dominate in the tramping sector based on a system of networks. The network form continued to be more suitable, as it relied on flexibility, rather than routine.

Pre-WW1 Brit was hub of connections and shipping needs these connections - not a service that can be delivered as well without them. US superior in large scale, transatlantic shipping. More a case of the changing environment becoming more orientated to play to US competitive advantages.

International Banking

Kynaston (1995) dubs the pre-WW1 period the "Golden Years" for the City of London. The absence of significant Anglo-American productivity gaps in international banking signified the continuing suitability of finance to flexible networks, information intensive industries and highly customisable service products. **Jones (1993)** believed international banking to be a business where networks of personal contacts generated higher added-value than modern business enterprise.

Whilst Chandler's model of large scale production and hierarchical management reaped significant productivity gains for the US at this time, international banks had no requirement for rationalised, scientific management; they need flexible, adaptable and well-though through investment decisions.

There is a consensus in the literature that the Square Mile operated as an expertise hub, with numerous small, specialised financial institutions that collectively reaped external economies of scale. **Cassis (1994)** paints it as a 'Marshallian' district where networks of trust meant information aggregated in London transformed it into a nexus of knowledge.

Overseas banks built up resilient network based systems that capitalised on Britain's dominance in world trade, Empire connections, and the availability of City expertise. In fact, **Jones (1993)** emphasises the advantages of this network form of organisation for overseas banks, going as far to argue that their success was predicated on avoiding the large and complicated managerial hierarchies as recommended by Chandler.

Obstacles in adopting the Chandlerian recipe of a high-volume, impersonal, standardised approach in international banking were obvious, according to **Lamoreaux (1994)**, who emphasised the importance of 'trust' and informational asymmetries.

Broadberry and Ghosal (2002) concur that these key facets hindered the application of an anonymous, industrial-scale approach to finance. They recognised that Britain derived competitive advantage from customised, network-based activity that relied on information, as opposed to the managerial hierarchies that underpinned America's competitive advantage. Hence, failing to adopt Chandlerian structures in international finance before WWI was not attributable to Britain's relative economic decline.

Britain's social capabilities and business environment at the beginning of the twentieth century were more conducive to network-based organisations, as evidenced by the international banking sector.

Critics of Chandler's model, like **Wilson (2012)** argue that its implication of a universally applicable model of business organisation is controversial, as its universalising predictions are "not always supported by empirical evidence" as we have seen.

Lamoreaux, Raff and Temin (2008) add that the Chandlerian model was not a one-size-fits-all solution to stagnant productivity, suggesting Chandler's approach wasn't as appealing in Britain because the giant managerial enterprises that were thought to be the carriers of progress "were not as important...as in these other countries."

We conclude therefore, that although some of the U.S productivity lead was attributable to its large-scale methods and hierarchical management, the Chandlerian model was not as suited to British capabilities as the network-based sectors, where flexibility and customisation were valued.

To come full-circle - the modern office technology in the British service sector (Broadberry and Ghosal) was unsuited to large-scale production methods which were not conducive to Britain's social capabilities, factor costs and market conditions – and that hierarchical management structures would have been much more welcome in the transport sector.

In Britain, productivity performance tended to be better in sectors where conditions continued to favour networks over hierarchy, such asinternational banking and tramp shipping. Other parts of the service sector, such as railway and large-scale liner shipping were more suited to the standardized, high-volume, low-margin business that underpinned the U.S. productivity drive in services and there was potential for productivity gains here, given the Chandlerian model was implemented correctly.