The Long Wave and Turning Points in British Industrial Capitalism: a Neo-Schumpeterian Approach

Roger Lloyd-Jones - M. J. Lewis

Sheffield Hallam University

This article explores Schumpeter's notion of the long wave in the context of key turning points in the history of nineteenth-century British capitalism. The episodes examined are the crisis of 1837-1842, which, we will argue, marked the transition from the first to the second long wave, and the 1890s to the first world war, a period which situates Britain's 'missed opportunities' in the transition from the second to the third long wave. Consistent with Schumpeterian tradition, the long wave is seen as a method of thinking about the rhythm of capitalist development, and the choice of the two turning points is based on the view that they represented decisive moments in the evolution of British industrial capitalism. The first part of the text will provide an outline of the basic notions which underpin the Schumpeterian theory of the long wave. In particular we will explore the work of the neo-Schumpeterian Carlota Perez, who has advanced the theory of the long wave and developed a model of the evolution of capitalism which is rooted in the historical process. The subsequent sections will then provide an empirical investigation of the two turning points, and test the validity of Perez's approach in the context of the British case. Although the two turning points we examine represent distinct moments in British economic and political history, a key connecting theme that we identify is the crucial issue of the fiscal question. Both turning points, we will show, fit Joseph Schumpeter's observation that an understanding of fundamental change in the economic and political system nearly

always involves a crisis for the state, and a revaluation of the 'old fiscal measures'.[1]

I

'Now if we ask the question quite generally about all the fluctuations, crises, booms, depressions that have ever been observed, the only answer is that there is no single cause or prime mover which accounts for them.'[2]

This profound observation was made by Joseph Schumpeter at the beginning of his most important work, *Business Cycles*. This observation encapsulates Schumpeter's view of the general behaviour of economic activity in capitalist systems. The economic system is 'not a pure one', and the economic machine never 'works entirely true' to its design. It therefore follows that, firstly, there is no single cause which accounts for all fluctuations equally well. Secondly, each fluctuation is historically specific and never like any other, either in the way it comes about or in the picture it presents. Finally, to arrive at the causation of fluctuations we must analyse the facts surrounding each, and never forget that any answer in terms of a single cause is sure to be wrong. Schumpeter's approach was evolutionary and historical and he warned that the empirical context is ignored at the researcher's peril. At the same time, he advocated that 'we must put our trust in bold and unsafe mental experiments or else give up all hope.'[3] A scholar who has taken up this challenge is Carlota Perez, who has developed a neo-Schumpeterian approach with a clear historical focus. Her approach, in particular, allows for a long-wave perspective of the rhythm of capitalist

[1] J. A. Schumpeter, 'The Crisis of the Tax State', in R. Swedberg (ed), *The Economics and Sociology of Capitalism*, (Princeton, N.J. 1991), p. 101.

[2] Joseph Schumpeter, cited in C. Freeman *et al.*, *Unemployment and Technical Innovation*, (London 1982), p. 33.

[3] J. A. Schumpeter, *Business Cycles* (abridged edition, reprint of original of 1939, Philadelphia 1989), p. 13. Schumpeter's work, of course, particularly his analysis of the relationship between innovatory activity and long cycles of capitalist development, has not gone unchallenged. See S. Kuznets, 'Schumpeter's Business Cycles', *American Economic Review*, 30 (1940); S. Solomou, *Phases of Economic Growth 1850-1973*, (Cambridge 1987).

development to be set within an historical context and allows the historian to appeal to the empirical evidence.

The basic proposition that Perez offers is that 'long waves are not strictly an economic phenomenon, but rather the manipulation, measurable in economic terms, of the harmonious or disharmonious behaviour of the total economic and institutional system.'[4] She distinguishes between the two basic sub-systems of modern industrial capitalism, which were ushered in by the Industrial Revolution: the technological-economic (the economy), and the socio-institutional (the political, legal and social framework). It is the dynamic interplay between these two changing sub-systems which shapes the historical rhythm of the long wave. To explore this interplay, we can specify four key concepts of the Perez model, and these are shown in Table 1. The mode of development is defined as 'a general pattern of growth based on a set of accepted social and institutional mechanisms national and international ... influencing the operation of markets and other factors.' Each mode of development, as it evolves historically, 'is shaped by its response to a specific technological style.' The technological style may be best understood 'as a sort of paradigm for the most efficient organisation of production.' It is the main form and direction along which productivity growth takes place within and across firms, industries, and countries. Perez also insists that the technological style will have a particular historical form which will be shaped by key technological developments.[5] For example, the technological style associated with the first Industrial Revolution was a complementarity of a steam, coal, and iron technology.[6] Perez maintains that the breakthrough to the technological revolution, associated with a particular technological style, is achieved by the

[4] C. Perez, 'Structural Change and Assimilation of New Technologies in the Economic and Social System', in C. Freeman (ed), *Design, Innovations and Long Cycles*, (London 1984), p. 51.
[5] *ibid.*, pp. 52, 57.
[6] R. Lloyd-Jones and M. J. Lewis, *British Industrial Capitalism Since the Industrial Revolution*, (London 1998), p. 30.

appearance of a resource termed the 'key factor'. The key factor is, for all purposes, in unlimited supply and its potential is all-pervasive. It has the potential to reduce the cost of capital, labour, and products, and it makes its appearance 'near the peak and during the downswing of the' long wave.[7] Such examples of key factors would be coal, steel, and oil.

TABLE 1 - Key Concepts of the Perez Model
Mode of Development
Technological Style
Structural Crisis
The Key Factor

A key proposition of Perez is that over the historical evolution of industrial capitalism the mode of development and technological style change, but they do so at varying rates. Long-wave phases thus represent 'distinct successive modes of development, responding to different successive technological styles.' The mode of development, however, is not directly synchronised with the technological style, as can be seen in Table 2. The former stretches from trough to trough of each long wave, the latter from the peak of one long wave to the peak of the next. The tension created by this lack of synchronisation eventually reaches a critical phase, which Perez calls a 'structural crisis', in which there is a mis-match between the economic and institutional systems.[8] The structural crisis occurs during the lower turning point of the long wave, and allows the historian to model the process of transition from one long wave to the next. For Perez, the depression phase of the long wave locates the timing of the structural crisis, and this is distinct from an economic recession in that it represents 'the visible symptom of a breakdown in the complementarity between the dynamic of the economic sub-system and the related dynamic of the socio-institutional framework.' The

[7] Perez, 'Structural Change', p. 61.
[8] *Ibid.*, p. 57.

nub of her argument is that the crisis occurs when the economic subsystem comes into growing conflict with existing socio-institutional structures but, at the same time, the resolution of the crisis, albeit a 'painful and conflict ridden process', will facilitate the re-establishment of a dynamic new harmony 'among the different spheres of the total system.' This, in turn, forms the basis for the subsequent upswing of the next long wave.[9]

It must be pointed out that the chronology in Table 2 is illustrative, and there are no assumptions here concerning fixed periodicity or statistical regularity.[10] Not surprisingly, Perez has not been without her critics. Andrew Tylecote, for example, has pointed out that the notion of the structural crisis is 'too good to be true.' Not only does it locate the tension between the technological style and the mode of development but it also delivers 'the required reforms in the socio-economic framework' which will usher in the next epoch of growth. But Tylecote asks 'why should they?' and suggests that Perez's notion of the structural crisis may be over-rigid. He speculates on the possibility of different forms of crisis which may well change their content over time. Thus, he presents the notion of a 'mixed crisis' in the nineteenth century, while in the twentieth century he suggests the possibility of 'a distinct alternating pattern of crisis of the upswing and crisis of the downswing.'[11] In part, this is a question which concerns the exploration of a particular historical moment, and gauges the extent to which the Perez model offers the means to develop a robust analysis. It may well be that Tylecote's concept of a 'mixed crisis' offers a useful modification of Perez's basic notion and will help to open up new lines of enquiry. To demonstrate this, and given that the model presented is rooted in the historical process itself, we will examine the neo-Schumpeterian approach offered by Perez in the context of the first Industrial Revolution, in particular mapping the transition from the first to the second long wave. Perez predicts that

[9] *Ibid.*, pp. 51-2.

[10] C. Freeman and C. Perez, 'Structural Crisis of Adjustment', in G. Dosi *et al.* (eds), *Technology and Enterprise in Historical Perspective*, (Oxford 1992), p. 38.

[11] A. Tylecote, *The Long Wave and the World Economy*, (London 1991), pp. 22-5.

the structural crisis will make its appearance in the downswing phase of the long wave. Consequently, we will examine British industrial history during the downswing of the first long wave from 1815, marking the end of the Napoleonic Wars, to 1846 and the repeal of the Corn Laws.

TABLE 2 - Synchronisation of the Technological Style and Mode of Development

Mode of Development (Trough to Trough)	Technological Style (Peak to Peak)
1787-1842	1813-1869
1843-1897	1869-1912/14
1897-1948	1912/24-1961/73
1948-1998	1961/73-2117

II

The three decades following the end of the Napoleonic Wars were marked by rapid politico-economic change in Britain. Although the structural balance of the economy made a decisive shift towards manufacture and commerce, the polity remained, despite the 1832 Reform Act, largely in the hands of the landed interest, and agriculture persisted as a powerful, if negative force.[12] Thus, fundamental questions arose concerning the structural balance of the economy. In particular, should Britain move decisively towards manufacturing industry and the factory system, or should it retain a large and dominant agrarian base? It was this issue which generated the debates and controversies from Waterloo to the Anti-Poor Law, Chartism, and the Anti-Corn Law movement of the 1830s and 1840s. It is our contention that a major fault line was running through the politico-economic system of post-Napoleonic Britain. In turn, this was associated with the downswing of the Industrial Revolution long wave when the dynamic tensions between the existing mode of

[12] Lloyd-Jones and Lewis, *British Industrial Capitalism*, p. 37.

development and the emerging technological style began to unfold. Examining these issues, using Perez's model, we begin by identifying the mode of development during the British Industrial Revolution.

The mode of development which characterised the first phase of British industrialisation is defined by a set of ideas and principles associated with Liberal Toryism. These ideas stretched through from the premiership of William Pitt (1783-1805) to the governments of Lord Liverpool, between 1815 and 1828, and were to culminate in the Peel administration, the government which finally abolished the Corn Laws in 1846. Liberal Toryism represented an uneasy balance between, on the one hand, the acceptance of ideas associated with Adam Smith concerning de-regulated markets for capital and labour, and, on the other hand the tempering of this acceptance by the belief in the key strategic role of agriculture and land in the economy and polity of Britain. In this, Liberal Tories could appeal to both Smith and Ricardo, as Huskisson did when he carried out his commercial reforms of the mid-1820s. At the same time, Liberal Tories considered it perfectly legitimate to evoke Malthusian political economy as a theoretical defence of the landed interest, the key role of agriculture in the economy, and the need for the maintenance of the protective system based on the Corn Laws.

The essence of Liberal Toryism was its conception of a natural balance of forces in the economy and polity of Britain. The government of Lord Liverpool did sanction a programme of de-regulation in the mid-1820s, but these reforms, initiated by William Huskisson, President of the Board of Trade since 1822, were a progressive revision of the protective system and did not represent a radical demolition of it. Indeed, there is no evidence to suggest that the Liberal Tory governments of this period desired, or intended, to bring about major structural change at the level of the aggregate economy. The aim of the ministry was not to ensure the expansion of industry and commerce, but rather to 'keep growth within legitimate bounds', and hopefully to achieve stable levels of employment. For example, Boyd Hilton has argued that leading Liberal Tories such as Lord Liverpool, Huskisson, and George Canning accepted the notion

of 'a romantic naturalism' which set a 'natural level of economic activity.'[13]

The mode of development was accompanied by its historical partner, the technological style. According to Perez's temporal sequence, the technological style would emerge from the peak of the Industrial Revolution long wave and begin to diffuse its impact during the downswing phase. In Britain, the new technological style resulted from the application of steam technology, both to motive power, in the form of mechanised and centralised production in the factory, and to tractive power, as embodied in the steam locomotive and the infrastructure required to release its potential. The decisive innovations are shown in Table 3. These innovations were associated with coal as the key factor, and they constituted an innovatory cluster which linked coal, iron, and steam with the dynamic growth of the cotton industry and, at the end of the period, with railway development. The linkages between these sectors formed what Freeman *et al.* have termed the 'band wagon effect'.[14] Innovatory entrepreneurs quickly identified new opportunities for profit which, in turn, attracted a swarm of imitators attempting to exploit new openings in the market. These processes led, for example, to rapid investment booms in the mid-1820s and also between 1834 and 1836. The latter boom was characterised by significant increases in capacity in the key industries of cotton, iron and coal. Thus, for example, pig iron output increased by 30.4 per cent between 1834 and 1837, and corresponded with the beginnings of the construction stage of several large railways in Britain, notably the Great Western, Eastern Counties, the Great North of England, and the Midland Counties.[15]

The expansion of the industrial base of the economy meant that by the 1820s and 1830s British leaders were confronted with a basic strategic choice:

[13] A. Boyd Hilton, *Corn, Cash and Commerce*, (Oxford 1977), p. 307.
[14] Freeman *et al.*, *Unemployment and Technical Innovation*, pp. 19-21.
[15] Lloyd-Jones and Lewis, *British Industrial Capitalism*, pp. 43-6; P. J. Riden, 'The Output of the British Iron Industry Before 1870', *Economic History Review*, 30 (1977), p. 455; L. Levi, *The History of British Commerce* (Shannon, Ireland 1971, reprint of original of 1872).

'between a future in which Britain might have to rely on manufacturing strength, and hence a capacity to export, to support a growing (urban) population, and one in which legislative intervention might be required to achieve a balance between agriculture and industry on moral, strategic and economic grounds.'[16]

Certainly, by the 1820s, the Liberal Tory government had abandoned the idea of agricultural self-sufficiency, but this did not mean an unambiguous acceptance of industrial society or the adoption of free trade.[17] In response to the London Merchants' petition of 1820, which advocated a decisive move in government policy towards free trade,[18] the Prime Minister, Lord Liverpool, declared that:

'We have risen under a very different system to that of free and unrestricted trade. It is utterly irresponsible, with our debt and taxation, even if they were half their existing amount, that we can suddenly adopt the system of free trade. To do so would be to unhinge the whole prosperity of the country.'[19]

TABLE 3 - Decisive Innovations of the Downswing, c. 1815-1840s

Date	Cotton Textiles	Date	Iron	Date	Transport
1815-1820s	Power Loom	1820s	Coke Blast Furnace	1825-1830	Steam Locomotive and Manchester to Liverpool Railway
1820s	Long Mule	1828	Hot Blast Furnace	1829	Electric Telegraphs
1830s	Self-acting Mule	1832	Puddling Furnace	1838	First Atlantic Crossing of a Steam Boat

Source: R. Lloyd-Jones, 'The first Kondratieff: the long wave and the British industrial revolution', *Journal of Interdisciplinary History*, 20 (1990), p. 592

[16] D. Winch. *Malthus*, (Oxford 1987), p. 9.
[17] Hilton, *Corn, Cash and Commerce*, p. 307; M. Berg, *The Machinery Question and the Making of Political Economy*, (Cambridge 1980), p. 64; Lloyd-Jones and Lewis, *British Industrial Capitalism*, pp. 49-50.
[18] W. D. Grampp, 'How Britain Turned to Free Trade', *Business History Review*, 61 (Spring 1987), pp. 88-92.
[19] Cited in B. Gordon, *Political Economy in Parliament*, (Basingstoke 1979), p. 77.

This mitigated against the acceptance of a mode of development premised on unlimited industrial expansion which, of course, called for the adoption of free-trade policies and the repeal of the Corn Laws. The mode of development characterised by Liberal Toryism placed constraints on the movement to a fully free-market economy. These constraints precipitated a structural crisis in the British economy in the late 1830s and early 1840s.

It is clear that the Corn Laws and free trade represented different perceptions of the appropriate structural balance of the economy, between manufacturing and agriculture. As the boom of the mid-1830s gave way to economic downturn from 1837, so the opposition against agricultural protection gained momentum, and the Corn Laws became a highly visible issue of British political economy. If we return to Tylecote's notion of a mixed crisis, this may allow us to unfold the story. In a mixed crisis the existing mode of development partly blocks the new technological style. The pace of diffusion is such as to 'cause a build-up of socio-political tensions', but is not enough to avoid the consequential economic difficulties. The crisis that finally erupts is then of a mixed socio-political and economic origin.[20] We contend that Britain experienced such a mixed structural crisis between 1837 and 1842. The severe economic downturn in this period coincided with socio-political protest in the form of the Chartist movement and the Anti Corn Law League. The Liberal Tory consensus was shattered when a Tory government, the guardians of the landed interest and the defenders of agricultural protection, abandoned the Corn Laws in 1846 and ushered in a policy of unilateral free trade.

The crisis itself was characterised by a major collapse of prices, profits and employment in the key modern sectors of the manufacturing economy. This was a clear indication of difficulties associated with over-production. A premium was placed on developing new markets which, in the case of the leading modern sector, cotton textiles, meant the expansion of export markets. The Corn Laws were identified as the barrier blocking the development

[20] Tylecote, *The Long Wave*, pp. 20-1.

of British manufacturing. They cut off potential Continental markets by inhibiting reciprocal trade, helped to stimulate foreign manufacturing by limiting the development of agriculture on the continent, and increased domestic British wage rates compared to those of our continental rivals. Further, the Corn Laws allegedly exacerbated the problem of rising unemployment due to their impact on keeping domestic food prices high, and this led to increasing industrial unrest which reached a peak in 1842. The Corn Laws represented a piece of class legislation which protected a narrow privileged interest at the expense of industrial capital and labour.[21]

Agricultural protection was condemned as an artificial device which led to the destruction of British jobs and British capital. In addition, the industrial and political unrest of 1842, which culminated in a virtual general strike in the Lancashire cotton industry, was explained by Manchester businessmen as resulting from a squeeze on working-class living standards. This was, they believed, a direct result of the effect of the Corn Laws. Workers were not rebelling against the industrial system but against a system that kept food prices artificially high and undermined the good relations between capital and labour. Further, the increasingly uncertain relations between industrial and political unrest led 'to the virtual suspension of investment.'[22] The Corn Laws became inextricably linked with the debate over the growing economic crisis between 1837 and 1842, a crisis which brought to the top of the political agenda the question of the structural balance between agriculture and manufacturing. The case for a mixed economic and socio-political crisis, as postulated by Tylecote, would seem to be compelling. But how was the crisis resolved?

The central historical role was played by Sir Robert Peel and the key event was the evolution of his financial strategy after taking office in 1841. On entering office Peel faced a financial crisis; between 1838

[21] Lloyd-Jones and Lewis, *British Industrial Capitalism*, pp. 56-60.
[22] Manchester Central Library, M840, Proceedings of the Manchester Chamber of Commerce and Manufactures, 13 Feb. 1843.

and 1841 there had been four successive years of large budget deficits which had served to undermine the Whig government of Lord Melbourne.[23] As Schumpeter has observed:

'The public finances are one of the best starting points for an investigation of society, especially though not exclusively of its political life. The full fruitfulness of this approach is seen particularly at those turning points, or between epochs during which existing forms begin to die off and to change into something new, and which always involve a crisis of the old fiscal measures.'[24]

The financial policy of the Whigs was roundly condemned by Peel. He dedicated his administration to creating a stable financial structure, but his government was also recognised for its 'bold and vigorous commercial and financial policy and its ability to put them into effect.'[25]

The radical nature of Peel's strategy was embodied in his budget of 1842. The decision was taken to reduce or abolish a whole range of customs duties on manufactured and semi-manufactured products, but it did not simply address the issue of commercial policy. Income tax was re-introduced, a financial device which had been abolished by the House of Commons in 1816, following its introduction as an emergency measure during the Napoleonic Wars. The rate of income tax was set at 7d (3 np) in the pound, and while the bulk of state revenue was still raised from indirect sources, remarkably, for a Tory government, Peel tilted the fiscal balance from indirect to direct taxation. The hope was that the income tax, combined with the stimulus provided by the reduction in duties, would raise the level of economic activity and at the same time produce the necessary revenue to cut the budget deficit. His budget did turn around the deficit, and he had the good fortune that the budget ran parallel to an upturn in the economy as business began to emerge from depression in the

[23] Levi, *History of British Commerce*, p. 223; F. E. Hyde, *Mr. Gladstone at the Board of Trade*, (London 1934); J. Parry, *The Rise and fall of Liberal Government in Victorian Britain*, (Yale 1993), pp. 142-3.
[24] Schumpeter, 'Crisis of the Tax State', p. 101.
[25] Levi, *History of British Commerce*, p. 223.

second half of 1842. But the consequences of stripping away a whole range of duties was to expose the Corn Laws as the one remaining pillar of the protectionist system.[26] Peel still attempted to defend agricultural protection in 1842 and claimed that economic distress could not be 'explained wholly in terms of the Corn Laws.'[27] Indeed, as a contemporary journal claimed in January 1843, 'the present ministry are mainly indebted, for their accession to power, to the prodigious exertions of the agricultural interest during the last general election.'[28] Peel argued that the crisis was in part due to over-production in the manufacturing sector, and that economic distress was a built-in feature of industrial capitalist economies. But what is of interest is that Peel did not use this interpretation to condemn the industrial system. On the contrary, he concluded that 'It is the hard condition, inseparable from a manufacturing country, that there must be such revolutions in the demand for manual labour, and it is not an impeachment, therefore, of any commercial system that great privations and suffering exist.'[29]

Peel was here affirming the status of Britain as a manufacturing nation, and as he stated in 1842, 'our lot is cast and we cannot ... with safety retrograde in manufactures.'[30] Given his acknowledgement that industrial systems were inherently unstable, and, in the context of the immediate crisis which faced him, this pushed him inexorably towards the repeal of the Corn Laws and the implementation of universal free trade. By 1845 'Peel was only awaiting a suitable pretext to repeal.'[31] The end of the Corn Laws in the following year symbolised the dynamic harmony of interest between economy and polity which is a central feature of the resolution of the structural crisis. There is little doubt that the resolution of the crisis was eased by the fact that repeal

[26] R. Lloyd-Jones, 'Merchant City: The Manchester Business Community, the Trade Cycle, and Commercial Policy, 1820-1846', in A. Marrison (ed.), *Free Trade and its Reception,* (London 1998).

[27] *Hansard,* Proceedings of the House of Commons, 9 Feb. 1842, pp. 203-5.

[28] *Blackwood's Edinburgh Magazine,* 53 (January 1843), p. 5.

[29] *Hansard,* 9 Feb. 1842, p. 302.

[30] Cited in Boyd Hilton, *Corn, Cash and Commerce,* p. 84.

[31] N. McCord, *The Anti Corn Law League,* (London 1958), p. 197.

and the adoption of universal free trade were ushered in by a Conservative Prime Minister, and the leader of the party most closely allied to the agrarian interest.

The years 1837-1842 do seem to fit Tylecote's notion of a mixed structural crisis. During these years what unnerved the political elite was the connection of economic distress to political unrest (in the form of Chartism) and commercial reform (the demand for Corn Law repeal). The resolution of the crisis was associated with the establishment of a mode of development based on free-trade imperialism, complemented by a technological style characterised by the diffusion of a steam, iron, and machine technology on both a national and international level. Britain embarked upon a period of export-led growth and the economy experienced in the mid-Victorian years a rate of expansion above the trend.[32] The growth of British commodity exports was also accompanied by a rise in the export of capital and the growing importance of the City of London as the centre of world finance. From our empirical survey, there does appear to be sufficient grounds to support a modified version of Perez's structural crisis, mediating the transition from the first to the second long wave. Nevertheless, we would do well to recall Schumpeter's caveat that each long wave is different, and requires its own careful inquiry. Consequently, in the next section we explore the transition from the second to the third long wave which, following Perez's approach, would predict a structural crisis situated from the late 1880s to the early 1890s.

III

On the day that Peel's Corn Abolition Bill received its Royal assent John Bright, Rochdale cotton manufacturer and, with Richard Cobden, the joint leader of the Anti Corn Law League, claimed in triumph that: 'We have not seen the last of the Barons, but we have shewn (sic) them which way the world is turning.'[33] It would certainly appear that

[32] See R. A. Church, *The Great Victorian Boom*, (London 1975); Tylecote, *The Long Wave*, p. 208; P. J. Cain and A. G. Hopkins, *British Imperialism: Innovation and Expansion*, (Harlow 1993), p. 109; Lloyd-Jones and Lewis, *British Industrial Capitalism*, pp. 62-81.
[33] Cited in McCord, *Anti Corn Law League*, p. 197.

over the next half century the prediction of the free traders was to prove correct. Between 1846 and 1896 Britain became a highly specialised producer of manufactured goods, and the provider of a sophisticated range of commercial and financial services.[34] The coal-iron-steam technological style diffused across a wide range of industries during the upswing of the second long wave, and also steam motive power spread to steam tractive power, with the expansion of the railways and the growth of steam shipping. Accompanied by a free-trade mode of development, with its focus on an international division of labour which fitted British economic and political interests, the British economy underwent a structural transformation which marked it as clearly different from its main rivals by the end of the century. By 1891-96 the share of the population dependent upon agriculture in Britain was only 10%, and this compared to 35% in the U.S.A. and 39% in Germany. At the same date, agriculture's share of national income in Britain was only 8%, while in the U.S.A. it was double this level at 16% and in Germany nearly three times that of Britain at 21%.[35]

These structural changes seemed to vindicate the free traders' predictions that free trade would strengthen the manufacturing base of the British economy, but this proved to be less straightforward than they had hoped. While they accepted that the adoption of unilateral free trade by Britain would not prevent industrial development on the continent, nevertheless they believed that such developments would be sufficiently delayed to maintain Britain's position as the dominant industrial economy.[36] However, by the late nineteenth century the loudest complaints were coming not from the 'barons', who had successfully shifted their allegiance from agriculture to finance[37], but

[34] Cain and Hopkins, *British Imperialism*, p. 177; C. H. Lee, 'Regional Growth and Structural Change in Victorian Britain', *Economic History Review*, 34 (1981); D. Kynaston, *The City of London*, (London 1994).

[35] Lloyd-Jones and Lewis, *British Industrial Capitalism*, p. 96; D. S. Landes, *The Unbound Prometheus*, (Cambridge 1969), p. 330.

[36] C. Schonhardt-Bailey, 'Introduction', in Schonhardt-Bailey (ed), *Free Trade and the Repeal of the Corn Laws*, (Bristol 1996), pp. xx-xxvii.

[37] Cain and Hopkins, *British Imperialism*, pp. 116-25.

from the industrial capitalists themselves who were worried over rapidly increasing foreign competition, and the tariff regimes deployed by their main industrial rivals. Consequently, within half a century of Bright's triumphant claims, a free-trade strategy was looking a distinctly dangerous one for British industrial capitalism.

Complaints over the erosion of Britain's manufacturing lead were particularly loud in the 1890s, when the exports of British manufactured goods more or less stagnated. The growth rate of British manufactured exports grew by only 0.6% per annum between 1890 and 1900 compared to 4.1% in Germany and 6.1% in the U.S.A.[38] In these circumstances it was of little surprise that questions arose concerning Britain's position in the world economic order. The loss of Britain's manufacturing dominance, and import penetration not only in third markets but in the British domestic market, conspired to enhance the belief among the late Victorians that their economy was in a process of decline.[39] Are there grounds for detecting a structural crisis in Britain as a new technological style was rapidly diffusing, as we will explore later, and from the perspective of Perez did the 1890s mark the transitional phase from the second to the third long wave?

Writing in the *Times* in March 1887, T. H. Huxley had little doubt about the challenges that were about to face the nation: 'We are entering, indeed we have already entered upon, the most serious struggle for our existence to which the country was ever committed. The latter years of the century promise to see an industrial war of far more serious impact than the military wars of its opening years.' The main threat, according to Huxley, was to come from the East in the form of Germany, and from the West in the shape of the U.S.A., and he warned his fellow countrymen that: 'We must be careful to organise victory.'[40] There is

[38] S. Pollard, *Britain's Prime and Britain's Decline,* (London, 1990), p. 7.

[39] R. J. S. Hoffman, *Great Britain and the German Trade Revival,* (Philadelphia 1933), p. 255; E. H. H. Green, *The Crisis of Conservatism,* (London 1995), p. 28; C. Buchheim, 'Aspects of the Anglo-German Trade Rivalry Reconsidered', *Journal of European Economic History,* 10 (1981); K. Burgess, 'Did the Late Victorian Economy Fail?', in T. R. Gourvish and A. O'Day (eds), *Later Victorian Britain,* (Basingstoke 1988); J. Tomlinson, *Government and the Enterprise Since 1900,* (Oxford 1994), pp. 39-41.

[40] Cited in W. A. Armitage, *A. J. Mundella, 1825-1897,* (London 1951), p. 270.

little doubt that in Britain the main challenger was perceived to be Germany. As the *Times* German correspondent wrote in 1895:

'Germany is by far the most dangerous of our industrial competitors at the present moment all over the world, and one cannot but regret that the influence of German competition upon British industry has not yet received the full amount of public attention which the magnitude of interests at stake deserve.'[41]

At the same time, it is not difficult to exaggerate the warnings of Huxley and the *Times* correspondent. For example, Colonel Howard Vincent, the Conservative MP for Sheffield Central, was continually on the lookout for German scare stories. In 1894 and 1895 he complained that goods were entering the British market at very low prices and that this was due to the fact they had been made in German prisons. Vincent was the founder of the United Empire Trade League, which sprang up in the 1890s, and he took it upon himself to protect the British producer from unfair and underhanded German competition.[42]

Such views gained some support from the Colonial Secretary, Joseph Chamberlain, and under his pressure the Board of Trade was required to initiate a Departmental Committee of Inquiry. In 1895 a lengthy report was published, which dismissed claims that British trade in general was being hurt by cheap German prison goods, but it did concede that British brush makers were facing competition from 'Japanese prison-made brushes.' The claims of MPs such as Vincent were considered ludicrous by the free traders, and in a government blue book produced by the Board of Trade's chief statistician, Sir Robert Giffen, in 1894, the notion of an all conquering German trade assault on British export markets was firmly rejected.[43] For example, Giffen rejected interpretations of the official trade figures which suggested that Britain's economic future was 'bad'. He claimed that 'In many respects we hold our own better than is supposed in regard to those industries where decay is alleged, while foreign competitors

[41] Cited in Hoffman, *German Trade Rivalry*, p. 231.
[42] *Ibid.*, p. 238.
[43] *Ibid.*, pp. 230, 238.

mostly supplement, and by no means supplant, the home industries with which they are engaged.'[44] Nevertheless, the very fact that Vincent's prejudices could gain a national profile indicates the underlying fear of German competition, and it was certainly true that these fears reached a high point in the mid-1890s.[45] While such fears should not be discounted, it is at the same time difficult to detect from the British data an economic crisis in the late 1880s and early 1890s which mirrored that of 1837-1842.

For example, while the mid-1880s saw a period of severe business difficulties, with trade-union unemployment peaking at 10.2% of all trade union members, the trend in unemployment was thereafter downwards, falling to a low of 2.1% in 1890. Unemployment then rose again in the early 1890s but peaked in 1893 well below the level reached in 1886.[46] While the early 1890s were undoubtedly difficult years, Sigsworth and Blackman have argued that: 'In so far as the early 1890s experienced a depression which was at its worst in 1893 the causes lay primarily within the field of foreign rather than domestic investment.' Recovery set in during 1894 and this was led by rising investment in residential building, the latter responding to a number of factors not least of which was a shift away from the heavy emigration of the 1880s to a sharp rise in internal migration in the 1890s.[47] There is little evidence here of a Perez-type structural crisis in the early 1890s 'leading to a crisis of the whole system', and ushering in a series of reforms of the socio-institutional structure in Britain. That is, the old socio-institutional structure was not blocking the diffusion of a new technological style associated with the new science-based industries and organisational forms of the second industrial revolution. But economic change may have put increasing strain 'on the old framework at the social and political level.' Thus, according

[44] R. Giffen, 'The Present Economic Condition and Outlook for the UK', in Giffen, *Economic Inquiries and Studies, vol.* 2 (Shannon, Ireland, 1971 reprint of 1904 edition), p. 224.

[45] Hoffman, *German Trade Rivalry*, p. 64.

[46] B. R. Mitchell and P. Deane, *Abstract of British Historical Statistics,* (Cambridge 1962), p. 64.

[47] E. Sigsworth and J. Blackman, 'The Home Boom of the 1890s', *Yorkshire Bulletin of Economic and Social Research*, 17/18 (1965/1966), pp. 75, 82.

to Tylecote, we would then 'see a socio-political crisis, with any economic difficulties only arising indirectly.' Such a crisis Tylecote refers to as 'a crisis of the upswing', and is associated with a period of high tension related to the expansion of economic forces.[48] There is certainly a case to be made for a socio-economic crisis in Edwardian Britain, that is during the upswing phase of the third long wave. This embraced the political challenge to free trade by Joseph Chamberlain's tariff-reform movement, and the growing fiscal crisis of the state culminating in Lloyd George's 'People's Budget' of 1909.

The free-trade mode of development facilitated a huge outflow not only of British commodity exports but also of capital. By the latter part of the nineteenth century London was the financial capital of the world, and it was in the interests of the City to maintain and develop a free-trade world. Yet the City pursued a pragmatic response to the question of protection or free trade and by 1910 the City was moving in unison with the 'Conservative interest'. In particular, increased defence expenditure was seen as crucial to the defence of Britain's commercial and financial interests abroad, and they moved towards an acceptance of tariff reform with its emphasis on indirect rather than direct taxation.[49] We will return to the issue of taxation later. It is true that the growth and expansion in the economy during the mid-Victorian years brought with it considerable success and profitability to British industrial capitalists, as well as to commerce and finance, and Britain built up a huge balance of payments surplus. It was this surplus which enabled British financial capitalists to deploy the huge exports of capital and reap rewards from the stream of income flowing back to them in the form of interests and dividends on foreign assets. By the 1870s the income that Britain earned on her foreign assets was actually exceeding the capital outflow. Cain and Hopkins, using data provided by Pollard, estimate that between 1870 and 1914 'incoming payments exceeded capital exports by roughly £1 billion.' This was by no means an undisguised blessing for Britain, and as Cain and Hopkins point out:

[48] Tylecote, *The Long Wave*, p. 20.
[49] Cain and Hopkins, *British Imperialism*, p. 203.

'To accommodate this massive inflow, Britain had to allow a high and rising level of imports since this was the only way in which the borrowers could meet their debt obligations. Free trade was a necessary adjunct to the repayment of foreign debts, but in allowing increasing levels of primary produce to enter Britain, free trade also exposed her to competition from her industrial rivals. This reduced industrial profitability, investment and growth, especially in those new industries which could not compete as easily as cottons and other traditional exports.'[50]

Thus, the free-trade mode of development facilitated high levels of capital exports but also high levels of imports. Between 1873 and 1899 British commodity exports grew by 1.6% per annum, but imports grew at 4.5%. In the words of Arthur Lewis, this subjected 'British manufacturing to a terrible beating.' Also, as Kirby claims: 'In a fundamental sense, the complement to British capital exports in stabilising the international economy was the country's on-going commitment to free trade'.[51] This was the backcloth to the demand by British industrialists, in industrial cities such as Sheffield, for the adoption of a policy of fair trade.[52]

The fair-trade movement had began in the early 1880s, and fair traders, such as the Sheffield MP Colonel Howard Vincent, contended that the 'natural process of other countries' industrial development was being' artificially aided 'by tariff barriers which prevented British producers from competing ... on equal terms.'[53] The National Fair Trade League came into existence on 17 May 1881[54] but the fair-trade campaigns of the 1880s and 1890s failed to break the adherence to free-trade. For example, fair traders were influential in setting up the Royal Commission on the Depression of Trade and Industry in 1886, but its findings were

[50] *Ibid.*, p. 198; Pollard, *Prime and Decline*, pp. 59-71.
[51] W.A. Lewis, *Growth and Fluctuations, 1870-1913*, (London 1978), p. 118; M. Kirby, 'Britain in the World Economy', in P. Johnson (ed), *Twentieth Century Britain*, (London 1994), p. 23.
[52] These issues are covered in A. J. Marrison, *British Businessmen and Protection*, (Oxford 1996), Ch. 3.
[53] Green, *Crisis of Conservatism*, p. 31.
[54] For the Fair-trade movement see *ibid.*, pp. 3, 6, 11, 107-8.

not in favour of changing trading policy. It concluded that although some ground had been lost to competitors such as Germany, 'the trends in trade were still expanding.' Such a line was supported by influential government figures such as Robert Giffen, who argued that Britain's deficit in visible trade was sustainable because of the earnings from services and overseas investment.[55] It was not until 1903, when the Colonial Secretary, Joseph Chamberlain, left the Cabinet to promote a national campaign for tariff reform and closer economic ties with the Empire, that the attack on free trade became a major political issue. In 1902 the Chancellor of the Exchequer, Sir Michael Hicks-Beach, in order to meet debt payments for the Boer War, was forced to resort to a modest duty on imported corn. This 'raised the spectre of the "bread tax"' and unintentionally left the door open for Chamberlain's assault on free trade.[56] Sykes has identified four hypotheses which were the foundation of Chamberlain's tariff-reform campaign:

'that the relative decline of British foreign trade was caused by protective tariffs; that it was accordingly essential to Britain's prosperity to maintain the growth in imperial trade; that imperial trade could be maintained only by a system of reciprocal preference; that the survival of the Empire depended on imperial trade.'[57]

Chamberlain's campaign for protective tariffs, linked to imperial preference for empire goods, meant a complete rejection of Britain's free-trade strategy, and precipitated a political crisis. This political crisis, as it unfolded, created a paradox, as it raised more problems for the Unionist Government, the main hope of the protectionists, than it did for the Liberal opposition which united around a defence of free trade. Thus, for example, the Unionist Prime Minister, Arthur James Balfour, informed the King in September 1903 of his fears that if the government adopted a tariff-reform programme this would, in all probability, lead to the 'break up of the Party'.[58]

[55] Tomlinson, *Government and the Enterprise*, pp. 19-20.
[56] S. Newton and D. Porter, *Modernization Frustrated*, (London 1988), p. 4.
[57] A. Sykes, 'Time is Bearing Another Son: Tariff Reform and Imperial Apocalypse', in Marrison (ed), *Free Trade*, p. 185.
[58] Cited in *ibid.*, p. 187.

Chamberlain's ambitions for his 1903 Tariff Reform Campaign was that a new mass support could be won for Conservatism and Unionism, which would help to preserve Britain's manufacturing base and, by the adoption of imperial preference, would bind more securely the economic and political ties of the colonies to metropolitan Britain.[59]

In this, Chamberlain was taking a major political gamble for, as J. A. Spender argued in 1903, he was making the assumption that the Unionists were unlikely to win the forthcoming general election, as by-election results were going consistently against them. But Chamberlain was not averse to taking risks, and he speculated that the Liberals would gain only a narrow victory at the polls. Chamberlain's forecast of a narrow Liberal win was critical to his future political ambitions for

'A sweeping Liberal victory might install a free-trade government in power for six years, during which the fiscal propaganda would die down and be forgotten, whereas a weak Liberal government in dependence on the Irish vote ... would be quickly disposed of in another Parliament.'[60]

Ultimately, Chamberlain's gamble failed, for in embarking on his campaign he split the Unionist government as well as the Unionist party itself. In particular, Chamberlain's demand for tariff reform, albeit as a means of securing closer ties to the Empire via imperial preference, meant a break with free trade and left Balfour in the unenviable position of attempting to hold together the opposing factions of his party. As Spender pointed out, if there was an attempt to construct from Balfour's speeches his actual position on tariff reform 'we would have to conclude that he is a free trader who has unabated sympathies with a protectionist policy to which he is officially opposed.'[61] What

[59] See A. J. Marrison, 'The Development of a Tariff Reform Policy During Joseph Chamberlain's First Campaign', in W. H. Chaloner and B. M. Ratcliffe (eds), *Trade and Transport*, (Manchester 1977); P. J. Cain, 'Political Economy in Edwardian Britain: The Tariff Reform Controversy', in A. O'Day (ed), *The Edwardian Age*, (London 1979), p. 46; Green, *Crisis of Conservatism*, Ch. 2.

[60] J.A. Spender, 'The Survival of the Government', *Contemporary Review*, 86 (1903), p. 311.

[61] *Ibid.*, p. 312.

Balfour's government could not do, without imploding, was to make a frank declaration for or against Chamberlain's policy. It would seem that Balfour was determined to avoid the fate of Peel in 1846 and not to split the party.

Balfour, however, was faced with a fundamental party political problem. It was Chamberlain who had captured the majority of Conservative MPs with the implication that the party, when it next faced the electorate, would be 'irretrievably committed to protection.'[62] The thrust of the tariff-reform argument was that the trends in the world economic system were moving in the wrong direction for Britain, that the highly developed industrial countries showed 'no sign of any wish to relax their protectionist system.'[63] If the tariff reformers had succeeded in overthrowing the free-trade strategy this would have signalled not just a radical change in economic policy but would have constituted a Perez-type socio-institutional reform. But, as A. V. Dicey, himself a Unionist and Imperialist, admitted, the Chamberlain programme was a 'disastrous change' for the Unionist party; it split the cabinet and re-united a divided opposition. Liberalism rallied around free trade, 'putting aside its differences over Home Rule and its opposing views on imperialism.'[64]

There is little doubt that the Liberal victory at the polls in January 1906 was largely due to the divisions within the Unionist party, and the latter's lack of appeal to the electorate. The number of Unionist MPs collapsed from 402 in 1900 to only 157 in 1906, while the Liberal Party increased its number of MPs from 184 in 1900 to 400. The Tariff Reform issue, although not the only issue facing the electorate, was 'the biggest reason for the anti-Conservative vote.' The number of seats won by the Liberals can be somewhat misleading, and certainly they could not rest on their laurels and had to present constructive policies. Although the Conservative opposition in the Commons was small they still gained 43.6% of the popular vote so they retained the

[62] *Ibid.*, p. 320.
[63] Russell Rees, MP, 'Mr. Balfour, Economist and Fiscal Reformer', *Contemporary Review*, 86 (1904), p. 624.
[64] A.V. Dicey, 'To Unionists and Imperialists', *Contemporary Review*, 86 (1903), pp. 305-6.

basis for a political revival.[65] Nevertheless, the sweeping Liberal victory endorsed the commitment to a free-trade mode of development, and was a severe setback to the protectionist cause. Consequently, the socio-political crisis was not resolved and manifested itself, in the years following 1906, in the form of a fiscal crisis. This is significant, for it lends support to Schumpeter's proposition that key turning points are likely to be marked by a crisis of the public finances. However, while examination of such crises helps to shed light on the political and economic history of changing epochs, as Schumpeter reminded us, no two crises are alike, and each requires its own investigation. Thus, both the Tory government of Peel in the 1840s and the Liberal government of H. H. Asquith after 1908 (Asquith succeeded Sir Henry Campbell-Bannerman as Prime Minister in 1908) faced severe fiscal problems. As Harold Spender, a leading economic commentator, observed in 1909: 'It is clear ... that all classes of the population have an interest in that great problem of the readjustment of our finances which faces us in 1909-10 as it faced our fathers in the forties ... of the last century.'[66]

In one sense, the Liberal financial policy of the Asquith administration can be seen as representing a break with past tradition. The financial obligations of defence and welfare now raised the issue of breaking with 'Gladstonian financial policy'. New Liberalism was concerned with escaping the 'restrictions of Gladstonian economics and rigid adherence to laissez-faire.' Gladstonian finance had been based on the premise that direct taxation 'should be used only rarely and sparingly', and that government expenditure should be kept within strict limits so as to keep both indirect and direct taxation low.[67] As Cain and Hopkins claim: 'The great cry for a generation after 1850 - as it had been for a generation before - was for a small state and "cheap government"' After 1840 free trade was inextricably linked with low

[65] A.R. Ball, *British Political Parties,* (London 1987), p. 79; Tomlinson, *Government and the Enterprise*, p. 42; D. Powell, *The Edwardian Crisis*, (London 1996), pp. 20-1; S. Constantine, *Lloyd George,* (London 1992), p. 28.

[66] H. Spender, 'The Budget and the Situation', *Contemporary Review*, 95 (1909), p. 386.

[67] Constantine, *Lloyd George*, pp. 33, 35.

taxation, and it provided a benefit in the form of cheap food. Free trade, of course, reduced the available sources of taxation, and thus it brought in the notion of 'sound finance', the idea that government expenditure had to be kept within strict limits or taxes increased.[68] The ideal of free trade was therefore 'coupled to a narrow tax base in a small range of commodity taxes, and a low income tax.'[69] In essence, Gladstonian finance involved prudence in expenditure and a striving for balanced budgets.

What broke the Gladstonian consensus, and raised the fiscal question in the public mind, was increasing defence costs and new demands for public expenditure. As Cain and Hopkins point out: 'Before 1880, the need to reconcile cheap government with naval supremacy did not prove too difficult', but 'By 1900 the expansion of Britain's overseas commitments were pushing up public expenditure to the point where the alarm bells were beginning to ring.'[70] The South African War increased the national debt from £635million in 1899 to £798 million by 1903, 'and this upward pressure on expenditure' combined after 1906 with the need to finance social reform. Indeed, even in 1901 Hicks-Beach was aware that 'the increase in ordinary expenditure was at the root of the fiscal crisis.' Thus, the 'People's Budget' of 1909, introduced by the Chancellor of the Exchequer, David Lloyd George, 'offered a way of financing social reform without breaking with free trade' by increasing direct rather than indirect taxation. This represented a crucial break from 'Victorian budgetary tradition' in the sense that keeping expenditure to a minimum 'was no longer seriously pursued.' At the same time, the government still remained committed to balanced budgets. As Barstable put it: 'Deficit financing, as the Americans call it, is opposed to the established rule from the time of Peel ... Mr Lloyd George adheres to the Peel-Gladstone principle, viz., to estimate expenditure liberally, to estimate revenue carefully, to make each year pay for its own expenses.' The government sought to maintain free trade and balanced budgets, but

[68] Cain and Hopkins, *British Imperialism*, pp. 141, 143.

[69] Tomlinson, *Public Policy and the Economy Since 1900*, (Oxford 1990), p. 21.

[70] Cain and Hopkins, *British Imperialism*, pp. 202, 452.

within a framework which used the budget as an instrument of income redistribution, but 'not yet of economic management.'[71]

The fiscal problems of the 1840s, which we examined earlier, and those facing the Liberals after 1906, were tackled in distinctive ways. Peel's budget of 1842 stripped away duties and paved the way for the implementation of a new commercial strategy, free trade. On the other hand, the 'People's Budget' of 1909 funded increased expenditure on social reform and defence without unravelling the existing commitment to free trade. Further, Peel's budget attracted almost universal support, there was no concerted opposition attack, but the Lloyd George budget appeared to confirm 'all the worst Conservative fears about Liberal finance' and 'excited the keenest hostility' from the 'holders of property'.[72] Indeed, within the Liberal government itself there was disquiet over Lloyd George's proposals. In December 1908 Charles Hobhouse, financial secretary to the Treasury, recorded in his diary that

'If the Cabinet gives Lloyd George his way he will find the money for next year, which will be probably £12m in excess of this year's requirement, by lowering the range of income tax so as to fully tax people with incomes of £500, by a surtax on incomes over £5,000, by a 2s capital tax on non-agricultural land, and by high licences and increase on tea. Such proposals, if propounded to the country, ought to insure the rejection of the budget by the Lords, enforce a dissolution, and ensure our irretrievable defeat.'[73]

The City, too, was also broadly opposed to the Lloyd George budget. As Lord Welby claimed, 'the City and the Stock Exchange are distinctly conservative in political opinion, and ... profoundly opposed to the budget.'[74] The Budget came in for particular criticism from the

[71] Green, *The Crisis of Conservatism*, p. 49; S. Checkland, *British Public Policy*, (Cambridge 1985), p. 178; Tomlinson, *Public Policy*, p. 23; C. F. Barstable, 'The Budget of 1909', *Economic Journal*, 19 (1909), pp. 289-90. See also H. V. Emy, 'The Impact of Fiscal Policy on English Party Politics Before 1914', *Historical Journal*, 15 (1972); B. K. Murray, *The People's Budget*. (Oxford 1980).

[72] Sykes, 'Time is Bearing Another Son', p. 193; Barstable, 'Budget of 1909', p. 291.

[73] E. David (ed), *Inside Asquith's Cabinet*, (London 1972), p. 74.

[74] Lord Welby, 'The Budget and British Capital', *Contemporary Review*, 97 (1910), p. 83.

political right. For example, the *Quarterly Review* bitterly complained that 'The disciples of Cobden have turned out to be the followers of Henry George or the far less rational and more virulent Mr. Lloyd George.' The Chancellor was accused of indulging in a 'socialist experiment' which, rather than delivering a balanced fiscal policy of 'economy and reduced taxation', had actually 'produced the most extravagant scheme of finance ever laid before Parliament.'[75]

One might expect such hyperbole from the *Quarterly Review,* which was sympathetic to Unionism and tariff reform, but more worrying was the criticism levelled at the government's fiscal policy by such an establishment figure as Sir Robert Giffen, a long-time official at the Board of Trade, and an ardent supporter of free trade. Following his retirement from office Giffen felt free to voice his alarm over the condition of the State's finances, which he considered were, in fact, more severe than Lloyd George had allowed for. He warned that 'We have really arrived at a crisis which requires the broadest study of all our financial requirements.' Giffen was particularly concerned with the emphasis that the Lloyd George budget had given to direct taxation, and commented that the Chancellor had continued 'to aggravate the vice of swelling direct taxation ... and neglecting the wide field of indirect tax'. He further argued that the high levels of income tax levied by the Chancellor, coupled with an increase in the death duties, would act as a 'tax on capital' and would take from the community savings which otherwise would have been devoted to industrial investment.[76] Giffen's notion of a 'tax on capital' was taken further by more right-wing critics of the government. For example, Lord Revelstoke, a director of Barings Bank, argued in the House of Lords that the effect of the 1909 budget was to encourage a flight of capital abroad. The massive outflow of foreign capital was less to do with the attraction of high rates of return abroad than the fact that 'British savings [were] flowing from a threatened area to quarters where

[75] 'The Appeal to the Nation', *Quarterly Review,* 212 (1910), p. 296.
[76] Sir Robert Giffen, 'Recent State Finance and the Budget', *Quarterly Review,* 211 (1909), pp. 205, 211.

capital is more warmly welcomed.' As the Unionist MP Austin Chamberlain argued, quoting the chairman of Lloyd's Bank, 'this year's budget ... is driving our capital more and more to other climes.' In this respect, the export of capital created industrial competition abroad and allowed the domestic market to be flooded with cheap imports. As one authority on the subject, 'A Stockbroker', put it in 1912: from 1896 the manufacturer 'has been exposed to exceptional competition; during the same period his raw materials and wages have been rising in price; and the capital needed to meet competition has been largely sent abroad.'[77] What these Unionist supporters failed to recognise was, of course, that massive outflows of capital abroad needed to be 'serviced'. As we saw earlier, capital outflows required an open British market in which sterling earnings abroad could be used to service the debt. This was a point, for example, which was missed by Joseph Chamberlain in his campaign, and left him open to attack. He failed to perceive 'the importance of free trade in creating the City's world role.'[78] In addition, the shift of the Unionists from 1906 to a more protectionist stance threatened Britain's open-market strategy, and would have undermined the ability of foreign borrowers to service their debts to London. Lloyd George had counter arguments to his Unionist critics, claiming that foreign investments 'generated exports in the short term, and would pay off in cheap supplies in the long run.'[79] The issue of fiscal policy and capital exports demonstrates the deep divisions between the parties in terms of economic policy, but the crucial historical issue here was that the government, irrespective of the merits of the various arguments, became embroiled in a deepening economic and political controversy.

The consequence of this was a major constitutional crisis when the House of Lords refused to ratify the 'People's Budget' in November 1909. The Lords had its defenders, the *Quarterly Review* urging its

[77] Welby, 'Budget and British Capital', p. 81; A. Offer, 'Empire and Social Reform', *Historical Journal*, 26 (1983), p. 121; 'A Stockbroker', 'The Depreciation of British Home Investments', *Economic Journal*, 22 (1912), p. 229..

[78] Newton and Porter, *Modernization Frustrated*, p. 21.

[79] Offer, 'Empire and Social Reform', p. 127.

readers in January 1910 to support that 'What the Lords have done is nothing more than to insist that on a matter as to which there exist the widest differences of opinion, and which concerns the permanent and vital interests of the country, an appeal should be made to the nation'.[80] The outcome was two general elections in January and December 1910. The Unionists argued that tariff reform, particularly in terms of its capacity to focus greater attention on protection for domestic industry, would help reduce the need for social reform, and consequently rapidly rising state expenditure, by increasing employment opportunities and raising wages. However, they failed to make the necessary electoral breakthroughs in 1910, and as the *Quarterly Review* acknowledged, the Unionist cause was damaged 'by their honest division of opinion as to economic doctrine.'[81] The Liberal government, albeit now dependant upon Irish and Labour support, remained in office and continued the official commercial policy of free trade down to the outbreak of the First World War.

This did not, however, end the specific problems facing the Liberals. As a contemporary commentator, Harold Spender, pointed out: could the government raise the revenue required to finance both social reform and defence, and at the same time remain consistent with its free-trade principles? He was particularly concerned that 'The Tariff Reformer always lies in wait for his special prescription for this disease', in the form of custom duties on imports which could provide the government with the revenue to finance a series of social reforms and also meet defence requirements. Spender, however, remained unconvinced that Tariff Reform could really address the financial problems facing the country.[82] Nevertheless, it is clear that sympathetic commentators were actively aware of the frailty of the Liberal position. For example, if we broaden the scope of concern from finance, in particular, to the more general issue of free trade, then this frailty becomes all too obvious. On the one hand, enthusiastic New Liberals such as Winston Churchill

[80] 'The Appeal to the Nation', p. 296.
[81] *Ibid.*, p. 308.
[82] H. Spender, 'The Budget and the Situation', p. 387.

could articulate the notion that free trade was vital to Britain's economic interests as a manufacturing nation. As he claimed: 'Free influx of food and raw materials, from every source of supply, into this country is not only as essential, but is more essential to our national strength and prosperity than it was in the days of Cobden and Peel.'[83] On the other hand, not all New Liberals shared Churchill's confidence over the hegemony of free trade as official British commercial policy. The Liberal intellectual, L. T. Hobhouse, wrote in 1911:

'It is only in England, and only owing to her early manufacturing supremacy, that free trade has fully succeeded in overcoming the Protective principle, and even in England the Protectionist reaction would undoubtedly have gained a temporary victory but for our dependence on foreign countries' food and materials for industry. The most striking victory of Liberal ideas is one of its most precarious'.[84]

Robert Giffen was also pessimistic concerning the future political and economic context facing the Liberal government, and warned that there was 'plentiful cause of anxiety for free traders in the present condition of politics, with a Radical party in power trying one set of financial measures contrary to free-trade principles, and an opposition intent upon carrying another set of financial measures still more opposed to those principles.'[85]

Accepting the 'precarious' nature of the free-trade mode of development in Edwardian Britain, let us propose a counterfactual: if Chamberlain's programme had been adopted, would protective tariffs, in particular his emphasis on imperial preference, have stimulated a set of progressive changes helping to shift resources out of the old staple industries (three quarters of British commodity exports were accounted for by textiles, coal, iron and shipbuilding in 1913) and encouraging the adoption of the new technologies of the second Industrial Revolution? In other words, did the Chamberlain programme of tariffs and imperial preference offer an alternative mode of development to

[83] Speech in Glasgow, 11 Oct. 1906, in A. Bullock and M. Shock, *The Liberal Tradition*, (London 1966), p. 210.
[84] L.T. Hobhouse, *Liberalism*, (London 1911), p. 34.
[85] Giffen, 'Recent State Finance', p. 232.

that of free trade which would have been more compatible with the new technological style? This issue is discussed in the next section.

IV

From the late nineteenth century to the outbreak of the First World War technological developments were the driving force of world economic activity. World production rose from 2.95% per annum between 1872-1892 to 4.1% per annum between 1892-1913.[86] Two factors are of immediate relevance. Firstly, there was the emergence in the 1870s and 1880s, consistent with Perez's model, of a new technological style. Secondly, British economic performance, rather than participating in the upswing of world economic activity from the mid-1890s, continued on a low growth trajectory. Indeed, the Edwardian years appear to have witnessed a further deceleration of growth. The technological revolution of the late nineteenth century was marked by the diffusion of cheap bulk steel, rapid developments in science-based industries such as chemicals, electrical supply and electrical engineering, automatic machine tools, bicycles and motor vehicles, and new forms of business organisation associated with the rise of managerial capitalism.[87] Britain's response to these developments was decidedly mixed. There was, for example, a number of breakthroughs in several new sectors such as specialist steels, artificial fibres, and bicycles, but these were juxtaposed with complaints about missed opportunities, particularly in chemicals and electricity, and the attachment to old forms of technology and business organisation.[88] If late Victorian entrepreneurs were not simply some pale shadow of the pioneers of the first Industrial Revolution, Britain's surrender of its industrial leadership seemed more than just the natural

[86] Lloyd-Jones and Lewis, *British Industrial Capitalism*, p. 105.

[87] See J. P. Hull, 'From Rostow to Chandler to You', *Journal of European Economic History*, 25 (1996), pp. 191-208.

[88] See A. D. Chandler, *Scale and Scope*, (Cambridge, 1990). R. Lloyd-Jones and M.J. Lewis, 'British Industrial Capitalism During the Second Industrial Revolution, *Journal of Industrial History*, I (1998).

process of its main rivals catching up. Indeed, in the words of Pollard, Britain's industrial lead had, by the end of the nineteenth century, been 'annihilated.'[89]

The trends in Britain's performance in the late Victorian and Edwardian period are shown in Tables 4 to 7. Such trends were of major concern to the tariff reformer's chief economic expert, Professor W. A. S. Hewins of the London School of Economics. In 1903 Hewins maintained that Britain's manufacturing monopoly had been 'destroyed for ever', and he argued that in future Britain would be 'at best one amongst a group of countries, all carrying on production by machinery, whose wealth and progress will depend upon the abundance of their natural resources, the scientific skills with which they can use them, the wisdom of their policy, and the efficiency of their organisation.'[90] 'Wisdom' of policy, in this context, meant the abandonment of free trade and the adoption of tariff reform and closer economic ties with the Empire. The continuation of free trade would mean a 'dark' future for Britain as barriers would be raised against British goods, restricting the growth of exports, investment and employment opportunities. As Chamberlain himself claimed, the future health of British manufacturing industry was in the balance, because even if industry could produce efficiently and cheaply it would be of little use 'if we were driven out of foreign markets by hostile tariffs.' Tariff arrangements were needed, claimed Chamberlain at the beginning of his national campaign in 1903, not simply to protect 'our industries' in third markets, but also in 'the home market' and 'the Colonial market.'[91]

Chamberlain's concerns were echoed by Hewins, who, in addition, was alarmed by what he saw as the rise of 'nationalism in economics.' This was a trend, he considered, which signalled that the future lay with protectionism and not with the 'liberalism of Adam Smith.'[92] This

[89] Pollard, *Prime and Decline*, p. 3.
[90] W.A.S. Hewins, 'The Present State and the Case for Mr. Chamberlain's Policy', *Fortnightly Review*, 74 (1903), p. 590.
[91] Lloyd-Jones and Lewis, *British Industrial Capitalism*, p. 108.
[92] *Ibid.*, p. 109.

view was also expressed by industrialists such as Sir Vincent Caillard, an influential supporter of Hewins and Chamberlain. Caillard, a director of Vickers Son and Maxim, published in 1903 *Imperial Fiscal Reform*, in which he stated:

'Behind the wall of protection other nations have been learning to manufacture our own specialities as well as we do, and thus have been effecting that vast change in the industrial world which has taken place since the United Kingdom embarked upon the policy of free trade, which is beginning to prove the unshaken clinging to that policy ... to be mistaken.'[93]

The inference drawn from the claims of Hewins and Caillard is that without protection British entrepreneurs had a reduced incentive to innovate and diffuse new technology, and the tariff reformers were suggesting a link between Britain's partial absorption of the technologies of the second Industrial Revolution and the continued attachment to a strategy of free trade. What the country required was an accelerated process of structural adjustment, a repositioning of the economy in the context of an increasingly competitive international environment, and a protective umbrella for its manufacturing base from external attack and internal timidity. Thus, the protectionist *Sheffield Daily Telegraph*, in an article comparing British and American manufacturing, explained the success of the latter in terms of their ability to 'put down expensive machinery without fear that production will be checked by hostile tariffs whereas our manufacturers hesitate to invest large sums in industries which may be exposed to ruin by duties or bounties.'[94]

Nevertheless, it has to be remembered that Chamberlain's tariff reform campaign was in reality a campaign for Empire economic unity. The tariff was a means to an end, and this meant that the protectionist element remained secondary to the need for imperial preference. As Hewins insisted: 'In reality, there is one question only involved in the

[93] Sir Vincent Caillard, *Imperial Fiscal Reform*, (London 1903), p. 52. For Caillard see Marrison, *British Businessmen*, pp. 47-9, 64-5, 134-5, 144-5, 162-4.
[94] Lloyd-Jones and Lewis, *British Industrial Capitalism*, p. 109.

TABLE 4 - Rates of Growth of British Manufacturing, % per annum, 1883-1913

	Output	Output per person
1883-99	2.20	1.05
1899-1913	1.80	0.90

Source: W A Lewis, *Growth and fluctuations*, (London 1978), p. 95.

TABLE 5 - Long wave Upswings and Downswings in Total Output for UK, France, Germany and USA, 1870s -1913 (% per annum)

	UK	France	Germany	USA
1870s-90s	1.9	0.8	2.3	4.2
1890s-1913	1.8	1.8	3.2	4.0

Source: J. J. van Duijn, *The long wave in economic life*, (London 1983), p. 152.
Notes: Kondratieff period for the UK is 1873-90; France and Germany 1872-90; USA 1873-96.

TABLE 6 - International Comparisons of Manufacturing Output per head of Population 1871/5-1911/13 (% per annum)

	UK	France	Germany	France[a]
1871/5-1896/1900	0.75	2.4	2.8	2.4
1896/1900-1911/13	0.7	3.2	2.5	3.3

Source: S. Pollard, *Britain's prime and Britain's decline* (London 1989), p. 12.
Note: [a] France 1881/5-1896/1900

TABLE 7 - Real Output Per Worker, Annual % Growth by Sector, Britain 1873-1913

	Industrial Production	Services	Business Sector[a]
1873-99	1.14	0.665	1.08
1899-1913	0.74	0.51	0.71

Source: C. H. Feinstein, "What really happened to real wages? *Journal of Economic History*, 50 (1990), p. 339.
Notes: [a] excluding public education and defence, professions, insurance, banking and finance, miscellaneous services, ownership of dwellings.

present controversy, and that is the consolidation of the Empire. If we can solve that great object we need not trouble ourselves very much about the protective tariffs of other countries.' The salvation of British manufacturing industry was to be found in imperial economic union, the outcome being a unified empire built upon the principle of imperial preference. Thus, Hewins maintained that the Empire movement was not, in fact, 'a reversion to protection, but a revolt against the individualist conception of society in this country, and an effort to express in a practical form new social conceptions ... of ... the British Empire.'[95] In more direct economic terms, British business would benefit from an imperial strategy because it would facilitate a shift in British trade increasingly in the direction of the Empire, and it was the Empire, allegedly, where the best opportunity for British trade lay. It is true that the Chamberlain programme incorporated protective components which were allegedly designed to benefit key industries. For example, Hewins recognised the strategic importance of the steel industry, in particular stressing the importance of an efficient steel industry for the maintenance of 'a strong navy', the principal guarantee of the 'Empire's permanence'.[96] These ideas were premised on the need to provide a more level playing field for British firms who, under free trade, were forced to compete with American and German trusts, monopolies and cartel syndicates, themselves the products of tariff protection. But the overall strategy was clearly focused on imperial preference and imperial economic unity. As Hewins declared, 'the moving principle in public policy should not be the interest of the consumer, but the solidarity of the Empire, and that involved the abandonment of free importation and willingness to enter into preferential arrangements with the Dominions.'[97] It is the alleged gains from this strategy that we must explore.

The tariff reformers were in no doubt about the strategic importance of imperial trade to Britain's future economic prospects. As the

[95] Hewins, 'Mr. Chamberlain's Policy', p. 595; and *The Apology of an Imperialist*, vol. 1, (London 1929), p. 3.
[96] Hewins, *Apology*, p. 59.
[97] *Ibid.*, p. 5.

economic historian, W. J. Ashley, argued in 1904, the analysis of economic data, contained in the government's fiscal blue books, indicated that 'pretty clearly - we are to expect expansion mainly in our colonial trade, unless it is also checked by further colonial resort to protection.'[98] Further, Hewins maintained that 'if there were complete freedom of trade within the Empire, there can be no doubt, both on theoretical and historical grounds, that its productive power would be increased.'[99] Table 8 shows the pattern of British trade between 1889/1891 and 1899/1901, categorised into colonial, rival, other European and non-European trade. It was this data which was to be used by the tariff reformers in their critique of the free-trade system. In the fastest growing market, other European markets, British performance was weak, its overall share falling from 18.9% in 1890/91 to 15.7% in 1899/01, and in the most valuable part of this market, the Netherlands, Britain's share fell sharply from 21.8% to only 13.7% over the same period.[100] Equally worrying was British performance in colonial markets. In 1903 the *Economist* published a table showing the foreign trade of the British colonies over the 1890s (see Table 9). During this decade Britain's share of colonial imports had fallen from 58.2% to 49.1%, while American import penetration had increased from 9.6% to 14.5%.[101] Commenting on this trend, the *Economist* observed: 'It will be seen that the trade of our colonies and possessions with foreign countries has increased in a greater ratio than that with the United Kingdom.' In fact, the ratio of foreign countries' trade to British trade with the colonies had increased from 0.46 to 0.69 over the 1890s, and the 'free trade' *Economist* was worried that this fact 'will no doubt' be used 'in order to show the greater advantage that would accrue to the Empire, if under preferential tariffs, the whole of the trade was kept in the Empire.'[102]

Supporters of preferential tariffs, such as Hewins, Ashley, and

[98] W.J. Ashley, 'The Argument for Preference' *Economic Journal*, 14 (1904), p. 8.
[99] Hewins, *Apology*, p. 56.
[100] A.W. Flux, 'Britain's Place in Foreign Markets', *Economic Journal*, 14 (1904), p. 360.
[101] *Ibid.*, p. 360.
[102] *Economist*, 15 Aug. 1903, p. 1,437.

Caillard were not slow to take up the evidence presented by the *Economist.* Ashley, for example, argued that 'The only likely way that I can see to bind the Empire together is a preferential trade policy', and Caillard maintained that such a policy would 'guide ... trade within the Empire into its natural channels, connecting the mother-country with all the Colonies, and each Colony with every other and with the mother-country.'[103] However, we must ask: would this have worked, would the effect have been an improved performance in British colonial trade, and, if British trade with the Empire had increased, would it have benefited the long-term interests of the British economy? There was a contemporary response to these questions from the Cambridge economist, A. C. Pigou, who addressed the issue of imperial preference and imperial trade at the height of Chamberlain's campaign in 1904. Pigou adopted a cost-benefit approach to imperial preference, arguing that 'the extent of our gain will depend upon the extent and character of the preference accorded to us in return for our concessions.'[104] Pigou acknowledged that at the time of writing in 1904 the actual extent of benefit of, as yet untried, imperial preference was unknowable, but he offered the following educated guess of the likely outcome.

His first assumption was that any preference granted to Britain by the colonies, in the event of Chamberlain's policy being adopted, would not take the form of a reduction of duty on British goods, but rather a rise of duty on non-Empire products. Secondly, he assumed

TABLE 8 - Imports Into Trade Areas: Percentage Increase/Decrease 1889/1891 - 1899/1901

British Empire	Other European[a]	Non-European[b]	Rival[c]
+27.15	+32.2	+23.4	-3.5

Source: A. W. Flux, 'Britain's Place in Foreign Markets', *Economic Journal*, 14 (1904), p. 360.
Notes: [a] includes Russia, Holland, Austria-Hungary, Italy, Spain, Denmark, Sweden, Switzerland, Norway, Greece, Bulgaria, Romania, Portugal. [b] includes Egypt, Japan, Argentina, Uruguay, Chile. [c] includes USA, Germany, France.

[103] Ashley, 'Argument for Preference', p. 2; Caillard, *Imperial Fiscal Reform*, p. 95.
[104] A.C. Pigou, 'The Known and Unknown in Mr. Chamberlain's Policy', *Contemporary Review*, 85 (1904), p. 37.

TABLE 9 - Foreign Trade of British Colonies in the 1890s

	From the UK (Imports £ Million)	% Increase	From British Possessions (Imports £ Million)	% Increase	From Foreign Countries (Imports £ Million)	% Increase
1890	110.976		33.573		51.179	
		+5.3		+37.8		+57.95
1900	116.823		46.276		80.839	

Source: Economist, 15 Aug. 1903, p. 1437.

that the increases imposed on non-Empire goods would not, on 'average, exceed 25 per cent of the present rates.' Armed with these assumptions, he then estimated the average *ad valorem* duty on British exports to the self-governing colonies in 1901 at 8%.[105] It therefore followed that, if the colonies raised their tariffs against non-British goods by the full 25%, while the tariff against British goods remained the same, then the differential would be 2%. In other words, duties on British goods would remain at 8% while non-British goods would pay 10%. For the purposes of calculation, Pigou used a weighting system based on the value of British exports to each self-governing colony, and to complete the calculation he made assumptions concerning the probable effect of the strategy on both the volume and the price of British exports to the colonies. As he argued, 'our gains will be represented approximately by the changes in prices multiplied by the total of our sales in colonial markets under the new system.' Pigou pointed out that the 'maximum possible rise in price is clearly equal to the rate of the extra tax, namely 2%.' He then estimated the value of British exports to the self-governing colonies at £50 million, and claimed that a Board of Trade Report estimated that the maximum of foreign imports into the British colonies that

[105] *Ibid.*, p. 38. Canada - 16%; Australia - 6%; New Zealand - 9%; South African Customs Union - 6%.

British business might replace was no more than £26 million. It followed from Pigou's arithmetic that the limit of the possible British gain was equal to 2% of £26 million, £520,000.[106]

Pigou, not surprisingly, argued that it was 'highly improbable' that the price would increase by the full extent of the new tax, or that British goods would completely replace foreign imports into the self-governing colonies. Indeed, he pointed out that 'the more we succeed in displacing the foreigner the smaller is the rise in price likely to be, so that a very great increase in price and a very great increment of trade are not likely to go together.' Such a disappointing trade-off for British exporters would have been compounded by the fact that any replacement of foreign goods in colonial markets would have been compensated for by an increased assault on Britain's position in neutral markets, 'with the result that the demand of these for British goods' would 'fall off'. Pigou summed up his argument as follows:

'When all these things are taken into account - the probable failure of colonial prices to rise by much above half the rate of duty, the imperfect manner in which we are likely to displace foreign competitors in the colonial market, and the probability of finding ourselves confronted with more stringent competition elsewhere - it is not, I think, to be expected that the net gain will exceed half a million pounds a year.'[107]

Finally, Pigou alerted his readers to the fact that the gain of half a million needed to be set against the extra payments to 'colonial agriculture'. The cost of imperial preference was the imposition of a tariff on non-Empire food. The actual outcome, he claimed, was largely determined by 'the elasticity of demand and supply in the different countries concerned', but he claimed that a number of outcomes could be predicted with a high degree of certainty. Firstly, 'the more urgent the British demand for the taxed commodity the more nearly will the price rise by the full extent of the tax', and secondly, 'the greater the increase in the quantity of the commodity offered in our markets from

[106] *Ibid.*, p. 38.
[107] *Ibid.*, pp. 37-9.

home and colonial sources in consequence of a price change, the less will the price change be.'[108] If these predictions are applied to what we assume is a low elasticity of supply and demand it would be likely that colonial and domestic prices of wheat would rise to near half the level of the duty placed upon non-colonial wheat. Domestic consumers would then pay more for their food, experiencing a price rise close to the differential between colonial and non-Empire corn, or more likely an increase in money wages to compensate for increased food prices, which would have increased the costs to British manufacturers.

Adopting Pigou's assumptions, and they are by no means draconian, the net gains flowing from imperial preference would appear to be very modest. But even if Pigou's assumptions were relaxed, and we accepted higher gains, there is still a question mark against the overall strategy of imperial preference. Would an increased flow of British goods to the Empire have been a good (beneficial) thing for British industry anyway? A comparison of British and German exports in 1913 shows clearly the high degree of specialisation of British exports in sectors such as cotton textiles and the direction of their flow to the semi-industrial nations. These trends are shown in Tables 10 and 11. British manufacturing exports were highly geared towards the staples of the first Industrial Revolution, but were clearly unrepresentative of the commodities of the second Industrial Revolution. In particular, there was a deficiency of those products with a high input of science and technology.[109] The direction of British goods was also in sharp contrast to that of Germany. They were under-represented in the advanced industrial economies, which were the main importers of the high-technology goods of the period. Given this pattern of trade, it is difficult to see how imperial preference would have encouraged structural change in the British economy. Even W. J. Ashley, 'an economist sympathetic to the tariff reformers', had concluded in 1903 that government would have 'to take a broader view, varying rates of duty in different circumstances' in order to stimulate those domestic manufacturers facing increased competition,

[108] *Ibid.*, p. 44.
[109] Lewis, *Growth and Fluctuations*, p. 129.

and allowing older industries to decline.[110] Indeed, it is reasonable to assume that tariff reform may well have reinforced the existing degree of specialisation. For example, in 1901 the Indian market was by far the largest within the Empire, representing just under 30% of total colonial imports, with Australia being the next largest with 16.75%.[111] India, of course, was a major importer of British cotton textiles, iron and steel, locomotives and railway equipment. Consequently, a policy directed towards the expansion of colonial trade would have probably locked the British economy in a trajectory which would have done little to stimulate structural change in the domestic industrial economy. Chamberlain's programme, by linking tariff reform to imperial preference and Empire economic expansion, failed to provide an appropriate alternative to the free-trade mode of development. The political economy of Edwardian Britain inevitably tied protection to Empire, and the crisis remained unresolved.

TABLE 10 - Composition of British Exports, UK and Germany, 1913

	From UK	%	From Germany	%
Metals/Engineering	690	34.7	695	40.3
Chemicals	119	6.1	239	13.8
Textiles and Clothing	950	48.5	324	18.8
Others	211	10.7	468	27.1
Total	1,960		1,726	

Source: W. A. Lewis, *Growth and Fluctuations* (London 1978), p. 121

TABLE 11 - Distribution of UK and German Manufactured Exports, 1913

To:	From UK	% of Total UK Exports	From Germany	% of Total German Exports
Industrial Nations	624	31.8	925	53.6
Semi-Industrial Nations	810	41.3	218	12.6
Rest	526	27.9	583	33.8
Total	1960		1726	

[110] Newton and Porter, *Modernization Frustrated*, p. 19.
[111] Flux, 'Britain's Place', p. 131.

V

What lessons can we draw from the comparison of the two turning points, and how do they relate to the neo-Schumpeterian approach? The analysis has clearly highlighted the crucial role of public finance during transitional phases of the long wave. In the case of the first transition, institutional innovations in public finance enabled a smooth transition to the free-trade mode of development, while in the second transition radical fiscal changes actually gave a new lease of life to the existing mode of development. Lloyd George's partial break from Gladstonian finance allowed him to fund social reforms and new defence requirements without breaking with free-trade principles. Indeed, it allowed the defenders of free trade to counter the aggressive promotion of tariff reform by Joseph Chamberlain and his imperial-preference campaign. These different patterns of transition indicate the value of the Schumpeterian political economy approach to historical investigation, with its focus on the complementary analysis of both economic and political forces. For example, in the first transition the underlying economic crisis was, of itself, insufficient to end the Corn Laws, as Peel could have simply suspended them in 1846. But he recognised that their abolition was a political necessity which reflected the fact that the structural balance of the economy had shifted decisively from agriculture to manufacturing. This strategy was vindicated in so far as the expansion of international trade accelerated the structural transformation of the economy and embedded free trade as the institutional and ideological vehicle for British economic and political hegemony.

The paradox of this success, however, was that during the transitional phase associated with the second industrial revolution there was a growing contradiction between Britain's attachment to free trade and the changing form of the international economic environment. There was no evidence of a Perez-type structural crisis in the 1890s, but Britain did experience a delayed socio-political crisis, overlaid by a crisis of the public finances, during the Edwardian period. There was a limited assimilation of the techniques of the second

Industrial Revolution, but British economic performance was weak during the upswing of the third long wave, and, in comparison with its main continental rival, Germany, Britain entered a lower growth trajectory. The socio-political crisis was not resolved in the fashion identified by the Perez model, and instead the free-trade mode of development was reformulated allowing for increased expenditure on social reform and defence, but rejecting an alternative mode of development in the form of Chamberlain's tariff reform and imperial economic unity. Indeed, our analysis has suggested that Chamberlain's programme would not have facilitated those structural changes necessary to stimulate Britain's underperforming industrial economy. Government policy would have had to have gone further than protective measures, and it required concerted government action to encourage the development of the new industries associated with the second industrial revolution. Rather, imperial preference may well have created safe-havens and further reinforced Britain's existing industrial structure.[112]

While our analysis provides a striking confirmation of Schumpeter's observation that during periods of structural change the issue of state finances rises rapidly up the political agenda, it offers only limited support to the Perez model. Indeed, it may well be the case that the approach offered by Perez is at once too rigid and too general. It is too rigid in so far that its specification of structural crisis does not allow for the reformulation of existing modes of development, and it is too general in the sense that more regard should be paid to specific national historical trends and contingencies. However, the Schumpeterian approach, we would maintain, is rich both in the questions it continues to provoke, and in its power as an analytical tool for economic historians who are interested in the dynamics of industrial capitalism.

[112] Cain, 'Political Economy in Edwardian Britain', p. 49; Newton and Porter, *Modernization Frustrated*, p. 29; Tomlinson, *Government and the Enterprise*, pp. 54-5.