

Nations Choose Prosperity

Nations Choose Prosperity:
Why Britain needs an industrial policy

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Foreword

Some economists take the line that most government activity is 'interference' that distorts the market. However, they rarely go so far as to dismiss all government action in such terms and typically want the government to protect property rights, ensure stable money and maintain a sound fiscal policy. If all government action is to be considered 'interference' then it must be conceded that, since the time of Adam Smith, writers who preferred liberalism to absolutism have struggled to draw the line between good interference and bad interference.

For writers in the British liberal tradition the state has typically been seen as a useful administrative agency. Since the seventeenth century its head was no longer seen as the earthly deputy of God, but the holder of a public office whose sole purpose was to attend to the well-being of the nation. As a result, every generation has faced the challenge of deciding how best the government can be of service to its people.

The guiding principle can be stated clearly enough: to create the conditions in which free individuals can cooperate with one another to improve their lives and advance the civilisation in which they have a share. But there is more than one way to encourage free enterprise, and whether the government needs to be more or less active varies with circumstances. Frequently presented as the champion of laissez-faire, Adam Smith was in practice highly pragmatic when recommending what the government should do. Take the two most important policies of the mercantilist era: the navigation acts and the prohibition of raw wool exports. The navigation acts were intended to give an advantage to British ship owners over foreign rivals. The 1651 Act was passed when the Dutch dominated imports and it stipulated that imported goods must be delivered either by British ships or vessels from the exporting country, not by third parties like the Dutch. Adam Smith called it 'perhaps the wisest of all the commercial regulations of England'.

The export of raw wool had long been banned because it was believed that the real money was to be made from the processing and preparation of finished products. A nation of sheep farmers would never have become the most prosperous nation of its day. Adam Smith opposed the ban, but not because he objected to any measures that gave an advantage to home producers. His concern was that the ban betrayed the principle of equal treatment under the law. It harmed sheep farmers for the sole purpose of benefiting wool manufacturers 'contrary to that justice and equality of treatment' owed to all subjects by the sovereign. He favoured a tax on exports of raw wool because it would hurt the interests of producers less and still give a 'sufficient advantage' to British manufacturers compared with foreign rivals.¹

When companies compete with overseas rivals their success depends in part on their own skills and ingenuity but also unavoidably on the conditions created by the governments of the nations in which they operate. It is taken for granted that high taxes, over-intrusive regulations and an unfavourable exchange rate can make companies less able to compete. These are the most obvious factors that the government alone can influence. But

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there are many more that can make the difference between success and failure. An unwise energy policy can add to costs and make steel and chemical plants marginal; as we have recently discovered, a failure to regulate banking can destabilise companies that rely on temporary loans; congested roads can tip the balance against efficient production methods that depend on 'just in time' supplies; failure to control animal diseases at the border can incapacitate whole sectors; and incompetent public procurement, whether in defence, health or education, can undermine potentially going concerns. The full list is much longer.

Creating the conditions for prosperity cannot be reduced to a simple formula like 'getting the government off our backs'. Much of what makes the difference between the success or failure of a company depends on the public policies we adopt as part of our democratic process. It is not just firms that compete to discover the best ways of providing for human needs and conveniences, but also nations that contend with one another to discover and create the most fertile soil for human freedom. That is why this book is entitled *Nations Choose Prosperity*.

This is the first in a series publications from our Manufacturing Renewal Project, which is chaired by Ruth Lea. It will be followed by a stream of pamphlets on specific policy issues.

David G. Green

Introduction: Manufacturing Industry in Britain

Ruth Lea

Introduction

Manufacturing industry remains a very major contributor to the British economy. It represents nearly 13 per cent of GDP, 75 per cent of business research and development (R&D), half of UK exports and 10 per cent of total employment. Britain is the sixth largest manufacturing nation in the world after the USA, China, Japan, Germany and Italy, larger than France.¹ The manufacturing sector is still, incidentally, over 1½ times larger than the financial sector.

Manufacturing output trends

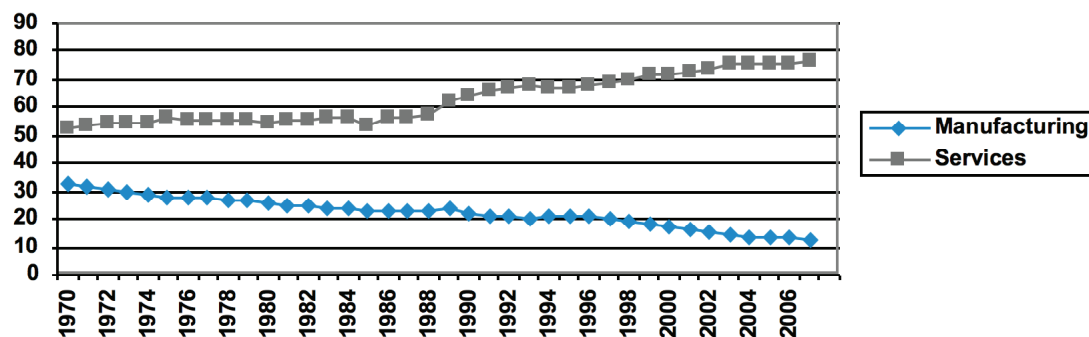
Before discussing manufacturing output trends, a health warning should be given on the data. The Office for National Statistics (ONS) classifies a business as a manufacturing business if more than half of its revenue comes from making goods. If more than half of a business's revenue comes from other activities, for example consultancy, it will be allocated to another sector. Inevitably this distorts the data for manufacturing output.

But, health warnings apart, several observations can be made from the data compiled by the ONS. The first observation to make is that manufacturing's share of total economic activity has declined significantly in recent years whilst services' share, concomitantly, has increased. As figure 1 (p. 2) shows, manufacturing accounted for over 30 per cent of Gross Value Added (GVA) in 1970; by 2007 it accounted for less than 13 per cent, whilst services made up just over half the economy in 1970 but now represent around three-quarters of economic activity.^{2, 3}

Explanations for the fall in manufacturing's share of GDP include:⁴

- Low wage competition from emerging economies, including China, have resulted in production, especially relating to textiles and clothing and the assembly of consumer products, moving overseas.
- The prices of manufactures have been falling relative to services because manufacturing is more productive than services on average.
- Production has moved closer to fast-growing overseas markets.

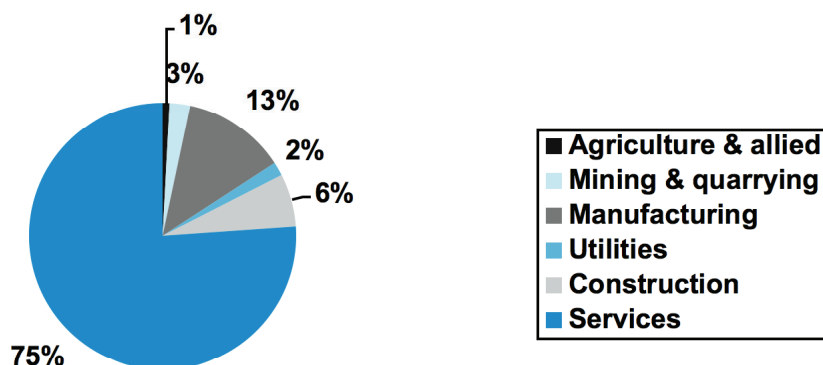
Figure 1: Shares of manufacturing and services of all industries GVA (%), 1970-2007



Note on data: component series are Gross Value Added data at current basic prices, from the ONS database.

Nevertheless, even though its share has decreased, manufacturing is still an important sector. As figure 2 shows it is significantly more important than construction, mining and quarrying, utilities or agriculture.

Figure 2: Share of all industries by major industry group (%), 2007



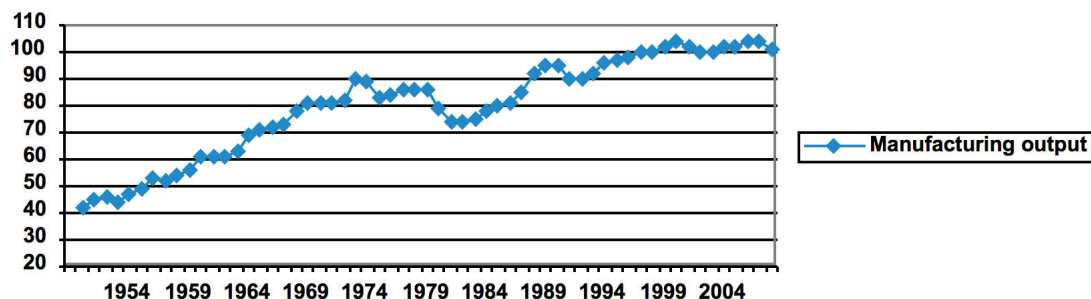
Note on data: component series are GVA data at current basic prices, from the ONS database.

It is sometimes claimed that Britain ‘no longer makes things’. This is clearly not true. Moreover, manufacturing production is currently around 2½ times the size in volume terms that it was in the early 1950s, as shown in figure 3 (p. 3).

The second observation to be made, as figure 3 also shows, is the very pronounced cyclicity of manufacturing industry—at least since the 1970s. Figure 4 (p. 3) demonstrates this further. Manufacturing has experienced significantly more pronounced ‘booms and busts’ than the economy as a whole. This was true for the 1974-75, 1980-81 and 1991

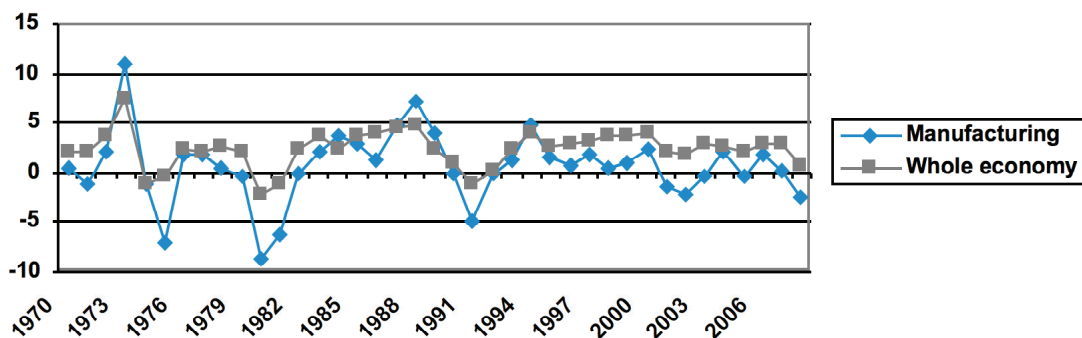
recessions as it is proving to be for the current recession. As figure 4 also shows, manufacturing output fell by two per cent in 2008 compared with modest positive growth for the GDP as a whole. For 2009, GDP growth is expected to fall by around four per cent, but manufacturing output could plummet by eight to ten per cent.

Figure 3: Manufacturing output, volume data, 2003=100, 1950-2008



Source: ONS database.

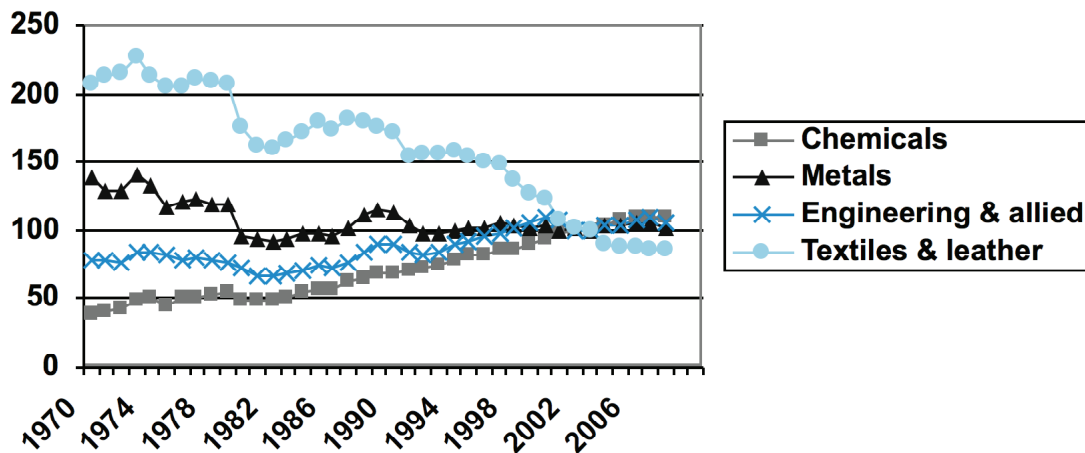
Figure 4: Annual real growth rates (%) for all industries and manufacturing, 1971-2008



Note on the data: component series are GVA data at current basic prices from the ONS database, with the 2008 figure extrapolated by author.

The third general observation relates to the very different experiences of the different sub-sectors within manufacturing industry. As figure 5 (p. 4) shows, metals (including the steel industry) and, especially, textiles are the clear losers since 1970. But the chemicals industry (including pharmaceuticals) has grown well as indeed has engineering (including aerospace equipment). These sub-sectors include vibrant businesses. Of the industrial sectors omitted from the figure, 'food, drink and tobacco' and the catchall 'other' manufactures have also grown.

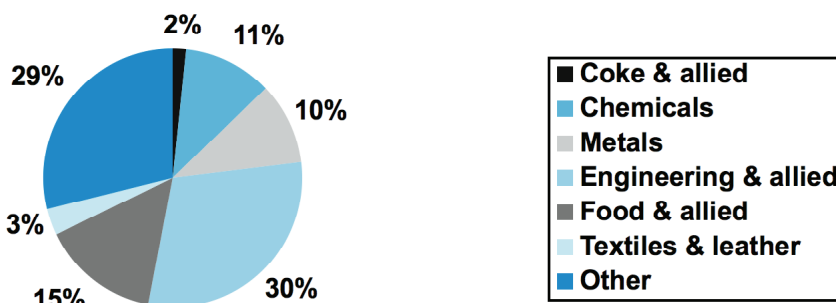
Figure 5: Selected sub-sectors of manufacturing industry, volume data, 2003=100, 1970-2008



Source: ONS database. The figure omits: coke & allied industries; food, drink & tobacco; and “other” manufactures (including paper & printing, rubber & plastics, and other non-metallic mineral products).

Reflecting their varying fortunes the individual sub-sectors currently make hugely different contributions to total manufacturing. Figure 6 shows that engineering (including aerospace and motor vehicle production) is the largest sub-sector accounting for 30 per cent of manufacturing output. The much-diminished textiles sub-sector accounts for just three per cent of the total.

Figure 6: Manufacturing by sub-sector, 2003 weights (%)



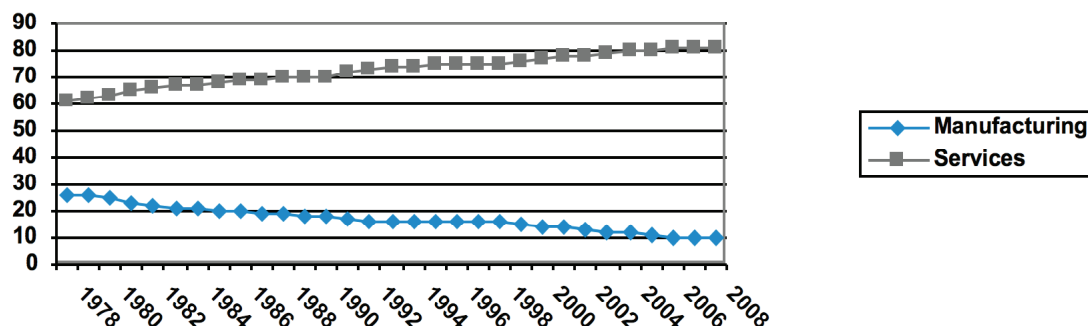
Source: ONS, *United Kingdom National Accounts*, 2008 edition, Palgrave Macmillan.

Employment in manufacturing

The numbers employed in the manufacturing sector have fallen significantly since the 1970s. In 1978 manufacturing employed over 7 million, but by 1991 this figure had dropped below 5 million, by 2001 it was around 4 million and in June 2008 it was just over 3 million.

Figure 7 shows that in 1978 manufacturing industry accounted directly for one in four jobs; it now accounts for just one in ten. Concomitantly the services sector accounted for three out of five of jobs in 1978 but now accounts for four out of five.

Figure 7: Employment in services and manufacturing, share of total (%), 1978-2008



Source: ONS database, the data refer to June.

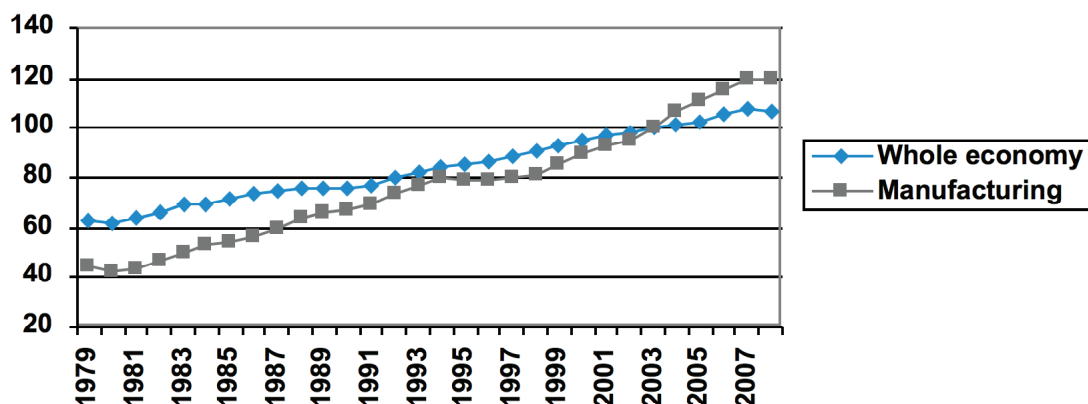
The raw data do not, however, tell the complete story. The ONS measures employment in manufacturing in two ways. One is to ask designated 'manufacturing' businesses how many employees they have, but employees may be involved in manufacturing processes outside these businesses. The other method is to ask employees what they do, which may prove a more accurate gauge of those people actively involved in manufacturing activities.⁵

Even so there remains another, related, problem of measuring the total number of people whose jobs are *dependent* on manufacturing in one way or another. Neither of the ONS's approaches captures jobs or activities that depend on manufacturing but are not 'manufacturing' processes. An example would be the design work done by a specialist non-manufacturing firm for a manufacturing firm.

Manufacturing productivity

The rapid fall in the number of employees in manufacturing whilst output has grown is, of course, explained by the buoyant growth of manufacturing productivity. As figure 8 (p. 6) demonstrates, productivity growth in manufacturing has been significantly more buoyant than for the economy as a whole. Over the period 1979 to 2008 the annual average growth in manufacturing productivity was 3.4 per cent compared with 1.8 per cent for the economy as a whole.

Figure 8: Productivity: whole economy and manufacturing, indexed 2003=100, 1979-2008



Source: ONS database.

Balance of payments

As already stated, Britain is still a major exporter of goods, most of which derive from the manufacturing sector. Indeed Britain is the sixth largest exporter of goods after Germany, the USA, China, Japan and France.⁶ But, having said that, even a cursory look at the balance of payments data shows there has been a rapidly deteriorating situation in our overseas trading position in recent years. Imports growth has easily outstripped exports growth.

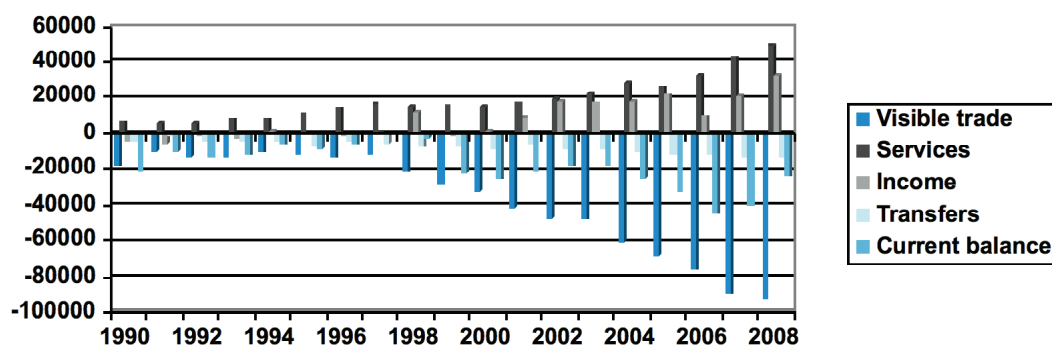
Figure 9 (p. 7) shows that the current account was almost in balance in 1997.⁷ A modest deficit in visible trade (goods) of £12.3bn was almost totally offset by healthy surpluses on services and in investment income. But by 2008 the visible trade (goods) deficit was dreadful, soaring to nearly £93bn. The transfers deficit (including transfers with the EU) had also increased. The current account deficit, however, was helped by large surpluses generated by services and by investment income, boosted by the dramatic weakening of the currency. But, whatever the moderating circumstances, large current account deficits are ultimately unsustainable as they need to be financed. Such financing inevitably increases Britain's overseas liabilities, which cannot be sustained indefinitely. Large and persistent external deficits strongly indicate an economy that is badly out of balance, an economy which needs to be rebalanced.

A stronger performance by manufacturing exports would be one way to correct the current account imbalance. Given the problems in the financial sector and the declining fortunes of the North Sea oil, it may be the only plausible way.

Figure 10 (p. 7) provides a breakdown of the visible trade balances. Visible trade data are classified according to the Standard International Trade Classification (SITC), the broad categories of which are: food, beverages & tobacco; basic materials; fuels; total manufactures (semi-manufactures and finished manufactures); and 'unspecified'. The SITC categories do

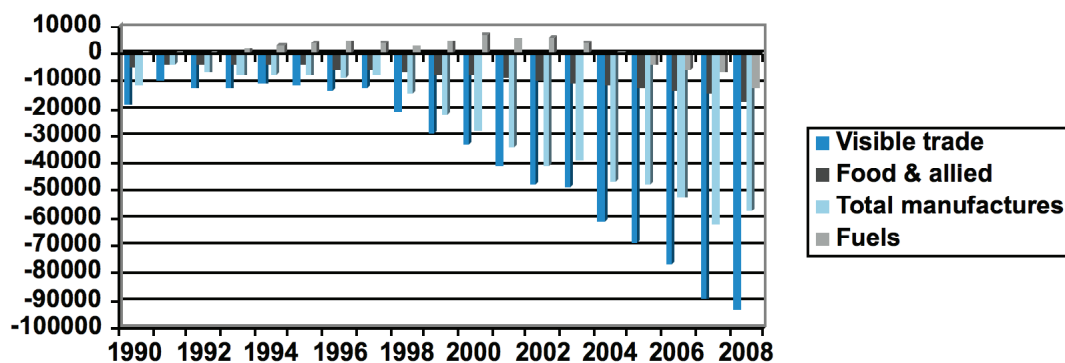
not totally mirror the Standard Industrial Classification (SIC), which is used for industrial classifications. In particular, some goods produced by manufacturing industry are included in the SITC categories of food, beverages & tobacco, basic materials and fuels. In other words, goods produced by manufacturing industry are not only included in the SITC category of 'total manufactures' but also in the other main categories as well.

Figure 9: Current account of the Balance of Payments, balances, £m, 1990-2008



Sources: ONS, *United Kingdom Balance of Payments Pink Book*, 2008 edition and ONS database.

Figure 10: Selected components of the visible trade balance, £m, 1990-2008



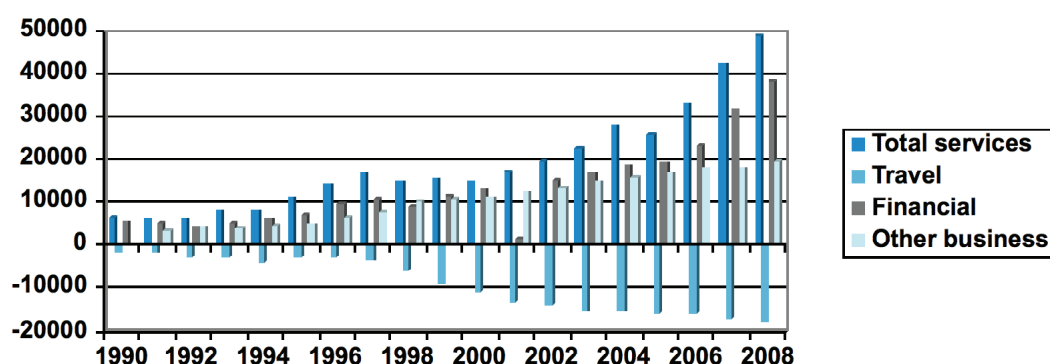
Source: ONS database. Trade in 'basic materials' and 'unspecified' items are omitted from the figure.

Three broad observations on Britain's visible trade performance over the last two decades can be made. The first is that the balance for 'total manufactures' deteriorated dramatically from the mid-1990s to 2007, only to moderate in 2008 reflecting the onset of recession. The second is that the balance 'food, beverages and tobacco' has worsened significantly over the last two decades. And the third is that the balance on 'fuels' turned

negative in 2005 and is now deteriorating very quickly as the supply of indigenous oil and natural gas reserves wind down.

As mentioned above, a truly dreadful performance in visible trade has been partly offset by good performances in services and in investment income. Figure 11 shows the growth in net services income in recent years. Most categories of services are net overseas earners; the exceptions are travel, transportation and government services. The big earners are financial services, which will be hit this year by the financial crisis, and 'other' business services (including legal advice, management consultancy, advertising and engineering consultancy).⁸

Figure 11: Selected services, balances, £m, 1990-2008



Source: ONS database.

Some international comparisons

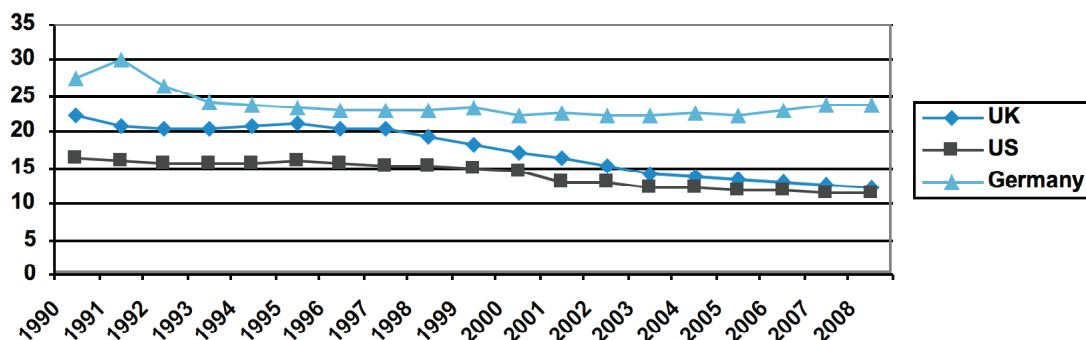
As already stated, the UK has the sixth largest manufacturing industry globally, behind the USA, China, Japan, Germany and Italy. Two economies of particular interest to Britain are Germany, where the manufacturing sector has remained remarkably stable as a share of total output in recent years, and the USA where it has fallen.

Figure 12 (p. 9) shows the manufacturing shares of total GVA for Germany, the USA and the UK. The early 1990s data for Germany were distorted by unification and the absorption of East Germany's relatively large, if inefficient, manufacturing sector. But what is striking about Germany is the remarkable stability of manufacturing's share at around 22-24 per cent since the mid-1990s. The USA, on the other hand, started with a low share in 1990 (16 per cent) which has since fallen further to 11.5 per cent, which is lower than in the UK.

Germany's unusually large manufacturing sector and semi-reliance on export-led growth partly explains German large current account surpluses since 2002 (6.5 per cent of GDP in 2008).⁹ But these attributes have made Germany especially vulnerable to the current recession, one aspect of which is the sharp retrenchment in international trade. However, as

world trade picks up Germany is well placed to benefit. Germany's current difficulties should not be seen as an argument against building up the manufacturing sector in the UK.

Figure 12: Share of manufacturing of all industries GVA (%), international comparisons, 1990-2008



Sources: German data: German Federal Statistics Office (2000-2008) & author's interpolations (1990-1999); US data: Bureau of Economic Analysis, US Department of Commerce, Washington; UK data: ONS database.

The USA is an entirely different matter and has run current account deficits since 1991 (five per cent of GDP in 2008). The US has relied on the surplus countries, including China, to finance its deficits, thus postponing the day when it has to tackle its profoundly unbalanced economy.

The Free-market Case for Industrial Policy

David G. Green

After years of being seen as an outmoded doctrine, industrial policy is back, this time renamed 'industrial activism'. According to Lord Mandelson, Secretary of State for Business, Enterprise and Regulatory Reform, industrial policy has the Government's full backing.¹ It follows many warnings over the years from our leading industrialists, including Sir John Rose of Rolls Royce, Sir Anthony Bamford of JCB, Sir James Dyson and Alan Reece of Tyneside's Pearson Engineering.²

Lord Mandelson intends to make fuller use of regional development agencies and to encourage industrial 'clusters' especially linked to universities. He thought that public procurement could be used to help small businesses grow, that the government could encourage research and development through grants and tax breaks, and ensure a ready flow of capital for start-ups and expanding businesses. Is he correct? Should the Government promote the renewal of manufacturing?

IS THERE A USEFUL ROLE FOR GOVERNMENT AT ALL?

There is a common tendency to discuss industrial policy by comparing two extremes, as if we had to choose between either laissez-faire or command-and-control. The assumption behind the laissez-faire approach is that competitive advantages lie primarily with firms. Companies will be successful if they are flexible and versatile, offer good quality products, speedy and reliable delivery and keen prices.

However, in modern conditions the competitive advantages a company might enjoy are not under its exclusive control, and not only because high and complex taxation and intrusive regulations can impose costs that make businesses uncompetitive. There was a widespread tendency during the 1980s and 90s to dismiss any struggling company as a 'lame duck' whose life could be unnaturally extended when it would be better off dead. But this assumption was not always valid. During the early 1990s, for example, many manufacturers went out of business due to the unfavourable exchange rate, especially from 1990 to 1992, when we were in the Exchange Rate Mechanism. Their products were often of the same quality, their delivery as reliable and their real marginal costs of production as low as many overseas rivals, but their export prices were the result not of their own endeavours but the exchange rate. In addition, since the 1980s, North Sea oil exports have increased the value of the pound creating long-term pressure on manufacturers' competitiveness, regardless of how well they were managed. All told, improving the competitive advantages of companies cannot be achieved by the simple formula of getting the government out of the way. On the contrary, businesses need sound macroeconomic policies that give them a fighting chance.

A study of eight leading countries by Michael Porter of Harvard Business School found strong supporting evidence that many of the competitive advantages enjoyed by firms are the result of political decisions.³ This claim is most obviously true when comparing the most successful with the least successful countries in the world. It is no coincidence that the poorest countries are those with weak and corrupt governments, the absence of law enforcement and inadequate infrastructure. But it is also true when comparing rival firms based in countries with stable and effective governments. Wise public policies can tip the balance between success and failure, especially when small price differences separate the winners from the losers.

As many writers have argued, there is more than one model of capitalism.⁴ The question today is whether the laws and institutions that dominated the 1980s and 1990s were the right ones. Are they the only way of achieving the ideal of free enterprise? Among some economists there is a tendency to see commitment to *laissez faire* as a basic test of loyalty to the ideal of freedom itself, but many writers whose loyalty is not in doubt, including Hayek, thought that *laissez-faire* principles were misguided.⁵

Good government should facilitate free enterprise. It should not control and direct its citizens and companies but it should maintain the conditions that make an economic system of voluntary cooperation possible. You can have too much government, but also too little. As we have painfully learnt over the last few months, 'light touch' regulation of financial services has had catastrophic effects. As Hayek remarked, the alternative to a controlled economy is not *laissez faire* but a 'rational framework for competition'.⁶ Moreover, the era of easy money and rising personal and government debt was the result of governments failing to carry out one of their primary tasks, to provide a stable monetary framework. In addition, UK fiscal policy from about the year 2000 tolerated high public expenditure and increased national debt, which strengthened the pound and contributed to further losses of manufacturing jobs.

The problem, therefore, cannot be reduced to formulaic calls for more government or less government. In an age of 'fiat money', where spending power can be created by the mere desire of the government, there are some things that only a government can do. There is no escape from deciding what these tasks are and how best they should be carried out.

THE TASKS OF GOVERNMENT

According to Michael Porter, 'Nations choose prosperity'.⁷ Many of a company's competitive advantages lie outside the firm, perhaps because of local clusters of related or complementary activity, or perhaps because the host government creates favourable conditions.⁸ As a general rule, a nation that wants to succeed economically must have a government that gets the basics right. In particular, it should impose low and simple taxes, enforce voluntary agreements, create a viable legal structure for business, regulate effectively without excessive cost, conduct a sound fiscal policy with a balanced budget

over the normal trade cycle, ensure low national debt, provide sound money, and endeavour to maintain a stable exchange rate. But how much further should it go?

Adam Smith famously listed three main duties of government: national defence; the administration of justice; and maintaining public works and institutions that were of great social benefit but which would not be provided privately because no one would be able to earn a living from supplying them.⁹ In the latter category he included services in aid of commerce such as lighthouses and roads as well as the education of people of all ages. Smith's view of government was pragmatic. Certainly it could threaten liberty, a danger that should never be neglected, but it was also a potentially useful administrative agency.

Security was on Adam Smith's list, but how widely should it be defined? Most observers accept that defence industries should be protected from foreign takeover. China, however, includes 'economic security' and so too does France. In some cases 'food security' is included, not least by the EU and the USA. Adam Smith was far more of a pragmatist than is often assumed. In the *Wealth of Nations* he argued that defence 'is of much more importance than opulence' and for that reason he defended the navigation acts.¹⁰ And yet the primary law, the Navigation Act of 1651, was not passed with national defence alone in mind. It was calculated to take the carrying trade from the Dutch. Parliament stipulated that goods could not be shipped to Britain on any foreign ship unless it belonged to the nation dispatching the product. At the time Dutch shipping companies dominated trade and a principal aim of the Act was to build up a strong British merchant marine. The link with defence was that if we had many sailors in merchant ships there would be plenty of potential experienced recruits for the Royal Navy in time of war.

What should the role of government be in providing public works? Some of the most valuable insights are provided by writers who have studied economic growth in developing countries, particularly Dani Rodrik of Harvard University. Rodrik begins with the puzzle that some countries, usually under the influence of the IMF or the World Bank, have followed the standard free-market model and failed, while other countries that deployed considerable government intervention have succeeded. He cites a Latin American country that removed trade barriers, had no price controls, privatised public enterprises, kept to a tight fiscal policy, had low national debt, low inflation, maintained a flexible labour market, and had no exchange or capital controls thus providing complete openness to foreign investment. Growth was tiny and poverty and inequality were growing.¹¹ And yet China and India, whose interventionist governments had diversified and re-structured their economies, were growing rapidly. China has no property rights and has relied on partial allocations of freedom of action by the state. The system of household responsibility permits food surpluses to be sold after obligations to the state have been met. And town and village enterprises have a degree of discretion but with the constant risk that the totalitarian Communist party will step in. Nevertheless, economic growth has been huge. These diverse experiences suggested to Rodrik that 'national policy choices are the ultimate determinant of economic growth'.¹² The basic principles of a market economy such as protection of

property rights, competition rather than monopoly, sound money etc, do not he says, 'map into unique policy packages'. As earlier writers have argued, successful countries have adopted a variety of approaches.¹³

In the 1950s and 1960s it was argued that government planning was needed to overcome market failures. By the late 1970s such policies were thought to have failed and a period of supreme confidence in markets followed. Such confidence is now seen to have been exaggerated, but according to Rodrik, a new consensus is possible that puts markets and private enterprise in the driving seat but recognises the strategic role of governments.¹⁴ Such a strategy should not be seen as a 'distortion' of the market.

GUIDING PRINCIPLES FOR INDUSTRIAL POLICY

Over the last 20 years several scholars have suggested the elements of an industrial policy that would be compatible with free enterprise.¹⁵ It acknowledges that free enterprise and competitive markets are the vital elements and that in the end the well-being of a people depends on their own inventiveness and energy. But at the same time the government should not be seen as the inevitable adversary of free markets. The market and the state are not mutually exclusive alternatives. Like Adam Smith, we should look upon the government as the servant of free enterprise whose task is to ease the way for the creativity and drive of the people. It can create the conditions for people to flourish and in which enterprise can grow.

Macroeconomic policy

If the IMF or the World Bank give assistance to a country they tend to encourage a balanced government budget over the trade cycle, low national debt and a tight monetary policy. How has our own government fared in meeting these objectives?

If a government maintains a balanced budget over the trade cycle it will avoid debt, which will help to keep interest rates low, and which in its turn will encourage investment. Since 1997 the government's policy was meant to be subject to the 'golden rule', namely that over the trade cycle it would only borrow for capital investment not to fund current expenditure. The policy was widely supported but independent observers have noted that it was only achieved by altering the dates on which the peaks and troughs of the trade cycle started and finished.

If the government has continually to refinance a large national debt it will tend to push up long-term interest rates and discourage investment. After 1997 the government declared its commitment to the 'sustainable investment' rule, namely that government debt would not exceed a 'stable and prudent level', defined as 40 per cent of GDP. The target appeared to be achieved for a time, but only by the subterfuge of not counting debt under the private finance initiative (PFI). Since the onset of recession the target has been effectively abandoned for the foreseeable future.

Initially, the government intended to keep inflation at about 2.5 per cent as measured by RPIX (the retail prices index excluding mortgage interest payments) and from 2003 at about two per cent as measured by the consumer prices index (CPI). Its reliance on the CPI to measure the effectiveness of its monetary policy has proved to be a grave disadvantage, because the real prices of some important products were falling, not least foodstuffs, clothing and footwear due to competition from emerging economies or from the manipulation of China's exchange rate. The government failed to monitor the impact on assets, especially housing and equities, and as a result permitted a lax monetary regime that fuelled the credit bubble that burst in 2008. As we have all painfully discovered, the result was that the asset base of many banks was undermined, causing a huge downturn in output.

A viable exchange rate is vital for exporters but having North Sea oil since the 1980s has had a harmful effect on UK manufacturers because the ability to export oil forced up the value of the pound compared with other major currencies. Looking back, it would have been wiser to have used the revenues from the North Sea to pay off national debt, thus reducing interest rates and lowering the exchange rate of the pound (to the extent that it reflected borrowing by the UK government). Or the revenues could have been invested in productive activities overseas, as Britain did at the height of its economic power. A more competitive exchange rate would have greatly assisted our manufacturing exports.

Looking back over the last 25-30 years macroeconomic policy has helped to weaken our manufacturing base. As other countries expanded, and as our own productivity increased, a decline in the number of people employed in manufacturing was inevitable, but as Germany, Italy and France have shown, the decline need not have been so precipitate. We now urgently need a policy to encourage manufacturing and compensate for the inadequate support given by macroeconomic policy in recent times. The recession has closed some options to the government but two policies remain within its powers: cutting taxation and scrapping over-regulation.

Corporation tax

The current rate of corporation tax is comparable to many rival countries but we should aim to give companies here an advantage in part to make up for the unhelpfulness of macroeconomic policy.

Since 1984 the headline rate of corporation tax has been reduced substantially, mainly to keep up with international competition. The 1984 Budget announced a cut in the main rate from 52 per cent to 35 per cent (with a further cut to 33 per cent in 1991/92). However, from 1984 capital expenditure was treated less favourably with the intention of making the overall package revenue neutral. Until 1984 100 per cent of investment in plant and machinery could be deducted from taxable profits, but it was replaced by a 25 per cent per year deduction on a declining-balance basis.¹⁶ Despite the intentions of the government, in practice investment was discouraged.

The main corporation tax rate was cut from 33 per cent to 31 per cent in 1997 and to 30 per cent in 1998. Since April 2008 it has been 28 per cent. The small business rate was 21 per cent from 1997 and 20 per cent from 1999. It was cut to 19 per cent in 2006, but has increased to 21 per cent from April 2009.¹⁷

In an attempt to encourage new companies, from April 2000 the corporation tax rate for companies with profits of less than £10,000 was made 10 per cent, followed in 2002 by a cut in the 'starting rate' to 0 per cent. However, many self-employed people converted to companies in order to pay less tax and as a result in 2006 the starting rate of 0 per cent was abolished. This experience has made the Government wary of cutting the corporation tax rate below the rate for personal income.

In recognition of the burden on small companies the regime for capital allowances has also been reformed. From 2008/09 the first £50,000 spent on plant and machinery could be deducted from profits. The remainder can be depreciated at 20 per cent on a declining-balance basis.

In April 2000 a tax credit for research and development (R&D) was introduced. From that year tax relief for SMEs was 75 per cent, which means that 175 per cent of expenditure (130 per cent for large companies) can be deducted from profits (because R&D is already deductible as a business expense). There is also a refundable tax credit for SMEs if losses are made. For costs incurred after August 2008, a company can give up the right to offset losses equivalent to 175 per cent of R&D against future profits in return for a cash payment (tax credit) of 14 per cent of the losses given up.

What should be done? In March 2009 the EEF, the manufacturers' trade association, published recommendations for tax reform. It argued that the current regime does not reflect the fact that manufacturers have to invest for the long term. The report had three main hopes: that full recognition would be made for the cost of investments at the time they were made; that only activities in the UK should be taxed; and that the heavy compliance burden should be reduced.

Some 35 per cent of EEF members are foreign owned and such companies are far less likely to see the UK as their primary location for research, design and development or marketing either now or in five years time.¹⁸ Until April 2009 the government taxed both UK profits and the dividends received by UK-resident companies from foreign subsidiaries. This created an incentive to locate overseas. However, the tax changes of April 2008 made matters worse for UK manufacturers by reducing cash flow, especially by cutting capital allowances for plant and machinery (from 25 per cent to 20 per cent) and removing the Industrial Buildings Allowance (IBA). The aim was to simplify reliefs and allowances, but scrapping the IBA effectively increased the cost of building new factories.

The EEF report recommended that businesses should be able to elect to treat capital expenditure as a short-life asset for up to eight years. The new depreciation rate of 20 per cent would apply but if the item were sold or scrapped within eight years the balance should be claimable.¹⁹ In the long term it wanted all capital expenditure to be deducted

immediately, as was possible up to 1984.²⁰ Ideally companies would be allowed to deduct all capital expenditure in the year in which it is incurred, a practice that has been permitted for R&D since 2000.

In 2009/10 the higher rate of corporation tax is 28 per cent and the small companies rate 21 per cent. Both are far too high in current international conditions and in the immediate future the headline rate of corporation tax should be cut to a low rate close to that of Ireland (12.5 per cent) and then phased out completely.

Taxation of dividends and capital gains

The taxation of dividends also has an important effect on companies. From 1997 the dividend tax credit was no longer payable to shareholders who were already exempt from tax (mainly pension funds). Dividend tax credit is an amount deducted from personal income tax to reflect the corporation tax already paid on company profits. Since 1993/94 the tax credit meant that the effective tax rate for basic rate taxpayers was 0 per cent and for higher rate taxpayers 25 per cent.²¹ Ideally dividends should not be taxed at all to encourage investment in productive enterprise.

Capital gains tax (CGT) was introduced in 1965. In 2008/09 the exempt amount for individuals was £9,600 and the tax rate was 18 per cent on gains above the threshold. CGT taper relief lasted from 1998 to 2008. If a business asset was held for two years 75 per cent relief was allowed, which meant that the effective tax rate for higher rate taxpayers was ten per cent, and for basic rate payers five per cent. Ideally capital gains tax would be abolished for equities to encourage wider share ownership.

De-regulation

The annual survey by the British Chambers of Commerce provides the most reliable estimate of the cost of regulation to business. In 2009 the Burdens Barometer put the cost to business at £76.8 billion. Many regulations are useful, but strong candidates for reduction include regulations on working time, money laundering, and employment tribunals, although many are imposed by the EU, which means we are stuck with them while we remain a member. All create huge costs that are out of proportion to any benefits. Above all, the government should stop adding new regulatory burdens. A prime candidate for cancellation is the Equality Bill, which will add significantly to the compliance costs of employment.

Infrastructure

The role of government in providing roads, rail, airports and seaports, as well as the internet and energy, is well understood. Good roads and ports are vital to exporters. Rodrik gives the example of orchid production in Taiwan. Manufacturers needed electricity for greenhouses, good transport to allow rapid export and pest control at the border. The

government was the only agency capable of providing them.²² Many UK industries are in a similar predicament. For example, British industries that rely heavily on energy are at a severe disadvantage with rivals whose governments provide cheap energy. The UK government is alert to these requirements, but our road network and energy policy still leave much room for improvement. Energy policy is driven too much by climate change campaigners and insufficiently by the needs of industry.

Education and skills

The availability of skilled workers is a vital component in the success of any firm. Governments play a major part in education and our own government is formally committed to increasing the level of educational attainment and the number of people with work-related skills. For example, a National Skills Academy for Manufacturing was established in 2007.

However, it has made some mistakes, not least by lowering benchmarks for university admission so that more students could attend without actually achieving the standard previously required. It allows the UK to look better in international league tables such as the OECD's *Education at a Glance* but has left employers puzzled by the poor quality of many new recruits. University admission should be on merit only.²³ And despite Government declarations of support for science, technology and engineering, the last decade has seen the closure of several university science departments. The government has focused considerable attention on apprenticeships but many employers still say that the system does not provide them with the skills they need. A forthcoming Civitas study by Anastasia de Waal will show the need for urgent reform. Moreover, it is now widely accepted that the apparent gains in school attainment at ages 16 and 18 have been the result of lowering standards.

Direct government grants: domestic rivalry or national champions

One of the strongest arguments against industrial policy is that the government can't pick winners, but the claim that the government lacks the information to pick winners misses the point. In any discovery process there will be winners and losers and the risk for governments is that they will entrench the position of the losers. As Rodrik puts it, 'the trick for the government is not to pick winners, but to know when it has a loser.'²⁴ For him it is legitimate for the government to provide incentives for new activities that will create diversity and new competitive advantages. The underlying problem is that in some countries there are not enough profits to take costly risks to discover what can be produced at a sellable cost.²⁵ New discoveries of viable products are of great social value, but the risk of failure is high and if the return is low entrepreneurs are less likely to take the chance. One approach is to permit companies to make extraordinary profits, a policy that should

always play a part. However, direct government investment can also be justified as I will discuss below.

A government can only sponsor innovation if it maintains close ties to the private sector, which raises the possibility of capture by political cronies. Rodrik accepts that there are dangers in government action, but he resists the conclusion that all government action can best be understood as 'rent-seeking' by private interests intent on gaining exclusive advantage. It may or may not be. We should be aware of rent-seeking and guard against it, but avoiding subsidies altogether is an over-reaction. If there are to be subsidies they should be linked to objective tests of performance that can't easily be manipulated, such as ability to export.²⁶ And as the ultimate safeguard, sunset clauses should be built in.

Moreover, governments should not fear mistakes. The aim of experiments is to identify both success and failure. When a failure is identified the challenge is to bail out fast.²⁷ Moreover, governments should not focus on high-tech, sunrise or knowledge-intensive industries because it pre-judges who will be successful. Nor should subsidies be confined to R&D. Rodrik argues that any innovation should be eligible, including a simple development of a variation on an existing product.²⁸ It is not always obvious in advance who will succeed. Who for example would have predicted the success of Italy? And yet it has several mature or traditional industries in clothing, furniture and footwear that have succeeded by innovative adaptation despite high labour costs.²⁹ As Lord Mandelson's speech to the RSA revealed, the British government is in the process of making the mistake of focusing too narrowly on R&D.

According to Michael Porter, one of the main pitfalls to avoid is sponsorship of national champions. Instead governments should encourage competition in the home market. Successful countries such as Japan, South Korea and France pursued an industrial policy but Japan's export successes were all in industries where there were significant domestic rivals. In other sectors of the Japanese economy where there were no such rivals, Japan did not succeed in export markets. The experience of South Korea was the same.³⁰ As the large literature about the real lessons of Japanese success shows, Japan's Ministry of International Trade and Industry (MITI) attempted to reduce 'wasteful' domestic competition, but despite its efforts intense rivalry remained.³¹ By comparison, France and Britain opted for national champions, and did not enjoy anywhere near as much export success, with British Leyland an outstanding example of failure.³²

Public procurement

Porter argues that direct government support of R&D is not efficient. Firms tend to proceed with bad projects if they do not bear the risk of loss, or put forward schemes they would have supported anyway or exaggerate the R&D element in their costs. He prefers governments to encourage early and sophisticated demand, especially through procurement. Moreover, based on the experience of Japan and South Korea mentioned above, governments should encourage local rivalry so that companies do not fall below the

international norm. It should encourage both high standards and early demand for new products. For example, the Danish government provided hearing aids under its state health care system and encouraged a successful Danish industry to meet the demand. In Japan the production of low-cost pianos was encouraged by a government decision to make music compulsory in schools.³³ Yamaha now dominates the market for electronic pianos.

In keeping with this spirit the Sainsbury report of October 2007 argued that an order from the public sector was better than increasing the availability of venture capital and called for 'innovative procurement' by the public sector.³⁴ The British Government has recently tried to encourage the use of public procurement for economic development and the Office of Government Commerce provides guidelines. The Small Business Research Initiative was launched in 2001 to boost innovative government procurement from small and medium-sized enterprises (SMEs).³⁵ In 2005 a mandatory target of 2.5 per cent of external R&D had to be placed with SMEs. However, it was lower than the proportion many departments had already achieved.

The *Innovation Nation* white paper of 2008 promised to use public procurement (totalling £150 billion) to drive innovation and the Defence Industrial Strategy of 2005 was intended to involve contractors in developing our defences. However, despite recognition of its importance too little has been accomplished.

Trade and reciprocity

Some academics have been building a rationale for trade protection, at least by developing countries. Reinert and others have emphasised that protectionist paths were taken by the earliest industrialisers, particularly the USA and Germany as they fought to catch up with the UK. He attacks neo-liberal economics for assuming that economic growth and welfare would be the automatic result of a free-market economy—if only all interventions were removed. An economy, he says, is the result of a long term conscious process of building a structure. Rich countries got rich because their governments set up, subsidised and protected industries. They all went through a stage without free trade, enabling them to emulate already rich nations.³⁶ The USA, for example, protected its industries for 150 years.

The UK government frequently warns against the dangers of protectionism, but many of the advantages that a firm might have are not under its sole control. An industrial policy is therefore unavoidable if our industries are not to be picked off one at a time by overseas rivals with more supportive governments. If we take no action we are, in effect, making a unilateral sacrifice of some of our people. We may not want to emulate the worst overseas practices but our government should not be quiescent in the face of overseas 'beggar my neighbour' policies. WTO rules allow for reciprocal action to correct unfair trade practices and the available powers should be put to full use. India, for example, has recently banned Chinese toy imports because Chinese export subsidies were destroying jobs in India and in doing so reducing competition. The end result of Indian action will be to encourage China to remove the subsidies so that Chinese and Indian companies can compete on their

genuine merits. The WTO provides considerable restraints on crude protectionism in the form of tariffs against imports, but no government should allow advantages to be gained at the expense of its own people who may find themselves jobless as a result of the subsidies of foreign governments.

The free flow of capital is often said to be good thing on the assumption that investors are seeking the best locations for productive activity. However, there are disadvantages. By 2006 40 per cent of UK voting shares were owned overseas, up from six per cent in the early 1960s. In a downturn foreign owners are far more likely to close UK plants. Moreover, the motive of investors is sometimes to weaken competition or strengthen monopoly. For example, a good case can be made for preventing foreign investment when a foreign company plans to take over a domestic rival and reduce competition.³⁷ In such a case anti-monopoly law should take precedence. The outcome will be to sustain both domestic and international competition, which is in the interests of all.

Public and private investment

There has been a long debate about short-termist attitudes by investors. Criticism of short termism began to be voiced strongly in the 1990s chiefly because Japan and Germany had enjoyed remarkable success in export markets in part because the owners of their companies had a long-term commitment to their survival.

Michael Porter was one of the prime critics of short-termism in British and American industry. In America, for example, huge amounts of capital had been invested during the 1950s and 1960s but from the 1970s he argued that the goals of major investors had shifted, often because the proportion of stock owned by major institutions increased. Pension funds that paid no tax on investment earnings were particularly important in the UK. In the early 1960s pension funds owned about 6 per cent of UK voting shares and insurance companies 10 per cent. By 1992 pension funds owned 32 per cent of shares and insurers 20 per cent. Since then they have been reducing their holdings and by 2006 pension funds owned 13 per cent of UK shares and insurers 15 per cent.³⁸

Porter criticised the tendency of asset managers to be attached to quarterly or annual performance reports that emphasised the appreciation of assets. As a result, they tended to invest in companies that were expected to appreciate in the short run and this expectation became one of the biggest influences on decisions to buy or sell.³⁹ As early as 1990 Porter thought the time was 'rapidly approaching' when City financial institutions were more of a barrier than a benefit to British competitive advantage. As in the United States, he said, 'institutional investors seem to have little commitment to companies nor do they have a meaningful role in corporate governance'.⁴⁰ The Myners Report of 2000 avoided direct criticism of the City but backed up much of Porter's analysis. The Government was concerned that institutional investors followed an industry-standard investment pattern that focused overwhelmingly on quoted equities and avoided SMEs.⁴¹ The report argued

that 'peer group' benchmarks gave an incentive to herd behaviour and that short-termism was common.⁴²

Porter criticised investors for focusing on the share price and taking too little interest in management. Myners also found that fund managers were reluctant to take an active approach towards corporate under-performance. Consequently the main pressure on managers was the threat of takeover. Porter acknowledged that takeovers and mergers could lead to sales of underperforming assets or replacement of poor management but found that often they were a distraction from strategic innovation.⁴³ Mergers and acquisitions created investor excitement but often the buyers over-paid and borrowed to fund the purchase so that repayments reduced cash available for innovation. Takeovers were a second-best solution to under-performance.⁴⁴ Moreover, many purchasers had a tendency to sell soon after their initial purchase. Recent repeated buying and selling of UK DIY chain stores such as Focus and Wickes involving private equity groups or hedge funds such as Duke Street Capital, Apax Partners and Cerberus provides a typical example.

Some mergers led to a blunting of domestic rivalry and ultimate losses to overseas rivals, for example steel and cars in the USA.⁴⁵ There was a tendency to lobby for protection instead of investing in innovation, a practice that left some leading US car manufacturers effectively bankrupt by 2008.

Also important was the low commitment of managers to their companies. Their remuneration often involved bonuses for annual results and managers with a short tenure often acted as if they were intent on taking what they could while the opportunity lasted, a tendency that had produced disastrous results in financial services as events in 2008 and onwards were to show. In countries such as Germany and Japan institutions, especially banks, had a long-term commitment to manufacturers.

Porter urges governments to encourage long-term commitment. He thought that abolishing capital gains tax on equities would help. He also counselled against making it the same rate as income tax (as in the USA in 1986 and UK in 1988) because it encouraged managers to seek annual bonuses instead of long-term stock ownership.⁴⁶ Increased individual ownership of equities would also weaken the power of institutions. The aim of policy should be to encourage investors to seek innovations and new processes, not to speculate for purely money gains— 'money games' as the Japanese call it.

Some have argued that improved shareholder democracy would tip the balance in favour of long-term commitment. F.A. Hayek argued that the tendency of business corporations to 'develop into self-willed and possibly irresponsible empires, aggregates of enormous and largely uncontrollable power, is not a fact which we must accept as inevitable'. Corporations were the result of 'special conditions which the law has created and the law can change'. Limited liability, for instance, is a privilege and it is for the law to decide 'on which conditions this privilege is to be granted'. The basic insight of a market economy is that if people are allowed to exercise personal responsibility at their own risk, resources are more likely to be put to their most beneficial use. But recognising that a

market economy is worth defending does not mean that we should uphold the present structure of the institutions for large-scale business so far created by our laws.⁴⁷

Incorporation gives companies a legal status that allows them to be pursued in the courts by customers and creditors. Limited liability allows investors to risk the amount invested, not every penny they own. These legal structures are useful, but in recent months it has become plain that many corporations have fallen under the control of small groups who cared little for the majority of shareholders. It is generally accepted that a bonus culture emerged that allowed a few managers to make a quick killing and then run for it. In other cases, expansion through acquisitions was pursued recklessly to such an extent that the whole enterprise was destabilised. In response to such criticisms managers can always say that few if any shareholders ever complained when things were going well.

But the claim that shareholders have any real say is false. In reality shareholder democracy is feeble. However, the apathy and lack of any real power is not all the result of scheming corporate megalomaniacs. It is the result of the law. Hayek, along with others, proposed two main changes that might help to avoid a repetition of recent scandals. First, he thought that all shareholders should have an opportunity every year to decide whether their personal share of the net profit should be ploughed back or taken as income. At present the majority of shareholders make that decision on the advice of management, but it is very easy for companies to fall into the hands of people who do not have the interests of all shareholders at heart. An annual option by each shareholder would force managers to consider the interests of all. It is true that this entitlement would make it harder for companies to plan ahead. The result might be a move towards private companies with fewer, but more strongly committed, shareholders.

Second, Hayek argued that companies should not be allowed to hold voting shares in other companies. The frequent result has been that a tiny handful of major institutional shareholders can rule the roost over the thousands of others. Companies could still own shares in other companies but they should be non-voting shares bestowing no control.

The corporate and accounting scandals of recent years followed by the gross incompetence of banking companies has made many people wary of buying shares. Yet, if we are to rebuild a balanced economy and return to prosperity, we will need to invest in productive activities that meet the requirements of fellow customers. A renewal of shareholder democracy may encourage more people to take a chance on investing in our future prosperity. And business corporations would be a little closer to the free-market ideal under which ownership and control are more closely aligned.

The UK Government has responded to concerns about short-termism by encouraging venture capital with taxpayer subsidies. The 2007 Sainsbury report on the Government's science and innovation policy remarked that there was insufficient venture capital and therefore that special incentives were required.⁴⁸ By then several schemes were already in existence, including the Enterprise Investment Scheme and Venture Capital Trusts.

The Enterprise Investment Scheme (EIS) began in 1994. From April 2008 investors must buy ordinary shares in a company or an EIS fund that invests in several firms. Relief is 20 per cent of the cost of the shares up to £500,000 if the shares are held for three years. The relief cannot be set against dividend income. No capital gains tax is payable on the sale of shares, but if they are sold at a loss then the amount lost can be claimed back, less any income tax relief paid. 12,900 new companies had been established under the EIS by 2005/06 and £5.4 billion invested.⁴⁹

Venture Capital Trusts (VCTs) are companies that invest in unquoted companies. Investors are able to spread the risk across several companies by buying shares in a VCT. The scheme began in 1995 and had raised £3bn by 2005/06. From 2006/07 a 30 per cent income tax relief was payable on the purchase of shares so long as they were held for five years. No capital gains tax is payable.

The UK High Technology Fund was established in 2001 as a 13-year 'fund of funds' to encourage investment, especially by institutions, in high-tech venture capital. It followed the Myners report of 2000 that noted the reluctance of institutional investors to take risks. The DTI provided £20 million and £106 million came from private sources. To qualify companies must achieve an internal rate of return of ten per cent. Enterprise Capital Funds were launched in 2006 following the Bridging the Finance Gap consultation and £81 million was invested in 'pathfinder funds'. The government puts in twice as much as the private investors but takes a lower share of the profits. No single investment can be above £2 million.⁵⁰

Regional Development Agencies, launched in 1999, also play a part. There are eight plus a ninth for London established in 2000. One Northeast, for example, offers loans up to £60,000 to technology SMEs. The European Union is involved through EU Young Innovative Enterprises (YIEs). Such organisations can be up to six years old and must invest a minimum of 15 per cent of their expenditure in R&D.⁵¹

In addition to subsidising venture capital, the Government has made significant direct investments. According to the Government's manufacturing strategy, *Manufacturing: New Challenges, New Opportunities*, of September 2008 the Government values manufacturing and seeks to encourage it.⁵² Since it launched its strategy in 2002 it claims to have provided macroeconomic stability, investment support, encouragement for science, the spread of best practice, support for skills and education, effective infrastructure and a generally supportive business environment. The report lists R&D tax credits worth £2.3 billion and support for civil aerospace of £1 billion. The Technology Strategy Board established in 2004 has invested another £1 billion in collaborations between businesses or between business and universities, and since 2002 the Manufacturing Advisory Service has invested £90 million.

The private sector has also played a part. In 1995 the London Stock Exchange launched the Alternative Investment Market (AIM) to assist smaller companies to attract capital, aided by advisers called Nomads. In 2006 about 1,600 companies were listed.

However, little has been done about the attitude of institutional investors, which remains focused on the share price instead of building a long-term business. Overcoming the short-termism of institutions through taxpayer subsidies of venture capital may not be the best solution. Pension funds in particular have grown rapidly largely because of tax concessions. It is time to review whether or not the huge tax concessions for pension funds are in the public interest.

Conclusions

The primary cause of economic prosperity is the talent and energy of the individuals who make up a nation. It has long been accepted that the laws and institutions of a society can help or hinder their efforts. But it is not just a matter of the government stepping back and allowing spontaneous forces to work their magic. There needs to be a constant effort to ensure that the laws, regulations and public policies provide people with the best possible conditions for free enterprise. Certainly low taxes and the avoidance of over-regulation are vital, but positive policies are also needed in transport, ports, energy and monetary policy, public procurement and much more if we are not to fall behind. As Hayek said, 'There is ... all the difference between deliberately creating a system within which competition will work as beneficially as possible, and passively accepting institutions as they are.' Nothing has done as much harm, he thought, as 'the wooden insistence of some liberals' on laissez-faire. The important challenge, he argued in the 1960s, was to aim at the 'gradual improvement of the institutional framework of a free society'.⁵³ It remains the challenge over 40 years later.

A Union View

Brendan Barber

‘There’s probably a proverb somewhere that says a crisis should not be wasted. Well, this is ours.’ So said Lord Mandelson, speaking at a Trade and Industry dinner in the Mansion House in March 2009.

Indeed, this is ours, and the financial crisis should not be wasted. It is frightening and it is brutal. Unemployment is expected to top three million. As jobs are lost, homes will be repossessed and lives will be shattered. Many ordinary people will bear the scars for years to come. Yet the financial crisis is also providing a once-in-a-generation opportunity to think afresh about the way we live and work in the twenty-first century. Quite simply, it is turning many political and economic certainties on their head.

One such certainty is that the UK’s future is in services in general, and financial services in particular. Those who argued this line did not decry manufacturing. They recognised that, in some areas, such as aerospace, defence and pharmaceuticals, we were world leaders. Nissan, in Sunderland, had for many years been the most productive car plant in Europe. These pockets of success were to be celebrated, but there would be no serious growth in manufacturing. That would be left to the Chinese.

Or so they thought. But in recent months, more and more politicians, journalists and industrialists have stressed the importance of manufacturing. The Government has published a paper entitled *New Industry, New Jobs*, opening a debate about industrial activism.¹ This follows *Investing in a low-carbon Britain*, a report that describes how to build a thriving ‘green’ economy.

Trade unions have always believed in manufacturing. The sector employs hundreds of thousands of our members. It also contributes £150 billion to the economy—or perhaps a little less, as a result of the downturn. It accounts for half our exports and about three million jobs. Our manufacturing heritage is rich, but the TUC also believes that manufacturing can have a healthy future in the UK. We believed that before the economic crisis and our experience of the last 12 months only strengthens that belief.

Of course, the world has changed. The UK was the cradle of the industrial revolution, but the days when we were the workshop of the world are behind us. We accept that low skill, low-value work will move to lower-cost countries. Accepting that fact has not always been pleasant, as it has meant the loss of trade unionist jobs over many years. But we can tell which way the wind is blowing.

It is, however, an unforgiveable mistake to believe that the rise of Brazil, Russia, India and China (the ‘BRICS’) means the inevitable death of UK manufacturing. The trick, in our view, is to specialise. We must identify what we are good at, or what we could become good at, and focus our efforts there.

For some years, the Treasury has spoken about ‘comparative advantage’. This simply means that different countries have different advantages. We cannot all build the same things or offer the same services. Quite apart from the fact that the market would not be big enough, countries have certain strengths based on their histories, their cultures, and their levels of wealth and development.

The UK’s comparative advantage clearly lies in high skill, high growth sectors. In those industries, whilst costs are a factor, they are not the major factor. People buying a high value product, such as an aircraft engine designed to power a jumbo jet, need excellence and they know that does not come cheap. They are operating at the high end and the goods that they buy reflect that fact.

So whilst the UK cannot build everything, there are enough high value products where we can be just as competitive as any other country to secure a manufacturing future for decades to come.

What else can we build? Lord Sainsbury, author of *The Race to the Top*, a review of the Government’s science and innovation policies, identified aerospace, pharmaceuticals, biotechnology, regenerative medicine, telemedicine, nanotechnology, the space industry, intelligent transport systems, new sources of energy, creative industries, computer games and the instrumentation sector as among the opportunities before the UK.²

New Industry, New Jobs highlights aerospace, specifically engine and wing design and manufacture, which must adapt to the low carbon age; the shift from metal to composite materials, which will have important applications in the automotive, marine, aerospace, wind and wave, construction, oil and gas, and medical equipment sectors; industrial biotechnology and the redefining of chemical manufacture in the twenty-first century; and plastics electronics.

Of course, the whole development of low carbon technology provides a massive opportunity to manufacturers in the years ahead.

So how do we ensure that the UK punches above its weight in manufacturing of the future?

First, we must ensure that our workforce has the skills to succeed. I think I speak for all interests in manufacturing when I make this point. Whenever unions, employers and government talk together about manufacturing, the biggest concern among employers is skill shortages.

New Industry, New Jobs calls for a skills system that: ‘is able to anticipate future growth in the economy in areas such as low carbon or bioscience...’ We are all used to decrying the lack of joined-up government that we so often experience, so it’s worth celebrating that fact that an industrial vision is being spelt out and a skills strategy is being developed to underpin it. This year’s Budget allocated over £260m of new money to help young people get training and work experience in sectors where there is likely to be strong jobs growth over the longer-term. This is very welcome, but it is essential that those youngsters taking up this training achieve sustainable employment in new growth areas and are not simply

pushed into short pre-employment training courses. That lesson of previous recessions needs to be learned.

It is also important that major skills programmes, such as Apprenticeships and Train to Gain, are planned and delivered in the context of the new industrial activism. In this way, young people and adults can be confident that work-based training is equipping them for future industrial change.

New Industry, New Jobs is quite honest in its assessment of the UK's performance in innovation. It reminds us that, whilst those businesses that do invest in innovation do so successfully, UK-based businesses and the government itself invest less in R&D as a percentage of GDP than other comparative economies. Furthermore, whilst we have an excellent record of generating knowledge, that often does not translate into innovative and commercially successful goods and services.

The Department of Innovation, Universities and Science used the Budget to confirm the ring-fence around science and research funding. This follows the Prime Minister's pledge, in his Romanes Lecture at Oxford University in February, that: 'we will not allow science to become a victim of the recession but, rather, focus on developing it as a key element of our path to recovery'.

That's a vital commitment. Furthermore, in line with the industrial activism project, science Research Councils have been asked to develop plans over the next few months to refocus their research programmes for next year into new priority areas, such as the green economy, life sciences, the digital economy, high value manufacturing systems and services, and cultural and creative industries.

Again, we see common commitment to our industrial future. The TUC would add that pure science, i.e. science for the sake of it, continues to be important. That's a difficult message to sell in a recession, because science is very costly and to spend money on a discipline with uncertain outcomes feels risky. But the next generation of scientists, those still at school and university, were attracted to science by a sense of wonder and discovery. Take that away and there is a danger of taking away the rationale to become a scientist. What's more, history is littered with scientific projects having vitally important industrial outcomes that could not possibly have been envisaged. The internet, invented at CERN in Geneva, is perhaps the most famous recent example. There is no shortage of others.

On the subject of government spending, we need to think again about whether our public procurement practices support UK manufacturing. No trade unionist is arguing for a 'buy British' policy. As well as being illegal under international rules, history shows that such policies don't work. However, the Defence Industrial Strategy was another piece of joined-up government that has made a huge difference. The Defence Industrial Strategy outlined priority areas for government defence contracts, that run into millions of pounds, years in advance. One of the big difficulties for defence companies is uncertainty around future business. By knowing in advance the areas of government priority, companies are able to plan ahead, in terms of their own investment. No British company was promised

contracts, but the government's commitment to an indigenous defence manufacturing sector was spelled out in the strategy. The TUC called at the time for other, similar sectoral strategies. What about a strategy for rolling stock on the railways, another sector that benefits from the ability to forward plan? Or a pharmaceuticals industrial strategy, for our National Health Service that spends a large proportion of its budget on drugs for patients? None of these strategies should be beyond the wit of government to develop.

Another way that public procurement can be used to support manufacturing is to ensure that goods are procured on the basis of value for money, in a holistic sense, rather than simply low cost. There is no excuse for any contract that doesn't require the winning contractor to train their workforce to a reasonable standard, for example. The future world of work will have no unskilled jobs. It may look as if a few pounds could be saved in the short-term if workers remain unskilled, but the long term damage would be severe. Public sector contracts should also be 'green'. As the need for goods and services to be environmentally friendly will only increase in the future, helping to develop green businesses now, to meet those contracts, should be seen as a long-term investment, not a short-term cost.

Finally, positive industrial relations are good for manufacturing. We recognise that the media do not like to speak well of trade unions. We get most news coverage on those rare occasions when industrial action is taking place, even though thousands of trade unionists work with managers, day in and day out, to make the office or factory a better place to work and a more competitive business. We know that many people prefer to imagine the typical trade unionist as a bloke in a donkey jacket and Doc Marten boots, even though more and more women, young people and black people are joining our ranks, taking up skills issues, campaigning for fair trade or greening the workplace.

So many won't know, and will care even less, that over 20,000 union learning reps had been trained by March 2008, promoting the uptake of learning and skills in the workplace. Over 200,000 individual learners will have taken the union route in 2007-08 and unionlearn, our skills arm, is aiming for 250,000 a year by 2010.

Yet trade unions continue to make a vital contribution to manufacturing. Not only are our great manufacturing companies, like Rolls Royce and BAE systems, as well as inward investors such as Nissan and Toyota, companies in which trade unions play a positive role. But throughout the 1980s and 1990s, when manufacturing was out of fashion, we were campaigning for its future. That won't stop. On the contrary, it is likely to increase. Quite simply, our economic, social and environmental future depends upon it.

Manufacturing and the Knowledge Economy

Ian Brinkley

Today we are in a deep and lengthy recession triggered by a global crisis in financial markets. As the recession continues to take its toll of manufacturing jobs, it would be easy to fall into despair about the sector's longer term future.

We think this is mistaken. The processes that have underpinned the UK's transition to a knowledge-based economy have also transformed the manufacturing sector to the point that it has the potential to play a major role in the post-recession economy.¹

Some will dismiss the knowledge economy as built on unsustainable debt and the rise of an oversized financial services sector. However, the UK's knowledge economy is not only City investment banking, but includes high-tech manufacturing; business and high-tech services, health and education, and they provide over 40 per cent of our industrial value added and employment.²

In reality, the UK's non-financial knowledge-based economy will be a source of stability for jobs and investment in the recession and the basis around which a rebalanced economy and a lasting recovery can be built. New sectors are emerging such as 'manu-services' as manufacturing firms integrate high value-added services into the production process.

The post-recession economy will reshape itself around non-financial knowledge and technology based sectors, including high-tech manufacturing, the creative and cultural services, ICT based services, along with higher education and health care and new knowledge-based sectors such as environmental industries and energy.

The phrase knowledge economy is often used, seldom defined, and sometimes abused. What it describes is a shift away from an economy that rested on low-wage physical production to one that rests on the deployment and exploitation of knowledge-based 'intangibles'—from R&D to software, design, brand equity, human and organisational capital.

It has been driven by the growth of markets for high value-added goods and services, new general purpose information and communications technologies, with globalisation—the free movement of goods and services, ideas, technologies, and highly skilled people.

Business investment priorities have changed radically. In 1970 business investment in intangibles was worth 40 per cent of the investment in physical assets—factories, offices, machines, vehicles. By 2004 it was worth around 130 per cent. The same picture is true for the United States, Finland, and the Netherlands.³

This could be interpreted as simply reflecting the shift towards services. But the most recent estimates show that manufacturing invests more proportionately in intangible knowledge-based assets than services. The value of intangible investments by manufacturing firms in 2004 was twice that of investment in physical assets.⁴

The manufacturing workforce has been changing—and not just towards the better educated. In 2007 we undertook a major survey that classified jobs by their knowledge content and found that manufacturing had as many knowledge intensive jobs as services.⁵

The UK has emerged as a major success story in exports of knowledge-based services. Financial services account for about a third. What is less widely appreciated is that a large share of the remaining two thirds such as trade and technical services are generated by manufacturing firms—indeed, manufacturing firms have a higher propensity to export services than the service sector itself.

What links these three major changes is the emergence of a business model that integrates services into the manufacturing process, so that in effect a new industrial sector has been emerging—one we call ‘manu-services’. This is the starkest example of a wider knowledge economy process whereby conventional industrial boundaries are blurring.

It is also linked to the development of global production chains where some manufacturing production has shifted towards locations overseas, while higher value-added service functions such as R&D and design have been retained in the UK.

These changes have two important implications for how we measure the relative importance and success of the manufacturing sector.

Firstly, they understate the contribution of manufacturing to the wider economy. Our statistics still largely focus on physical production and investment in physical assets, as if manufacturing and services were still in separate boxes, and do not capture the intangible, rich nature of modern manufacturing.

Secondly, judging the success or failure of the sector by physical production in the UK is misleading. The simplistic explanation is that manufacturing has either been destroyed by low-wage competition or has been driven overseas in a relentless search for the lowest labour cost location. The reality is more complex, especially for high value-added sectors.

Manufacturing is part of a global production chain, where manufacturing multi-nationals ship sophisticated components to factories in China for final assembly and ship back to countries like the UK where higher value-added services are included. Production goes overseas, but value-added stays here.

Moreover, increasingly the reason for moving overseas is to get access to the huge potential market for manufactured goods in areas such as Asia and also to high-wage economies such as Western Europe and North America where the primary markets for high-tech goods and their associated high value-added services are centred.

We should be looking at the global production of such companies, together with measures of the share of value-added retained in the UK. In most cases, we would expect high value-added and specialised manufacturing to be retained here, because of close linkages to the development of high value-added expert services. But in some circumstances a firm could move all production overseas, retain high value-added service functions here, and still be regarded as a global manufacturing success story. Both should be regarded as part of the UK’s knowledge-based manufacturing economy.

Almost all accounts of the transformation of manufacturing talk about the move from low-tech to high-tech, with the implication that nothing but high-tech manufacturing can survive in economies like the UK. This is understandable—we see the collapse of low-wage industries such as textiles and clothing in the face of international competition and the explosive growth of high-tech sectors such as pharmaceuticals. But once again it is not the full picture.

We think there are in fact two stories, one focused on global markets and the other on domestic output. High-tech manufacturing now dominates manufacturing exports in all major OECD economies, including the UK. This share can only increase over the next decade. But when we look at the overall composition of the manufacturing sector measured by value added, we see that not only is a lot of manufacturing still in low-tech sectors—about half of all value added—but the balance between high-tech and low-tech has not changed much in the past 20 years.

Critics might say that the lack of structural change in favour of high-tech is why UK manufacturing appears to have struggled in recent years. In fact, all major OECD economies have significant low-tech sectors and—with the exception of Japan—that share has remained stable. This however immediately raises the question of why open economies such as the UK have held onto low-tech manufacturing in the face of furious competition from low wage producers.

We think surviving low-tech sectors such as printing and publishing have built on their comparative resistance to import penetration by transforming the basis on which they compete. The ‘high-tech/low-tech’ split in the official statistics is based purely on R&D as a share of sales, but 75 per cent of investment in knowledge-based intangibles by modern manufacturing is in non-R&D assets. This has allowed firms in low-tech sectors to move up rather than out of the industry altogether. In other cases, we are seeing more radical industrial change—publishing has virtually disengaged from the traditional print base and in the future will be classified as an information and technology service. Both are examples of how the knowledge economy applies as much to low-tech as high-tech manufacturing.

We would not want to minimise the challenges that parts of UK manufacturing face—not least from the downturn but also important underlying long term structural problems around areas such as skills and—in some industries—investment in R&D. Nor is it possible for even knowledge-based manufacturing to thrive and fulfil its potential as a sector around which to base the post-recession recovery without a more supportive policy framework. But the story of knowledge-based manufacturing outlined above is a much more positive one than we have traditionally seen from more conventional analyses.

The recent BERR review of the manufacturing strategy and the new statement *New Industry, New Jobs* provide the basis around which a new approach to manufacturing can be built.⁶ We suggest four areas need to be given particular attention.

Firstly, manufacturing firms need as much support as possible to preserve the knowledge, technological and skills base through the recession. We have for example

suggested a temporary short-time working compensations scheme. The loss of a significant part of our high value-added manufacturing base would be extremely difficult to rebuild in the recovery.

Secondly, the traditional focus of manufacturing strategy has been on the high-tech sectors. This is clearly vital and for ensuring our position in global manufacturing markets absolutely essential. A key element will be ensuring that support for UK remains competitive by international standards. However, this also needs to be balanced by a policy for low-tech sectors where we demonstrably still have a comparative advantage.

Thirdly, recessions tend to aggravate underlying differences between regions and within regions, and so far this recession is no exception. A key priority for regional and local authorities and agencies will be to preserve as much of their knowledge-based manufacturing as possible in the downturn and build the sectors into their regeneration strategies for the upturn.

Fourthly, we are entering a new era of investment conservatism, where existing financial institutions will be more reluctant to lend on acceptable terms to firms considered high risk, including those in high-tech sectors. We should be developing new financial institutions or building on existing regional vehicles to meet this financing gap, as suggested in the White Paper.

Finding the Energy to Keep UK Manufacturing Going*

Ian Fells and Candida Whitmill

Energy is the life blood of civilisation; without a secure supply we slide into anarchy and barbarism.

Ian Fells

A secure and affordable energy supply is a prerequisite to the survival of our manufacturing industry. It is an energy intensive sector; energy costs to produce steel or cement for example represent 25 per cent of total operating costs, aluminium 40 per cent. Increased energy costs reduced the profitability of over half the major energy users surveyed for the latest npower Business Energy Index. This was despite 91 per cent of the same group having taken steps to increase energy efficiency. As we witness the worst recession in recent times, board meetings are understandably dominated by immediate financial burdens. Worryingly, where energy remains on the agenda it is focused on carbon emissions rather than security of supply and potential costs. What is rarely considered is the consequential cost when power cuts are inflicted. When New York lost power for 12 hours in 2003 the estimated loss to businesses was \$2 billion. Everything failed, all computing and IT, transport, traffic lights, heating and cooling, lifts; the city ground to a halt. That same year parts of the UK, Italy and Scandinavia all suffered crippling blackouts for several hours. Auckland, in New Zealand, was blacked out for six weeks and many businesses went bankrupt.

Apportioning blame for climate change is irrelevant. Acknowledging the need to reduce carbon emissions has, nonetheless, been the catalyst to recognising the economical and geopolitical sense of weaning ourselves off dependency on imported hydrocarbons. The secure supply of low carbon energy for the UK should be the driver, not politically motivated, unachievable targets. BERR concedes that climate change policies have already inflated industrial electricity costs by 21 per cent, rising to 55 per cent by 2020. Further financial burdens at this time of economic chaos would seriously damage the ability for companies to trade their way out of the recession. At least the power supply has routinely been reliable, but is the situation about to change?

Over the next decade more than one third of our electricity generating capacity will be retired; that is some 23GW of ageing coal, nuclear and oil-fired stations. Four nuclear stations have been either off-line or operating below par for the past two years. What will replace them? Not new nuclear stations, which cannot be built in time despite the recently

* *A Pragmatic Energy Policy for the UK*, which includes *A Route Map to Energy Survival in the UK* can be downloaded from www.fellsassociates.com.

rekindled Government enthusiasm for nuclear power. New clean, coal-fired power stations could, but there is a strong environmental lobby opposing their construction. Carbon Capture Storage (CCS) could transform the prospect of CO₂-free coal generation, capitalising on our indigenous supplies. Rather than fund research and development for this vital technology the Government launched a competition. The result will provide a demonstration project, barely a third of the size of a commercial plant and not before 2014, if then. By the end of 2015, the EU Large Combustion Plant Directive will force the premature closure of six coal plants, about 8,400MW. In the meantime, these plants are restricted to a maximum 20,000 hours, an allocation rapidly used up, particularly this winter, the coldest in decades, which meant relying on coal some days for 50 per cent of our electricity. An anticyclone across the country produced virtually no wind at all for days on end. Yet wind has been advocated as the panacea to the energy crisis.

The Government's own figures (BERR 2008) show that we cannot expect more than 14 per cent renewable electricity by 2020, well short of the published targets. The outlook is bleak. The default position is to build more gas-fired power stations. There are already plans to build 9GW of new gas-fired generation which can be built reasonably quickly but that locks us into an even greater reliance on imported, expensive natural gas for our electricity supply which compromises our energy security.

The Government is belatedly realising that a market-led energy policy will neither deliver a secure electricity supply nor protect the environment from climate change. The market cares nothing for the environment; it caters for today's society, not tomorrow's. Matters are not helped by those politicians who boast that the UK leads the way in Europe, whereas we are third from the bottom in the renewable energy league table and CO₂ emissions are higher now than when the Labour Party came to power in 1997. Even more worrying and paradoxical is the statement by the Energy Minister, Mike O'Brien, on the *Today* programme (12 November 2008) that despite stark warnings from industry and figures on the Government's own websites, not only will the lights not go out by 2015 but they will shine more brightly. There seems to be a hopeless mismatch between political rhetoric and engineering reality. For informed consumers it is like watching a slow motion train crash.

How can we address first the **short term** problem, the impending energy gap opening up in the middle of the next decade, and then develop a **longer term** strategy to meet the 'challenging' target of an 80 per cent reduction in CO₂ emissions, running up to 2050?

We need to commission the equivalent of two new power stations every year through the next vulnerable decade. As an emergency measure the lives of some of the nuclear stations due to be decommissioned over the next few years could be extended, but at some considerable cost. In the same way, coal stations due to close by 2015 because they will not meet the new EU emission targets could be kept going, but this will attract large fines from the EU.

New electrical connections to Norway and Germany and a second line to France could give us the added security of being part of the European super-grid and they could be laid relatively quickly, within three years.

Gas storage facilities should be markedly increased as a matter of urgency; we lag far behind our European neighbours and this exposes us to the volatility of the gas market. The latest facility at Milford Haven for Liquid Natural Gas from Qatar is a small step in the right direction.

‘Electricity from waste’ incinerators could be built around large conurbations and provide substantial generating capacity (as well as easing the landfill problem). Improved energy efficiency via much tougher building regulation could also play a part. The supply infrastructure must be strengthened to make these actions workable.

Many of these suggestions are not new but need to be part of a strategic, cross-departmental plan incorporating transport, heat as well as electricity generation and it must be implemented urgently. It will require Government intervention and real political will.

In the **longer term**, post-2020, nuclear power will come into its own plus a risk-hedging portfolio of renewables, not just wind, if sufficient support is given to the nascent renewable technologies now. Proven technology, like tidal barrages, could be built now and be providing five per cent of the UK’s electricity by 2020. These will stand alongside gas and coal-fired generation with carbon capture (CCS) in place. It will be an expensive investment and if we are to even approach 80 per cent reduction of CO₂ by 2050, all CO₂-free electricity, including nuclear, should attract a premium to encourage its installation.

There are signs that the credit squeeze, together with the escalating costs of some renewables such as offshore wind, which Government energy policy is predicated on, will slow the development of renewable energy and new power station build of whatever kind for that matter, leaving us even more vulnerable than we are today. The energy infrastructure, the National Grid, also requires substantial investment. A lot of plant that should be retired will have to be kept going but that will lead to increased risk of breakdown and blackouts.

Time is running out. Action, not yet more consultation, is required now if we are to implement a workable, pragmatic energy policy. Recovery of our weakened economy depends upon it.

A Cab Driver's View of Manufacturing: Myth or Reality?

Ian Peters

London cab drivers are renowned for having a view on anything and everything (whether you wish to hear it or not!). And when it comes to the state of the economy they often provide a tellingly accurate bellwether based on the state of their own business. Ask one for a view on the state of British manufacturing and he's likely to tell you that Britain doesn't have any manufacturing any more. The irony is that he will almost certainly be driving you in a taxi manufactured by one of Britain's automotive success stories, LTI Vehicles, the UK's largest wholly British owned car manufacturer producing 2,700 vehicles a year.

This dichotomy, between perception and reality, may be one of the factors holding back the performance of UK manufacturing, preventing the sector from attracting new recruits with the skills necessary for success.

Sadly, most of us would probably agree with the cab driver's view. It certainly is true that manufacturing industry's share of British output (and of course employment) has contracted (to around 13 per cent of GDP today). Yet the UK is still the world's sixth largest manufacturer and in absolute terms the volume of manufacturing output continues to grow. In fact, in recent years British manufacturing has undergone something of a resurgence: productivity has grown faster in manufacturing than the rest of the economy since 2003 and manufactured exports grew by 15 per cent between 2004 and 2007.¹ Manufacturing is responsible for almost three million jobs, over half of the UK's export earnings and some three quarters of research and development activity.

This doesn't sound like a sector without a future and, despite the current economic turmoil, many of Britain's manufacturers remain optimistic that they will emerge positively from recession, if somewhat battered and bruised. The danger is, however, that with companies having to lay workers off, and the return of regular media stories about the plight of the sector, the cab driver's view will become even more entrenched than it already is. Yet when we emerge from recession is the very time that manufacturers will need access to a skilled workforce. Longer term, access to technical skills will be essential if manufacturing is to continue its comeback and provide the economic balance which the current financial crisis has surely reminded us we lose at our peril.

SEMTA (the Sector Skills Council for science, engineering and manufacturing technologies) estimates that between 2005 and 2014 the engineering sector in England will need 33,000 new recruits each year to replace those leaving or retiring from the sector. Many of these new recruits could be expected to come from full-time education, but will they be attracted to the sector or will they be put off by the cab driver's view? One person who wasn't put off was Sophie Lock, winner of the 2008 EEF West Midlands Engineering Apprentice of the Year award—and an employee of taxi manufacturer LTI Vehicles. So are

perceptions of manufacturing and engineering among young people really that bad and is this a problem that needs urgent attention?

What are current perceptions of manufacturing?

Whilst there are plenty of anecdotes, there appears to be little hard evidence of what people really do think about manufacturing. The Manufacturing Foundation's 2003 study of 1,770 pupils and 686 parents in the West Midlands found that young people thought jobs in manufacturing were dirty, boring, low paid and hard work.² Only three per cent of Year 10s said they would want to do a job in manufacturing. However, 47 per cent of parents said that they *would* encourage their children to take a job in manufacturing compared to just 21 per cent who would discourage them.

Furthermore, according to one study there appears to be a clear divide in views of manufacturing between boys and girls.³ The descriptions in the table below are from 200 attendees aged 16 and 17 at an open day at North East Wales Institute.

Table 6.1

Girls		Boys	
78 %	Boring	61 %	Interesting
48 %	Dirty	43 %	Well paid
41 %	Smelly	22 %	Badly paid
40 %	Badly paid	17 %	Fun
30 %	Hard work	15 %	Cool, mint, wicked
18 %	Well paid	14 %	Practical
15 %	Interesting	13 %	Exciting
11 %	For old people	9 %	Dirty
7 %	Hot	8 %	Smelly
7 %	Dangerous	5 %	Clean

Source: North East Wales Institute of Higher Education, 2005.

These findings suggest that perceptions may vary. Parents, at least in the West Midlands, were quite positive about manufacturing careers and boys were more positive than girls. However, overall, the limited number and scope of studies means we have a significant evidence gap.

There is rather more evidence when it comes to the related areas of science, engineering and technology. The ETB/Royal Academy of Engineering study 'Public Attitudes to and Perception of Engineering and Engineers 2007' found that there was limited awareness of engineering and engineers, especially among young people. The many different types of engineer confused people and they tended to associate engineers with fixing things (railways, telephones, heating etc.). However, overall, engineering as a profession was viewed positively according to the report.

Career Aspirations

Research suggests that young people view careers in science and engineering reasonably positively but that the numbers keeping to the science and engineering path may fall away as they progress with their studies.

A report for the Engineering and Physical Sciences Research Council and Yorkshire Forward based on 2,400 interviews with Key Stage 3 Pupils (age 11-14) indicated that 77 per cent liked learning about technologies and 42 per cent believed that engineering was relevant to their lives.⁴ Twenty six per cent aspired to professions in science, technology, engineering and mathematics (STEM) (including medicine, engineering and design), only one per cent fewer than the proportion who wanted to become a pop star or footballer. Within STEM, Design and Technology was most popular (see table below) which perhaps reflected the fact that science was perceived as most difficult (45 per cent).

Table 6.2

	<i>Want to study post GCSE</i>	<i>Interested in job involving</i>
Science	34 %	26 %
Maths	42 %	35 %
Design & Technology	44 %	38 %

Source: Engineering a Better World: Lessons Learned, People Science and Policy Ltd, May 2008.

However, despite this 'latent' enthusiasm, only 16 per cent thought they could attain such STEM 'dream jobs' and many felt that science and engineering careers were 'not for them'.

Another study which looked at the career aspirations of 14-19 year olds found the most popular sectors young people wanted to work in (unprompted) were science and health care (27 per cent) and skilled manual work (23 per cent) followed by arts/fashion (15 per cent), education (14 per cent), armed forces/police (10 per cent), computing (8 per cent), media (7 per cent), law (6 per cent) and sport (6 per cent).⁵ It is also worth noting that at this age 75 per cent said they had a clear idea of their future career plans.

Table 6.3

Growth in 1st Degree Qualifications 2002/3 – 2006/7

Engineering	- 2%
Chemistry	- 10 %
Computer Science	- 11%
Medicine	+ 34%
Sports Science	+ 69%
Forensic and Archaeological Science	+ 276%

Source: 'The Demand for Science, Technology, Engineering and Mathematics (STEM) Skills', Joint BERR/DIUS report, 2008.

However, these data on the popularity of STEM careers need to be treated with some caution. Dividing the sector up reveals that medicine, sports science and forensic science are significantly more popular than engineering, chemistry and computer science when it comes to those studying for first degrees (Table 6.3, above).

In summary, whilst many young people begin with enthusiasm for STEM subjects, many conclude they are too difficult and/or 'not for them' and do not pursue them further. Those who do are more likely to follow medical, sports or forensic science paths.

A mixed picture

So, what limited research exists suggests that there are negative perceptions of manufacturing among young people but that girls' perceptions are more negative than those of boys. Views of science, technology and engineering are broadly positive (though with some confusion around what engineers actually do) but the terms science and technology hide a significant variation in career aspirations between say, engineering and forensic science. Whilst there are some useful pointers here the evidence is at best frustratingly limited, at worst, confusing. There is clearly an urgent need to plug this evidence gap. However, if we wait for the research we delay our chances of encouraging more young people into the sector; doing the market research, whilst essential, doesn't negate the need to come up with a marketing strategy. So, how can we promote more positive perceptions and encourage more young people into the sector? First, we need to know who influences young minds.

Who influences perceptions and career decisions?

A 2004 Royal Society study led by Sir Magdi Yacoub surveyed the views of young people, scientists and careers advisers on the main influencers of career choices.⁶

Young people indicated they were influenced most by family, school, media and wider expectations of teachers, peer group etc.

Scientists said they had been most influenced by their own ability, role models (especially family members) and school lessons and teachers.

Careers advisers (Connexions Personal Advisers) believed that the biggest influence on 14-16 year olds was the advice of their parents. Also rated highly were role model schemes, visits to employers and subjects enjoyed most at school. Rather surprisingly, the careers advisers did not believe that they themselves had much influence on career choices. They also felt that they did not have enough information on career opportunities for young people in science, engineering or technology.

Separately, research by the Learning Grid on the main influencers of first year engineering undergraduates gave the following positive and negative rankings (Table 6.4, below).⁷

It is notable that according to this study, not only were parents and teachers the most positive influencers but that careers advisers were the most negative ones. So if we are going

to influence young people we need to influence their parents and teachers. This suggests a combination of PR and targeted initiatives aimed at children in defined age groups (certainly before they select their GCSE options at 14) and at their parents and teachers.

Table 6.4

First Year Engineering Undergraduates—Influencers

	Positive	Negative
Parents	57%	3%
Relatives	15%	2%
Friends/peer group	17%	6%
Teachers	26%	5%
Careers advisers	11%	7%

Source: Private communication, Learning Grid, 2008.

Effectiveness of intervention

There is some evidence on the effectiveness of interventions aimed at influencing young people's perceptions of careers.

Enterprise education is now a formal part of the curriculum and many initiatives, including Enterprise Insight's 'Make Your Mark' campaign, have invested in encouraging young people to consider the option of setting up their own businesses. This has of course been complemented by the many TV programmes such as *Dragon's Den* and *The Apprentice*. The Businessdynamics study 'Student Attitudes to Business 2005' showed the percentage of 14-19 year olds interested in setting up a business increased from 33 per cent in 2001 to 43 per cent in 2003 to 53 per cent in 2005. The increase was even more rapid for females, from 35 per cent in 2004 to 51 per cent in 2005. This is a fairly spectacular success if true and shows just what might be achieved. Further research to corroborate these findings would be helpful.

Table 6.5: Perceptions of Engineers and Scientists

	Pre scheme	Post scheme
Dirty hands	38%	22%
Clever	56%	69%
Well paid	24%	38%
Professional	47%	51%
Sweaty	13%	8%
Repair cars	45%	23%
Experiments	14%	28%
Male	24%	11%
Female	3%	2%
Wears overalls	29%	14%
Has a degree	38%	44%
Gets things done	62%	54%
Logical	36%	53%

Specific initiatives in engineering have also demonstrated success. The Engineering Development Trust's Go4SET initiative showed how pupils' perceptions of engineers and scientists improved having participated in the scheme (Table 6.5).⁸

What next?

The contrast between the cab driver's view and the young female engineering apprentice working for LTI Taxis is stark. Whilst the research evidence is inadequate and needs to be addressed, there is no doubt that there are many young people out there who want and would benefit from a career in manufacturing and engineering. It is also clear that many are not getting the information and advice they need from the people in whom they place their trust.

The media is part of this, and we must work hard to promote more stories that reflect the positive messages about manufacturing; those that tell of the new innovations that are changing our lives or contributing solutions to major challenges such as climate change or the spread of disease. And, whilst the parents and teachers may be influenced by what they see, hear and read in the national news media, we must remember that young people are touched by a different set of media, much of it online.

However, the evidence presented above shows that direct intervention can play a key role. Government, the education sector and most importantly business, must support such direct interventions. Exposure to role models, company visits and work experience have been shown to make a real difference.

Government is investing significant amounts in the promotion of science education and careers, apprenticeships and the new 14-19 Diplomas (which include Engineering and Manufacturing and Product Design). It has also announced the establishment of Manufacturing Insight, an initiative to support activity to promote more positive perceptions of manufacturing.

Teachers have new responsibilities to ensure careers advice and information is provided effectively and must be helped to recognise the very real and exciting opportunities that exist for young people in the manufacturing sector.

And manufacturers, despite the current economic challenges, must step up to the mark and engage and support the activities that will ultimately deliver them the potential workforce of the future.

None of this can happen without investment of effort and resource. Could this be the first real challenge for Peter Mandelson's new 'Industrial Activism'?

Managing Manufacturing

John Philpott

UK manufacturing often gets a bad press. Although the sector employs around one in ten of all workers in the economy compared with one in three a generation ago, its overall performance has improved greatly in recent decades despite increasingly intense global competition. But in a fiercely competitive world, performance must continue to improve by leaps and bounds simply to maintain a foothold in contested markets.

The challenge facing UK manufacturing businesses in the coming decades is therefore straightforward and well known. All manner of manufactured goods can now be produced much more cheaply in emerging economies, which increasingly also have access to advanced technology and higher skills as well as an abundance of low-cost labour. UK manufacturers must therefore more than ever before base their competitive strategies on product quality rather than price.

Quality products are typically rich in design specification and brand value, and nowadays often customised. They normally require heavy investment in technology and make particular use of advanced information and communications technologies. But of crucial importance is the contribution of the people who produce them, in particular the knowledge and technical skill they provide. In a global economy where people are vital to raising the value of products, the performance imperative confronting manufacturing businesses is thus to switch from business models that treat workers as costs to be minimised to models that instead manage workers as valuable capital assets.

Meeting this imperative requires a fundamental shift in management practice—the necessity of which is too often overlooked in debate over the renewal of manufacturing which tends to focus primarily on increased investment in technology and skills.

Does management matter?

A successful manufacturing sector will of course have to be firmly based on investment in physical and human capital. But just as important is managing investment to maximum effect.

Most explanations of why UK manufacturers don't always fare as well as they might in global markets essentially boil down to understanding why some countries have better-equipped and better-skilled workers than the UK (sometimes called the resource gap) and why some countries make better use of those resources (the efficiency gap). Management is in turn considered to influence the UK's relative manufacturing performance in two main ways: management decisions on investment that underlie the resource gap, and management practices that determine the efficiency gap.

This was the starting point for a study of UK competitiveness prepared for the DTI and the Economic and Social Research Council (ESRC) in 2003 by renowned American business

guru Professor Michael Porter.¹ In common with legions of analysts, Porter attributes deficient global competitiveness in the UK primarily to paltry investment in research and development and inadequate workforce skills. This limits the ability of organisations to improve the quality of products and services, with the result that many seek to compete downmarket on the basis of low cost using low-skilled workers.

Porter attributes adherence to uncompetitive business strategies as much, if not more, to the UK style of government than any failure of management per se. Not only have successive governments failed to invest enough in the necessary public infrastructure (resulting in particular in a preponderance of people lacking basic skills, plus a creaking transport system) but also the state plays too heavy-handed and over-centralised a role in developing the nation's competitiveness strategy.

By comparison with this systems failure, Porter finds little evidence that UK management is significantly lagging behind other countries, pointing only to deficiencies in the skills (i.e. qualifications) of the lower and middle ranks of management and some evidence of relatively late and low uptake of modern management techniques. Consequently, he concludes that problems arise mainly because UK managers have little option but to adapt themselves to the economic, social, political and institutional context in which they work.

While accepting that 'there is always room for improvement', Porter therefore contends that 'management practices are not at the core of the UK competitiveness challenge'.

This rather equivocal verdict is, however, at odds with CIPD-funded research on the link between people management, manufacturing productivity and performance and also the findings of an ESRC comparative study of management practice in 700 manufacturing companies covering the UK, United States, France and Germany, conducted jointly by researchers at consultants McKinsey & Company and the London School of Economics (LSE).²

For example, a longitudinal study for the CIPD³ conducted by Malcolm Patterson and colleagues—published in the late 1990s—of medium-sized UK manufacturing businesses found that 18 per cent of variation in productivity and 19 per cent of variation in profitability are accounted for by people management practices. These were more powerful predictors of company performance than strategy, technology or research and development. Other CIPD research, including a report published jointly with the EEF in 2003, has established links between people management practices and value added per employee, as well as other beneficial outcomes such as lower voluntary labour turnover, which eases staff retention problems and cuts overall recruitment costs.⁴ It also found that senior management and team cohesion within organisations is a significant factor in translating higher productivity into higher performance and higher profits.

In similar vein, the McKinsey/LSE study scored companies on the adoption and use of lean production techniques and what the researchers describe as 'people management variables' (target-setting, performance management and talent management).⁵ A strong positive correlation was found between a high standard of management practice,

productivity and a variety of performance indicators (sales per employee, growth in sales and market share, and market valuation). And in this respect there is bad news and potential good news for UK managers.

The bad news is that, on average, UK manufacturing companies are the worst managed, with the United States, Germany and France first, second and third, respectively. The German and French companies outscored both their United States and UK counterparts on their use of lean production methods (just-in-time production and stock control, quality control etc.). But the United States companies easily came top on people management (on which indicator incidentally the UK is ahead of France). Taken together, the gap in management practice is found to explain 10–15 per cent of the total factor productivity (or efficiency) gap between UK and United States manufacturers.

The potential good news for the UK lies in the fact that the quality of management practice varies much more within than between countries. The country a company operates in accounts for only two per cent of its overall management score, 58 per cent being accounted for by what managers choose to do. This finding is particularly significant for the UK for two reasons.

First, the UK has a relatively wide spread of company performance—the best companies match the top dogs in the United States, the worst lag far behind—suggesting considerable scope for catching up. Second, as the McKinsey/LSE researchers observed, ‘there is apparently nothing intrinsic to the local environment in each of the four countries to prevent companies from achieving top scores in management practice’.

In other words, when it comes to explaining cross-country differences in productivity and performance, the quality of management, and especially people management, does indeed matter. In common with Porter, the McKinsey/LSE study found links between management practice and contextual or systems factors. These include management skills, workplace skills in general, regulation, and competitive pressure, which weeds out the less efficient businesses. But the researchers concluded that, ‘it is ultimately the management practice choices made by individual managers that will make the difference’.

So UK managers, just like their overseas counterparts, have it in their own hands to raise their game, not least in terms of how well they manage people. But what precisely is high performance people management—and what prevents many UK manufacturers from implementing it?

High performance people management

High performance people management is not an art that businesses simply happen to pursue but the result of the exercise of a coherent range of management practices that must be learned and rigorously applied.

Emphasis on the increasing importance of the knowledge contribution to business has spurred international research looking in detail at the internal workings of organisations (the metaphorical ‘black box’) to identify the causal mechanisms that underlie the

established statistical link between people management practices, productivity and performance. The CIPD, for example, funded its own extensive three-year case studies project conducted by Professor John Purcell and colleagues at the University of Bath.⁶ The CIPD was also closely involved with (what was then the) DTI-supported case study research on high-performance working by Dr Johnny Sung and Professor David Ashton of the University of Leicester.⁷

From the findings of such case studies it's possible to identify some common overlapping elements that give rise to high performance people management practices, comprising those covering recruitment, training, job appraisal and reward, job design, job quality, flexible working and communication with staff. More specifically, these practices include ongoing work-based learning, self-managed teamworking and profit- or performance-related pay systems. Used in the appropriate combination and tailored to the circumstances of each organisation and its workforce, these practices create the conditions for a high level of employee commitment and performance.

The implementation gap

Despite the evident statistical link between people management, productivity and organisational performance, and mounting evidence of what organisations need to do, research suggests that, at most, only one in five UK organisations are implementing the necessary people management practices in a consistent way. Around two in five organisations apply more than 20 such practices, but take-up of specific practices varies considerably. For example, according to the DTI High Performance Working study, while over 90 per cent operate annual appraisals, only two-thirds offer staff flexible working options, only one-third offer performance-related pay to all employees, and only a quarter organise staff into autonomous self-directed work teams. Moreover, there is little to suggest that UK organisations are making rapid progress in implementation.

The 2004 Workplace Employment Relations Survey (WERS, part-sponsored by the DTI)⁸ found that both the incidence and operation of teamworking, and the proportion of staff equipped to be multi-skilled (or functionally flexible) had changed little since 1998 (the year of the previous WERS). Only in six per cent of workplaces are teams given autonomy to appoint their own leaders. There was an increase of six percentage points between 1998 and 2004 in the proportion of workplaces organising non-managerial staff in problem-solving groups, although, even in the latter year, the overall incidence of workplaces where this occurred was small (21 per cent).

The overall result is a management practice 'implementation gap'. There are four main causes: ignorance, inertia, inadequacy and impediment.

While heads of organisations talk constantly about 'making the most of our people', some are ignorant of the potential advantages of productive people management or fuzzy about what it entails. A multi-sector survey of chief executives of 462 UK organisations—conducted in 1999 by Professor David Guest⁹ with funding from the ESRC and the CIPD—

found that only one in ten considered people management a top priority ahead of financial or marketing issues, despite that fact that two-thirds reckoned they relied on their people as a significant source of competitive advantage.

Others, however, explicitly reject productive people management practices because of inertia; the necessary change is thought too costly or too difficult, or the benefits uncertain when compared with tried and trusted ways of working, even though these may not be delivering spectacular results. Consequently, organisations may hold back from implementing such practices unless or until faced with severe competition or market difficulties—at which time it might be too late to respond.

In contrast with the ignorant or the inert, organisations may be aware of the potential advantages of productive people management but are simply inadequate to respond or unable to implement it because of some impediment. Inadequacy may stem from lack of information on what might be done or lack of advice on how to do it. Impediments come in many forms: the inability of senior management to win the hearts and minds of line managers and employees to achieve a necessary reorganisation (for example, where a history of mutual mistrust creates resistance to change); lack of necessary management or workplace skills; or regulations that make it difficult to introduce necessary changes to working practices.

Can public policy alter management practice?

The implementation gap is evident across the economy but is particularly worrying in manufacturing given the sector's exposure to global competition. All four main barriers to the implementation of high performance people management—ignorance, inertia, inadequacy and impediment—are in principle amenable to the influence of public policy intervention. But can policy really influence management behaviour at the micro level?

Decisions over management practice is largely a matter best left to businesses themselves, though government might do more to nudge business in the right direction.

Improving education and training provision to raise the supply of skilled workers to UK manufacturing—especially science, technology, engineering and maths—is obviously necessary in this respect. But there is also scope for government to give a higher priority to management training.

This should involve requiring all public bodies offering organisations advice and support on learning and skills and business development to emphasise that high performance management practice is essential if skills are to be used to maximum effect. The government should also consider increasing the amount of public investment allocated to management skills training, assuming that such training can be shown to generate a positive rate of return and enable more UK manufacturing business to compete successfully in global markets.

Britain's Economy: The Disaster After This*

Alan Reece

The present economic difficulties are worldwide and will be overcome, but Britain has an additional, more insidious, problem from which it shows no sign of recovering. Its unique abandonment of manufacturing and, with it, physical science will ensure its continuing decay. This paper was written in 2006 to describe the magnitude of this problem. It does not attempt to describe what can be done to avert disaster.

The paper proved to be unpublishable and its conclusion unacceptable in top political circles, whether Government or Opposition. The notion that we could not have a long term future without making, growing and mining was greeted with repugnance by those in power, people who make money out of money. Now that they have become somewhat discredited, a small demand has arisen for an updated version of the paper.

Our economy can be divided into two parts: one is purely internal and accounts for about 80 per cent of total economic activity; the remaining 20 per cent is connected to the outside world. The internal part is very vigorous but, probably, seriously inefficient since about half is managed by the Government. It is almost entirely about services, and grows continuously at two to three per cent per annum. The external part is concerned with the supply of food, energy, raw materials and manufactured goods; only 60 per cent of this is made in the UK and of that much is made by foreign-owned companies. This is described by the Office of National Statistics in its annual Pink Book, which deals with trade in both manufactured goods and services.

A general economic principle is that the world will not provide a sovereign state, which has its own currency, with goods and services, without full payment. This means that the sum of exports must equal the sum of imports; hence the importance of Trade Balances. The difference between the sum of the positive and negative balances is called the Current Account, which in the long term must be zero. In the short term a negative balance can be sustained by borrowing or by selling capital assets. A continuing negative Current Account will result in a devaluing of the currency, making exports cheaper and imports dearer, until the balance is restored. The USA has a long-term negative Current Account, rising to 6.3 per cent of GDP in 2006, which has resulted in a massive devaluation of the dollar, a much more important currency than the pound. In 2008 the pound devalued by 25 per cent, even against the falling dollar.

* A more detailed account is contained in a longer paper 'No Future for Manufacturing and Science in the UK?' Copies can be obtained from: pearson@pearson-eng.com

There is a general impression that we are so good at services that we do not need to try very hard at making the goods we require. This is not true. There is only one service in which we have a positive balance and that is Financial Services, at which the City has excelled.

There is also another source of foreign money that is not a service, but is also provided by the City. This is the profit on investment abroad and, at present, we make more income from money we lend than from money they lend us. However, this seems to be temporary good luck. Income was negligible in 1999 and 2000 and fell from £22 billion in 2005 to £9 billion in 2006. It is described in *The UK Current Account and All That* by Stephen Nickell, 2006.

All other services, except Financial, make a steady trading loss of about £10 billion a year; this loss is mainly made by Transport and Travel. The Government does its bit, spending about £13 billion a year more abroad than it receives, fighting overseas wars and belonging to organisations like the EU. This is a slowly increasing drain, which in 2007 amounted to £32 billion.

This leaves two balances, which are varying systematically with time, as shown on Figure 1 (p. 50). In the Pink Book Financial Services are subdivided into insurance, financial, computer and information, royalties and other business. Their positive balance increases with time in an astonishingly linear way, reaching £61 billion in 2007.

Trade in Goods is subdivided into 14 parts, ranging from food, fuel and other basic materials through to motor cars, ships and aircraft. Thirteen of these sectors are negative, leaving only chemicals as the single light in the darkness. This negative balance also increases with time, reaching £89 billion in 2007. We are consuming more but making less!

Figure 1 also shows the Current Account in billions of pounds. In 2007 the sum of the positive balance of Financial Services (+61) and Income (+9) and the negative balances of Transport and Travel (-19), Current Transfers (-14) and Trade in Goods (-89) resulted in the Current Account deficit of (-53).

This is -3.4 per cent of Gross National Product. If the collapse in our ability to export continues we can expect that, within the next year or two, it will exceed the US level of -6.3 per cent and the previous UK maxima of -4 per cent in the mid-70s and -5 per cent in the mid-80s. As has happened in the USA, this has caused the pound to devalue, which should result in an increase in exports and a decrease in imports. However, the UK no longer has the ability to increase significantly the output of exports: there are no longer the factories or skilled workers and scientists and engineers required for this. There is no sign of any reduction in the rate at which manufacturing is being moved overseas.

There are two processes that have resulted in the dramatic decline in the balance of trade since 1997, when our Current Account was in balance. The first, shown in Figure 2 (p. 50), relates imports, exports, manufacture and consumption. In 2007 we consumed much more (£221 billion) than we made (£150 billion) compared to 1997, when we also made £150 billion but only consumed £160 billion.

Secondly, while in money terms UK manufacturing output has remained steady at £150 billion over the ten years from 1997 to 2006, inflation means that the quantity of goods has actually fallen. This is roughly measured by the retail price index, which indicates that the actual volume of goods manufactured has fallen to 75 per cent of what it was in 1997. We now make less and consume much more so that the ratio of goods made to goods consumed, as shown on Figure 2, is 150 divided by 211, which equals 0.7; in 1997 this ratio was 150 divided by 162, which equals 0.9. This 25 per cent fall in output at the same time as an increase in consumption is a unique feature of the British economy.

Figure 2 shows that manufacturing output in Germany is now 2.5 times that of the UK: its modern, automated factories are taking the making of chocolate from York and fish fingers from Hull. More important by far is the loss of the design and development of Rolls Royce aeroplane engines from Derby to the USA and Germany. Between January 2000 and 2006 manufacturing grew by 16 per cent in Germany, 11 per cent in the USA, eight per cent in Canada, seven per cent in Japan and two per cent in France. The Euro countries, as a whole, have a slight positive balance of trade in goods.

The process of giving up manufacturing shown on Figure 1 was triggered by North Sea oil and sustained by selling our major companies, which were the ones that could afford research and development. Manufacturing is the pay-off for science and provides the critical mass of money and people needed to support the more academic activity. It is not surprising that university science and engineering departments are closing and that the calibre of students is falling. What manufacturing is left is in the small low-technology companies, which cannot afford research or high salaries. It is sometimes said that we are becoming a developing country. This is an understatement: we are a de-developing country!

The situation in which a once powerful industrial power is giving up making, mining and growing things, while maintaining its own currency, is unique. It is partly a consequence of our historic inability to combine technology with business sense and managerial skills. This is the main reason for the disappearance of manufacturers of power stations, ships and ship repairs, motor cars, trucks, tractors and other farm machinery, medical scanners etc. This inadequacy is amplified by a unique policy, common to all British political parties and employers' organisations, of free trade, free flow of capital—and no government attempt to assist manufacturing.

There are three recent examples of this, on a grand scale! Just when it became clear that we would have to build a dozen nuclear power stations, at a cost of up to £30 billion, the Government decided to sell the world's leading nuclear company, Westinghouse, which it owned, to the Japanese: a decision that we should not recreate our own nuclear industry! Why not? This was promptly followed by selling our 20 per cent of Airbus to the French, Germans and Spanish for a mere £1.9bn. Within a few years we will be out of wing manufacture, worth about £3 billion a year. Discouraged by this, Smith's has sold its aerospace division to General Electric of the USA for £2.4 billion. Surprisingly, it is agreed

that agriculture should be subsidised **as long as no extra production results!** In 2004 we had a negative balance in food products of £15 billion and in dairy products of £1.1 billion. And we are destroying dairy farming at an unprecedented rate!

Modern society changes because of developing science and its practical application through technology. Our neglect of this is resulting in the degradation of a once great nation. The cause is the concentration of political power in the City of London, where it is wielded by men who know little about anything but money, and, as we have painfully learned, little about that either!

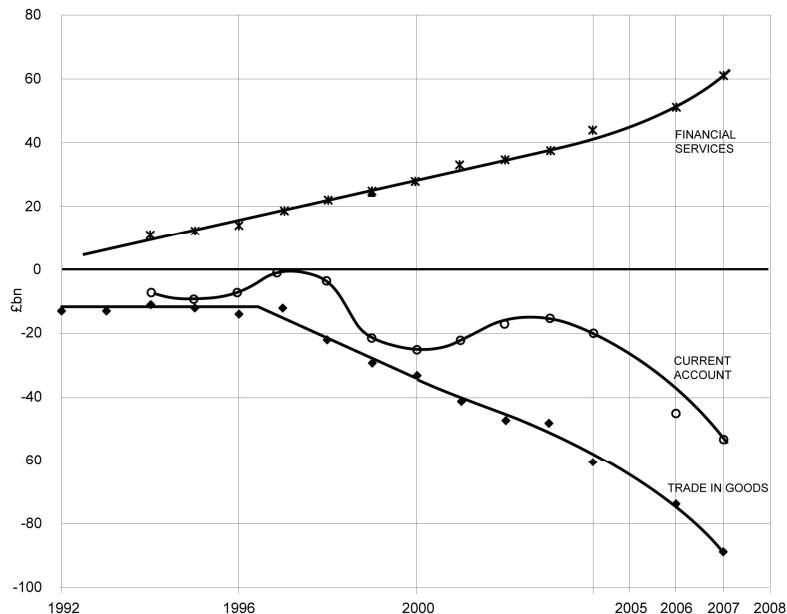


Figure 1 - The UK economy. From perfect balance in 1997 to rapid collapse in 2006

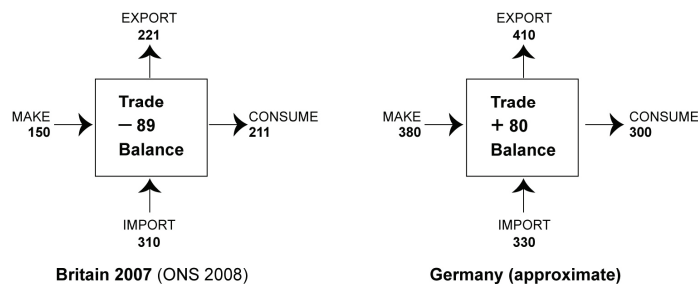


Figure 2 - The flow of goods in and out of the UK in 2007 and Germany in 2005

Manufacturing and the Balance of Payments

Robert Rowthorn

Over the past 60 years the British economy has undergone huge structural changes.¹ In 1950 the UK was a great industrial power with more than a third of its labour force employed in the manufacturing sector and a further million in coal mining. There was a trade surplus in manufactured goods equal to ten per cent of GDP and the country was a net exporter of energy. Since then, employment in the manufacturing sector has shrunk dramatically and coal mining has almost disappeared. There is now a manufacturing trade deficit equal to four per cent of GDP and, after a brief interlude following the discovery of North Sea oil, the UK is now a large net importer of energy. The gap left by the decline of our traditional industries has been filled by a whole range of service activities, which now account for the bulk of employment and, collectively, earn a valuable trade surplus. In addition, the country enjoys large net earnings in the form of interest, profits and dividends from international investment.

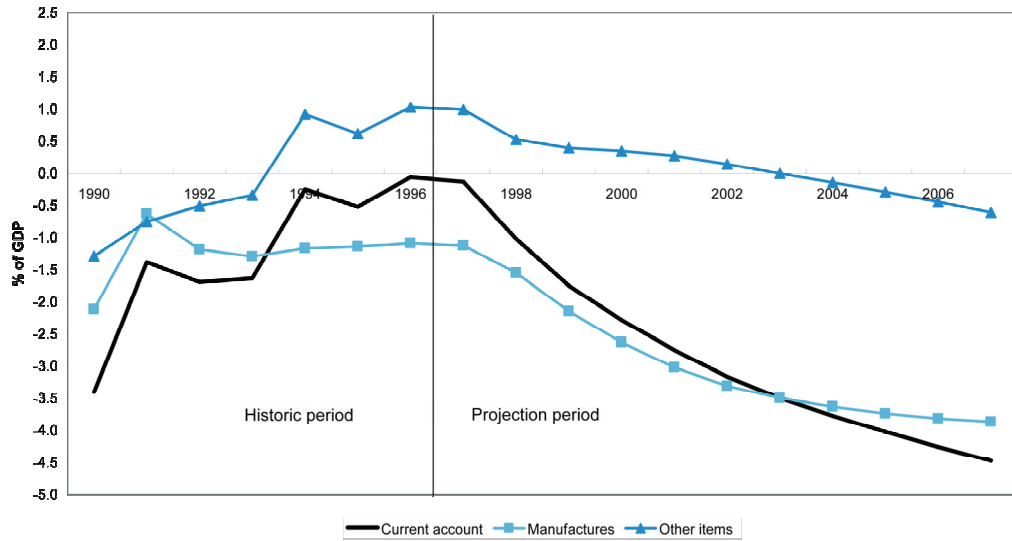
The costs and benefits of these changes, and what could or should have been done about them, were at one time hotly debated. However, these concerns were eventually buried during the euphoria of a prolonged economic boom and the recent bubble in house and share prices. They are now resurfacing following the credit crisis and the onset of the present recession. There is a widespread feeling that something has gone wrong, that the economy has become dangerously unbalanced, and we have put too much faith in finance at the expense of manufacturing. There are also new concerns about food and energy security in the face of exploding world demand and limited supplies.

Past Projections

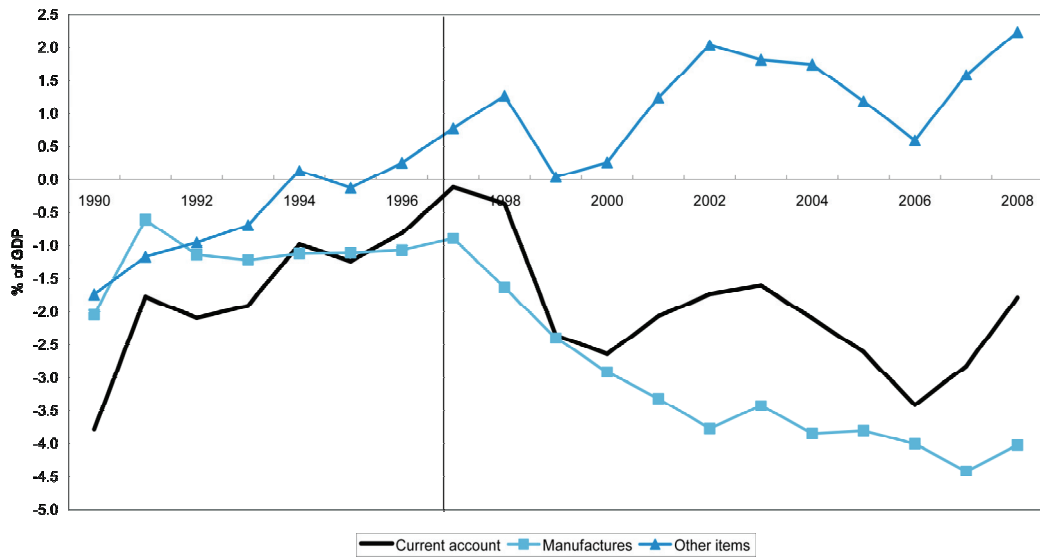
Some years ago a group of us in Cambridge, under the aegis of the Centre for Business Research, set out to investigate the role of manufacturing in the UK economy.² This sector had been shedding jobs for some decades and the pace of decline had been faster than in other countries. The official measure of production indicated that the aggregate output of this sector had been stagnating for nearly 20 years, whereas many other countries had experienced continuous growth in production. Was this situation sustainable over the longer term? In particular, was it compatible with the sound balance of payments required for national solvency? With a weak manufacturing trade performance, would the UK have adequate alternative sources of income to bridge the gap and pay for the imports we require? Indeed, was there any reason to believe that the future trade performance of manufacturing would be so bad?

NATIONS CHOOSE PROSPERITY

**Figure 1. Major Components of the UK Balance of Payments Current Account:
CBR Base Projection 1997-2007**

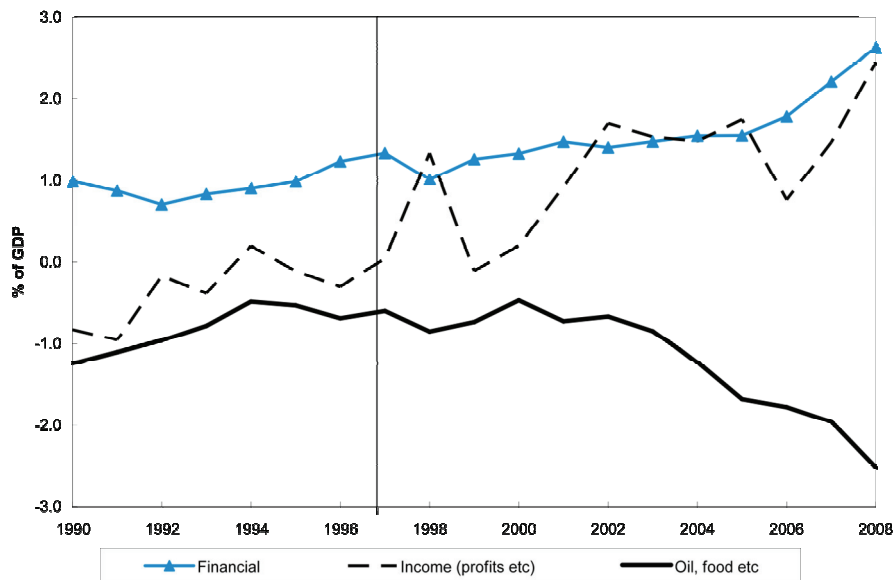


**Figure 2. Major Components of the UK Balance of Payments Current Account:
Actual 1990-2008**



We began our investigations at a time when there was a small deficit in manufacturing trade and a small surplus on the totality of other items. The current account as a whole was close to balance. Our objective was to investigate whether this satisfactory state of affairs would continue, and to see if there were underlying trends that might disrupt this equilibrium and give rise to serious payments difficulties in the future. Our starting point for this purpose was the 'Base Projection'.³ This projection represented our best econometric estimate of what would happen over a ten year horizon in the absence of unforeseen policy changes or shocks.⁴ Under this projection there was a steady deterioration in the overall current account culminating in a deficit equal to 4.5 per cent of GDP in 2007 (Figure 1). In the event, the current account did deteriorate but by much less than projected (Figure 2).

Figure 3. UK Balance of Payments Selected Items
Actual: 1990-2008



To understand where we went wrong it is useful to examine separately what actually happened to manufactured and non-manufactured items in the current account. We projected that the trade balance in manufactures would get steadily worse, culminating in a deficit of around four per cent of GDP in 2007. This turned out to be an accurate forecast, and our projection of the manufacturing balance tracks closely what actually happened. We also projected a worsening situation in the rest of the current account, driven mainly by the growing interest payments that we assumed the UK would incur as the result of borrowing to finance the widening trade deficit. In the event, there was a significant improvement on

the non-manufacturing side of the account, which explains why the current account as a whole performed better than expected.

The behaviour of the non-manufacturing side of the account has been dominated by three items, all of which have been subject to large changes in recent years that we did not foresee (Figure 3). These are as follows:

- *Finance ('The City')*. Net overseas earnings of the financial sector have been on an upward trend for a considerable time. Starting in 2005 there was also a spectacular boom in which these earnings rose by 60 per cent within the space of two years. Our projections got the upward trend, but not the recent boom.
- *Investment income*. The UK's investment income has fluctuated widely over the years, but has been on an upward trend. This improvement has occurred despite the fact that the country has been in deficit and borrowing from the rest of the world throughout the entire period. The explanation for this apparent paradox is as follows. The UK borrows and lends on a massive scale. However, the composition of assets and liabilities is different and the rates of return on these assets are also different. Direct investments, which are the investments which companies make in connection with their overseas operations or alliances with foreign companies, earn an average rate of return of 8-10 per cent, whereas the average return on other investments is 4-6 per cent. The UK has a surplus on high paying direct investment and a deficit on other types of investment (Table 9.1). In this and other ways, the country gains by borrowing cheap and lending dear. The result is a substantial net investment income despite the fact that borrowing exceeds lending. Our projections did not take this factor into account, although it is not clear how we could have done so. Problems also arise because statistics in this area are subject to major revision, there are large capital market revaluations, and net flows are seriously affected by exchange rate fluctuations and other shocks.

Table 9.1: UK International Investment position 1997-2008

£billion	1997	2007	2008
Net assets			
Direct Investment	58.6	283.8	362.0
Other Investments	-111.7	-581.0	-428.4
Total	-53.1	-297.2	-66.4
Net earnings			
Direct investment	14.6	45.4	65.8
Other investments	-14.4	-24.2	-32.1
Total	0.2	21.2	33.7

Source: *Balance of Payments Pink Book 2008*, ONS; table 1.3, UK Balance of Payments, 4th quarter and annual 2008, First Release, ONS, tables D and G.

- *Non-manufactured goods.* For some time before and after our projections began in 1997, the UK had a modest deficit on trade in these items. Net earnings from oil were outweighed by expenditure on imported food, minerals and the like, but the gap was quite small as a percentage of GDP. However, from the turn of the century onwards the situation became much worse under the impact of falling UK North Sea oil production and rising import prices. Our projections took into account the fall in oil production but not the large increase in oil, food and mineral prices.

The purpose of listing these failings is not to defend our projections but to identify some of the pitfalls involved in such an enterprise and to highlight the inherent uncertainty surrounding some of the major items. In response to a question about what is the most important thing in political life, Harold Macmillan famously replied 'Events, dear boy, events'. The same could be said about the balance of payments. Without the unforeseen growth in overseas investment income and the recent boom in City earnings, there would have been a very large deficit in the current account in 2007. Conversely, without the unexpected rise in energy and food prices, the current account would have been in surplus in that year. With hindsight, these developments can be explained, but they were not widely foreseen at the time. This should be a cautionary tale for anyone who ventures into the field of medium- or long-term forecasting.

Looking to the future

What has happened and the fate of our projections are now water under the bridge. What about the future? What now are the prospects for the UK balance of payments? To what extent will national solvency in the future depend on the strength of the manufacturing sector? What is likely to be the performance of this sector in the absence of major new policy initiatives? If manufacturing performs badly, will other sectors be able to fill the gap and generate the income required to pay for our imports? These are the questions the CBR group in Cambridge explored in our original projections. After more than a decade, we are about to revisit this topic and, hopefully, produce a new set of projections. At the time of writing this work has hardly got under way so there is not much to report. The only thing to say is that we are older and, hopefully, wiser. One thing we have learned is that certain large items in the balance of payments are subject to great uncertainty and that any longer term projection is subject to a very large margin of error.

A useful starting point in this context is to consider orders of magnitude. What matters are not just the future growth rates of particular items but also how large these items are initially. The two largest items in the balance of payments by a long way are manufactures and income from overseas investment (Table 9.2). Despite all the changes that have occurred, manufactured exports are still three times as large as the export earnings of the entire City of London or of the whole gamut of business and other knowledge-based

services (architectural, construction, legal, educational, computer & information services, royalties & fees, etc. etc.). A ten per cent rise in manufactured exports combined with a similar fall in manufactured imports would generate £45 billion improvement, which is more than total UK net earnings from financial services. A ten per cent reduction in the amount of investment income we receive combined with a ten per cent increase in what we pay out, would lead to a net loss of £51 billion. These are huge figures. They are similar in magnitude to what our imports of fuel would cost if North Sea oil dried up overnight and energy prices returned to their peak value of last year.

Table 9.2: Main Items in the UK Current Account Balance of Payments 2008

£ millions				
	Credits	Debits	Balance	% GDP
Surplus Items				
Finance & Insurance	59,501	16,228	43,273	3.0
Other knowledge-based services	65,521	38,918	26,603	1.8
Investment income	271,299	237,551	33,748	2.3
Deficit Items				
Transport and Travel	36,959	57,018	-20,059	-1.4
Manufactures	194,121	251,439	-57,318	-4.0
Fuels	34,846	47,755	-12,909	-0.9
Food, beverages and tobacco	13,738	31,174	-17,436	-1.2
Other non-manufactured goods	8,383	13,596	-5,213	-0.4
Current transfers	15,751	29,375	-13,625	-0.9
Residual and items n.e.s.	5,184	6,742	-1,557	-0.1
Current Account	705,303	729,796	-24,493	-1.7

Source: UK Balance of Payments, 4th quarter and annual 2008, First Release, ONS, tables B,D, E, F and G.

With these points in mind, here are a few observations about what may happen to the main items in the non-manufacturing balance of payments. They rest upon no formal econometric analysis and are at the highest level of generality. Their purpose is just to give a general orientation.

- *Financial Services.* There may be a temporary decline in City export earnings but the long term prospect is for continued growth.⁵ At the height of the credit crisis there was loose talk about the collapse of the City and the need to find alternatives to replace it, but this seems exaggerated. It is too early to say what the eventual effects of the credit crisis will be, but the latest statistics indicate that UK exports of financial services were still rising

in the fourth quarter of 2008. This could be a statistical artefact because of the way trade in financial services is measured, or it could be that the effects of the financial turmoil on exports were not yet visible. Taking a longer view, it seems likely that global finance will become more regulated, more conservative, and on average less profitable in the future. In themselves, these changes are likely to harm the City and reduce UK financial exports. However, they should be seen against the wider background of world economic growth. The current recession will not last forever and prospects for UK financial exports should improve when the recession ends and world economic growth resumes. Whatever happens in the short term, the longer term prospect is for continued growth in net earnings from financial services, perhaps at a slower pace than before.

- *Other knowledge-based services.* There should be continued growth in net exports in business and other knowledge related services. This is a very heterogeneous category and the UK is well-placed to expand in many of these activities. However, a decline of the national manufacturing base could damage exports of services that rely on geographical proximity to manufacturing.
- *Investment income.* This is a large and volatile item and it is difficult to know what will happen to it in the future. The official figures for investment income are also subject to such large statistical revisions that it is difficult to know what has actually happened to it in the past. The simplest working hypothesis is to assume that this item will stabilise as a percentage of GDP.
- *Fuels, food and minerals.* This is also a difficult item to predict. UK North Sea oil production is likely to fall, but what will happen to oil, food and mineral prices is anybody's guess. Over the very long-run it is conceivable that world population growth plus rising incomes will cause such massive shortages that there will be a large and permanent rise in world prices for these items. However, one cannot be sure about this. Such predictions were made about the oil price in the early 1980s but it soon fell back again. Also, prices are extremely volatile and what happens in the short-run is no guide to the longer term future.
- *Foreign Travel.* This item is already in deficit and the deficit is likely to grow. The lure of the sun and a rising domestic population mean greater expenditure on foreign holidays by UK residents. There has been a recent improvement on the travel account due to sterling devaluation, but this effect is likely to prove temporary.
- *Transfers.* There is a fairly stable deficit on this item equal to about one per cent of GDP. This is a relatively small item and is likely to remain so. Net transfers to EU institutions make up slightly less than half of the total.

Taking all of these items into account, there is no clearly defined trend in the total for non-manufactured items in the balance of payments. What happens is likely to be dominated by the behaviour of overseas investment income and world energy, food and

mineral prices. With continued growth in net investment income and low world prices, the UK could finance a further deterioration in the manufacturing trade balance. However, this combination is by no means certain. It is possible that net investment income will fall and it is conceivable, perhaps likely, that world energy, food and mineral prices will rise steeply. In this eventuality, even the present manufacturing trade deficit would be unsustainable and a significant improvement in this area would be required.

Conclusions

The balance of payments case for a stronger manufacturing sector is not that the UK is facing a looming catastrophe which can only be averted by increasing our net exports of manufactured goods. There are too many unknowns to make such a dogmatic assertion. However, it remains true that our manufacturing trade performance is poor and that this makes us vulnerable to adverse shifts that may emerge elsewhere in the balance of payments. A stronger manufacturing sector would reduce our exposure to these potentially serious risks. To the extent there is a balance of payments case for providing preferential support for manufacturing it must rest not on grounds of absolute necessity, but on grounds of diversity and risk aversion. As always, there is a trade-off between specialisation and diversity. By concentrating on a few activities, the UK reaps the benefits of specialisation, but exposes itself to new kinds of risk. By diversifying into a wider range of activities, it reduces these risks but maybe at the cost of spreading itself too thinly. This is not just an issue which concerns the manufacturing sector. The same issue arises in other areas such as agriculture, where support for domestic food production may reduce our dependence on uncertain food supplies but at the cost of diverting resources that might be used more profitably elsewhere. In the case of manufacturing, it boils down to what are the likely costs and benefits of a deliberate policy to increase the weight of this sector in the economy as compared to those of a more neutral approach?

Notes

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- 2 Gross Value Added (GVA) measures the contribution to the economy of each individual producer, industry or sector in the United Kingdom.
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- 5 The notes to the ONS First Release on Labour Market Statistics further explain a distinction between the number of jobs and the number of people with jobs. The number of jobs is measured by Workforce Jobs and includes the data on employee jobs as measured by surveys of employees. The number of people in jobs is measured by the Labour Force Survey.
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- 18 EEF, *A Manufacturing Future – competitiveness and taxation in the UK*, March 2009, p. 7.
- 19 EEF, p. 14.
- 20 EEF, p. 15.
- 21 IFS, *Taxation in the UK*, 2008, p. 12.
- 22 Rodrik, p. 107.
- 23 Porter, p. 629.
- 24 Rodrik, p. 107.
- 25 Rodrik, p. 114.
- 26 Rodrik, p. 106.
- 27 Rodrik, p. 116.
- 28 Rodrik, p. 105.
- 29 Porter, p. 624.
- 30 Porter, p. 665.
- 31 Porter, p. 414.
- 32 Owen, G., *From Empire to Europe*, London: Harper Collins, 1999, p. 208.
- 33 Porter, p. 634, p. 645, pp. 651-2.
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- 49 Sainsbury, p. 89.
- 50 Sainsbury, 2007, p. 92.
- 51 Sainsbury, 2007, p. 91.
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