ECONOMICS

BIS | **Department for Business Innovation & Skills**

UK trade performance: Patterns in UK and global trade growth

BIS | **Department for Business Innovation & Skills**

UK trade performance: Patterns in UK and Global trade growth

Contents

List of Tables and Figures

Tables

Figures

Boxes

Acknowledgements

Foreword

International trade is a vital component of the government's growth and prosperity agenda. Hence the Growth White Paper this autumn will foreshadow a further white paper on trade and investment, informed by public consultations and Lord Brittan's review of the UK's trade and investment strategy. UKTI and IPO are also publishing new international strategies.

Given this emphasis on facilitating international trade and investment and increasing UK exports, it is important to review recent UK and global trade performance in order to understand the patterns in trade growth, how growth in UK trade compares to other countries, and how to adapt to future trends.

This paper briefly considers how the global downturn has accelerated the shift in global market share towards emerging economies, but leaves the explanation for the sharp contraction in world trade in 2009 to the many academic publications that have focussed on this question. This contraction was a once in a lifetime event. The period covering the Great Depression and two world wars also had a devastating impact on global trade, but afterwards there were sixty years during which world goods trade fell in only eight years, and never by more than 4 per cent. World trade now looks set to return to growth far exceeding that of world GDP in 2010.

The main focus of this paper, therefore, is unravelling this broad trend of global trade growth and the factors that have driven such a rapid expansion. Analysis of these factors can shed light on how and why UK trade performance has differed from that of competitor countries, and whether pre-2008 patterns in trade growth are likely to continue. These patterns include a shift in global goods market share towards emerging economies; a rapid increase in intermediate goods trade; a shift in developed economies' exports towards advanced manufacturing and services; and increasing demand for differentiated products amongst the middle classes of emerging economies.

This paper also follows the latest trade theory in disaggregating trade growth into growth in the number of exporters and growth in the volumes exported by each firm. Empirical evidence suggests that the majority of national growth in exports arises from new firms entering the export market, or existing exporters entering new overseas markets.

This paper is also timely given the depreciation of the pound sterling in the last few years, and the potential this has to improve the competitiveness of UK exports during the recovery period. The paper considers the effect the previous strength of the pound may have had on the composition of UK trade, and whether the UK's relative trade performance might change as a result of the depreciation.

Ken Warwick
Director-General, Economics & Chief Economic Adviser, BIS

Executive Summary

The dollar value of world trade fell 21 per cent during the global slowdown in 2009. The reasons for such a dramatic fall have been discussed in much detail[1]. However, this was an exceptional abnormality in what has otherwise been a very long and pretty well sustained period of global trade growth. In the sixty years from 1948 to 2008 world trade in goods grew by an average of 10 per cent a year, with growth in each decade averaging at least 7 per cent (in the 1950s and 1990s), rising to 19 per cent in the 1970s. World goods trade only fell in eight of these sixty years, and never by more than 4 per cent in dollar terms (in 2001). Until 2009, world trade in services had not fallen since 1983, and annual growth in trade of both goods and services averaged around 16 per cent between 2002 and 2008.

UK trade in goods and services, meanwhile, grew by an average of 8 per cent per annum between 1985 and 2008, and an average of 10 per cent a year between 2002 and 2008.

World trade already looks set to return to growth rates above 10 per cent this year, and expectations are that global trade growth will exceed global GDP growth well into the foreseeable future.

This paper considers the makeup of this broad trend of high trade growth. What has driven trade to expand faster than GDP? Has trade grown most through new partnerships or through expanding existing trade flows? What have been the geographical and sectoral trends within this growth, particularly for the UK? And how does strong growth in foreign direct investment, especially for the UK, fit in with trade growth? We also look ahead at how future trade growth might develop, and how UK firms can take advantage of the opportunities this will present.

Goods and Services

Increasing trade in intermediate goods has been a major driver of growth in world trade, and since the importance of this form of trade varies across countries, it influences the overall pattern of international trade. Countries such as China have become regional hubs for the assembly of final goods, and as such, their import figures are boosted by imports of unfinished goods and their export figures are bolstered by the exportation of finished goods to

---

[1] See for example, Professor Richard Baldwin's ebook, 'The Great Trade Collapse', available at: http://www.voxeu.org/index.php?q=node/4297

their destination markets, despite a relatively small proportion of the value being added in China.

Given these global supply chains within which intermediate and unfinished goods cross several borders before the product reaches its final destination, the higher tradability of physical products and the often greater liberalisation of goods trade over services trade, goods still dominate world trade flows. Their share declined slightly from 85% in 1980 to 80% in 1992, but then remained around 80-81% until last year, when trade in goods fell further than trade in services, taking the share of trade in services to 21%.

However, this split between goods and services and changes in this division vary massively from one exporting country to the next. Across the world there are countries at both extremes, with either goods or services accounting for over 90% of exports.

Advanced economies have experienced a greater shift in their exports towards services. This is partly due to higher competition in goods from emerging economies, which had pushed advanced economies into producing either higher-value goods or services. It is also because productivity growth tends to occur more within manufacturing than services, lowering the relative prices of manufactured goods and therefore the relative value of total goods exports compared to services. At the same time, the demand for services is also rising.

A significant proportion of services trade is in the services required to support goods trade, such as transport and travel services and business support, hence changes in global services trade mirroring changes in global goods trade fairly closely in most years.

However, further services trade liberalisation and rising demand for professional services has led to increasing exports of these services, both in conjunction with goods exports and independently from other trade flows.

Services account for a relatively large share of UK exports, at 38 per cent in 2008 and 41 per cent in 2009, and the UK share of world services exports is second only to the USA. The UK trade in services account has been in surplus every year since 1966, and this surplus has increased since 1990. Meanwhile, the UK trade in goods account has been in deficit since 1983.

Growth in Exporters and Export Volumes

Recent trade theories help better explain patterns in trade at the industry level, as they take account of differences in knowledge and technology. They also take account of firm level differences, and in particular the finding that firms with higher productivity are more likely to export. This has shed new light on changes in trade patterns.

At the firm level, trade grows either through more firms entering export markets (the extensive margin of trade growth) or through existing exporters increasing the volumes they export to their overseas markets (the intensive margin of trade growth).

The latter may respond more easily to an increase in overseas demand or an increase in foreign demand relative to domestic demand, as production can be expanded or shifted from domestic markets to overseas markets. However, the entry of new firms into the export market is contingent on the costs of market entry.

Only the most productive firms are able to compete on international markets at a sufficient level to justify the fixed costs of entering the export market. Each new overseas market will require a new round of fixed costs, such as researching the market, adapting products and services, overcoming legal and regulatory barriers, establishing contacts and networks and building recognition and market share.

Growth at the extensive margin, therefore, is more heavily influenced by the reduction of non-tariff barriers and improvements in transnational networks and communication, which lower the cost of market entry, as well as increases in overseas demand and improvements in productivity and competitiveness, which could push the potential profits from exporting above the entry cost.

Evidence suggests that the majority (in several cases quantified at around two-thirds) of recent growth in world trade has been through new firms entering the export market, rather than existing exporters increasing their trade flows, though both have been important.

These concepts of the extensive and intensive margins of trade growth can also be applied at the national level: An increase in the number of countries one country exports to, versus higher trade flows between two countries already trading. Or at the product level: A wider range of goods and services traded, versus increases in the amount of each product or service being traded.

The increase in the number of countries trading with each other and the number of products being traded since the Second World War has been impressive. However, countries such as the UK, who are now trading with most countries around the world, and importing and exporting most types of products and services, may now have less scope for further growth at the product and country extensive margin.

Research by IIIS and Eaton et al investigated UK trade performance at the product level, and suggests that lower growth in exports within product categories may explain the UK's lower share of goods exports into key markets: The UK exports nearly as many products as the USA and Germany to key markets, but in considerably lower volumes.

In fact, the UK appears to sell a lower volume of goods at a higher price in key markets than its competitors. This could be due to the higher quality of UK exports, and in particular the internationalisation strategies of UK firms, who have had a greater tendency to use FDI to provide lower quality goods to key markets, and exportation in their provision of higher quality goods. Both these strategies and the competitiveness of UK exports may be altered by the recent depreciation of the sterling exchange rate, although the impact of exchange rate movements should not be over-estimated.

Evidence on growth in the number of UK firms exporting to particular markets by sector, and on mean value of exports per firm, shows considerable diversity across sectors and markets in the respective contributions of the extensive and intensive margins to total export growth. Growth in the number of exporters – the extensive margin – has been more prominent in export growth to some fast growing markets such as China, Russia, and India, but less prominent in others, such as Mexico and Brazil.

With most advanced economies looking to expand existing trade flows with large existing partners such as China and India, and export more of the goods and services they are already exporting, we focus our analysis of the importance of the extensive and intensive margins at the firm level.

Exchange Rate Effects on Trade

Theory and evidence suggest that exchange rate effects on trade are not straightforward, and can be relatively weak. Recent theory suggests that, at the firm level, depreciation is more likely to increase trade at the extensive margin than at the intensive margin: As long as the depreciation is sustained and production is not too import-intensive, a larger number of domestic firms should be able to compete on international markets, at a price and volume sufficient to justify the fixed costs of export market entry.

High productivity existing exporters, however, may not choose to adjust international prices and volumes, benefitting more from an increase in their sterling margins, at least until new exporters gain market share and impose greater competition. Some exporters may not be greatly affected by the depreciation if they work entirely in foreign currencies, import a substantial proportion of their inputs, hedge against currency fluctuations or compete on non-price factors.

Differentiated Goods

Theory and evidence both indicate that the impact of fixed market entry costs on the extensive margin is larger for differentiated goods, which require higher initial search costs, regulatory costs and market adaptation. On the other hand, variable trade costs, including transport costs, affect the extensive

margin for homogenous goods more than for differentiated goods, since they affect the ability to compete on price.

Social networks particularly influence trade patterns for differentiated goods and services, and new or less conventional products. These findings are consistent with survey evidence on firms' perceptions of barriers to entering new markets, showing that access to the right networks and contacts is perceived as a significant barrier, and that both the incidence and intensity of these barriers is greater for innovative firms.

Income elasticities of demand for imports also influence trade in differentiated manufactured goods more than other goods, suggesting that demand for differentiated goods and services will increase more than proportionately with the expansion of the middle classes in emerging economies.

Markets and Market Share

The top five markets for both goods and services exports from the UK have remained the USA, Germany, the Netherlands, France and Ireland for decades. However, other markets have changed substantially in their importance for UK exporters, with emerging markets such as China and India overtaking many historically important trading partners.

Emerging markets have generally been expanding their share of global imports and, even more so, global exports. Despite high growth in goods exports from developed countries, those from emerging economies have grown even faster, and developed markets have lost market share in goods exports. However, developed countries, especially in the EU, retain a clear advantage in high-end goods, and in services the UK has increased its world market share since 1990, although it is one of the few developed economies to do so.

Prospects for Future Trade Growth

Expectations are that international trade and investment will continue to expand at rates above those of global GDP growth, as demand increases among the middle classes in emerging and newly industrialised economies, intermediate goods trade is further encouraged by regional trade agreements, and trade liberalisation in general opens up more markets and new sources of products and services. Advances in infrastructure, communication, networks, co-operation and regulatory reform will allow more firms to access markets previously considered too costly to enter, increasing trade along the extensive margin.

The UK has the potential to benefit from an increasing demand for high quality goods and services as the middle classes in countries such as China and India look set to increase household expenditure fourfold over the next twenty years. The increase in goods trade and foreign direct investment will also

bring with it an increasing need for complementary businesses services, another area of strength for the UK.

It is vital that UK exporters make the most of the fact that high growth markets are increasingly expanding their share of world imports, as well as their share of exports, opening up opportunities for the provision of a wide range of goods and services. Now more than ever, UK firms should benefit from export and investment opportunities across all markets to accelerate their recovery from the downturn in domestic demand. Exploiting these overseas opportunities will be especially important for the innovative, high productivity, and technology intensive firms who will underpin sustainable future growth in the economy.

However, trade barriers, particularly informal barriers to entry such as bureaucratic regulations, cultural and linguistic differences and lack of access to information and contacts, remain high in many of these high growth markets, particularly in the BRICs (Brazil, Russia, India and China) and in the less advanced emerging markets. The Government has a role to play in helping UK firms overcome such barriers, thus reducing the fixed cost of entering new markets and encouraging firms to enter a wider range of often more challenging markets, but where the opportunities to benefit from expanding demand may ultimately be higher.

CHAPTER 1: INTRODUCTION: Global Trade Growth and its Drivers

World trade has risen 730 per cent over the last three decades, far outpacing growth in world GDP (417 per cent).

In 1980, world goods and services trade totalled US$2.4 trillion. The USA, Germany, France, Japan and the UK were the top five exporting and importing countries, accounting for 39 per cent of world exports and 40 per cent of world imports. Trade in goods accounted for nearly 85 per cent of total world trade.

By 2008, world goods and services trade had expanded to US$19.9 trillion, with Germany, the USA, China, Japan and France as the top five exporters and importers, with the UK in 6th place. The top five accounted for 34 per cent of exports and 35 per cent of imports. Trade in goods accounted for 81% of total trade.

Figure 1.1: Ratio of world exports of goods and services to GDP, 1981-2009
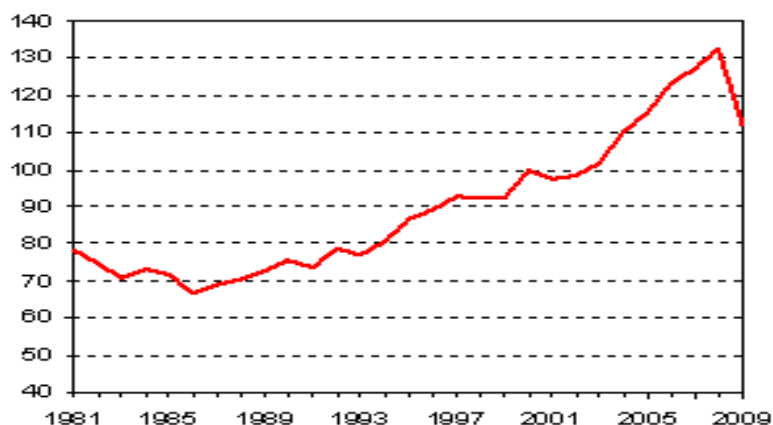
Source: IMF for world GDP, WTO Secretariat for world trade in goods and services.

World trade growth has been driven by a number of complementary factors. Firstly, increasing disposable incomes and an associated preference for variety in developed economies has led to rising intra-industry trade between countries producing similar goods and services. Secondly, the increasing complexity of products and the global fragmentation of production have resulted in multinational firms carrying out the numerous stages of production for any one final product in several different countries, as well as smaller firms making use of global supply chains, such that components or unfinished goods may cross several borders before the finished goods enter the final

destination market. Thirdly, the growth of emerging economies, the liberalisation of transition economies and the general trend towards trade liberalisation has opened up new markets and new sources of increasingly diverse products and services. The number of bilateral trade partnerships between countries has subsequently increased, furthered by the increasing number of bilateral, regional and multinational trade agreements.

As such, trade growth has mostly taken place at the extensive margin, via a huge increase in the number of countries, firms and products involved in international trade, although growth has also been significant at the intensive margin, with higher volumes of goods being traded.

Most countries across the world have played a part in this rapid expansion of global trade, to a greater or lesser degree. The map below shows how every region experienced total export growth above 64 per cent between 2000 and 2008. However, the countries in black stand out as displaying exceptional export growth over this period, including China, India and other emerging and developing economies in central Asia, Africa, Eastern Europe and Latin America. Further emerging economies, including Russia and Brazil, recorded export growth between 249 per cent and 371 per cent over the eight years. The increase in emerging economies' share of global exports is examined in greater detail in Chapter 2.

Figure 1.2: Total Export Growth by Country, 2000-2008
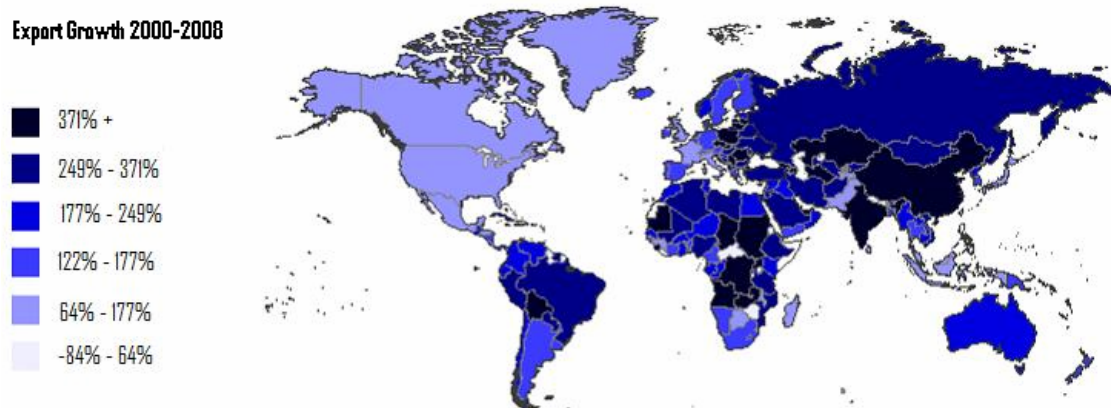
Source: WTO Secretariat

Despite a temporary decline in trade during the global recession, expectations are that world trade will resume positive growth in 2010 and will continue to rise faster than world GDP in the medium term. In particular, world trade will respond to the ever increasing proportion of the population in emerging markets joining the middle classes and demanding a variety of international standard goods and services, such as consumer durables, branded products, private health and education, transport and communications. Regional co-ordination and free trade agreements are expected to continue to raise intra-

regional trade in all continents, particularly Asia, towards the high levels of trade recorded among EU member states.

This paper explores several of the patterns governing global trade growth in greater detail, particularly those dominating the change in UK trade flows and UK market share in different destinations and sectors.

Chapter 2 looks at the broadest shifts in global trade; the shift in market share towards emerging economies and the gradually increasing share of services within the exports of advanced economies. Chapter 3 looks the extensive and intensive margins of trade growth, and at barriers to trade.

Chapter 4 then assesses the path of exports and import demand across sectors, and Chapter 5 considers growth in demand across markets.

In Chapter 6 we consider how overseas investment fits in with global trade growth, and we compare internationalisation strategies, before the Chapter 7 looks at the impact of changes in the exchange rate on exporters and overseas investors.

The latest trade theories and models that are relevant to, and can help explain, the trade patterns considered in this paper are set out in greater technical detail in Annex A.

CHAPTER 2: BROAD SHIFTS IN GLOBAL & UK TRADE

2.1   Changes in Market Shares

Developed countries have lost market share in goods exports to emerging economies, especially China.   However, developed countries, especially in the EU, retain a clear advantage in high-end goods.   The UK has maintained its share of services exports, whilst most competitors' share of services exports has fallen.

2.1.1   Shares of Goods Exports

The UK share of the world goods export market has declined in recent years, falling from 4.4 per cent in 2000 to 3.2 per cent in 2007 and 2.8 per cent in 2009. However, with the exception of Germany (whose share increased from 8.6 per cent in 2000 to 9 per cent in 2009) other major industrial economies have experienced a similar trend.

In the same period, the share of world goods exports originating from the USA has fallen from above 12 per cent of exports to 8.4 per cent, while Japan's has fallen from almost 8 per cent to 4.7 per cent. France, which accounted for a similar share of goods exports as the UK in 2000, has also experienced a decline (from 4.7 per cent to 3.8 per cent) albeit not as great as the UK.

Exports as a proportion of GDP have remained around 26-28 per cent in the UK and France and make up a far lower proportion of GDP in the USA and Japan. However, Germany's exports have increased from 33 per cent of GDP in 2000 to 40 per cent of GDP in 2009.

Figure 2.1: Share of World Exports of Commodities (Goods) (percentage)
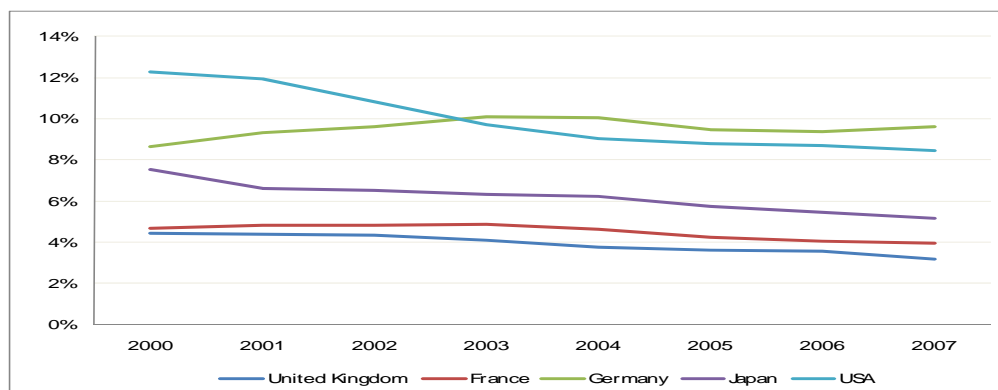
Source: London Economics, based on UN Comtrade data

While Germany may have gained market share between 2000 and 2007, however, it lost a significantly greater share of world goods trade in the preceding decade. As the chart below demonstrates, every "more established" OECD member country held a smaller share of world goods trade in 2007 than they had in 1990. Turkey is the only country that joined the OECD before 1994 to have increased its world goods export share over the last 17 years.

Figure 2.2: OECD Countries' Shares in World Goods Exports, 1990-2007
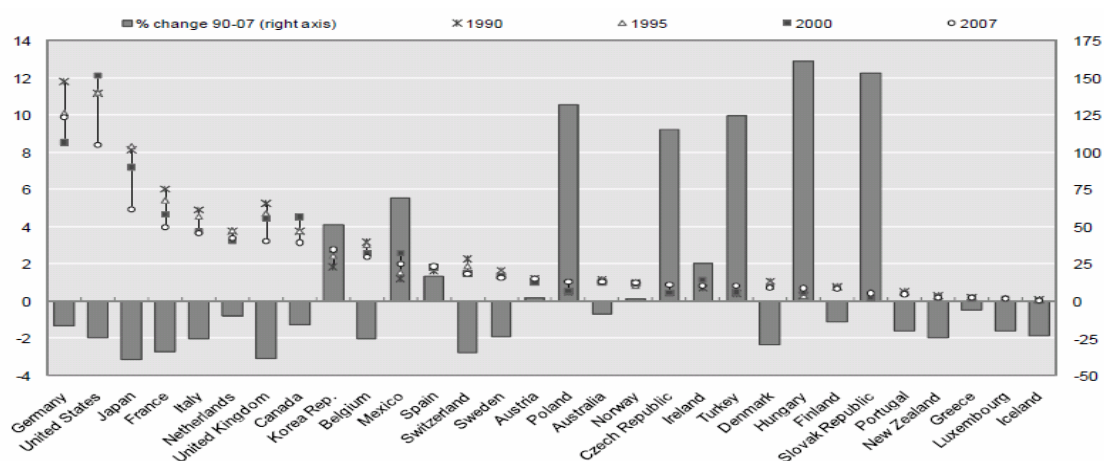
Source: IMF BOP and WDI

This loss of market share by most advanced economies is due to the increase in exports from emerging and newly industrialised economies. This is obvious among the OECD countries displayed above, where the Czech Republic, Korea, Mexico, Poland, the Slovak Republic and Turkey have all increased their share of goods exports. It is also apparent for the emerging markets shown in the chart below, noting the larger scale of trade growth on the right hand axis. China's world goods export share, for instance, has increased by 500 per cent since 1990, to 9.6 per cent in 2009, overtaking Germany to become the largest goods exporter.

Figure 2.3: EM Countries' Shares in World Goods Exports, 1990-2007
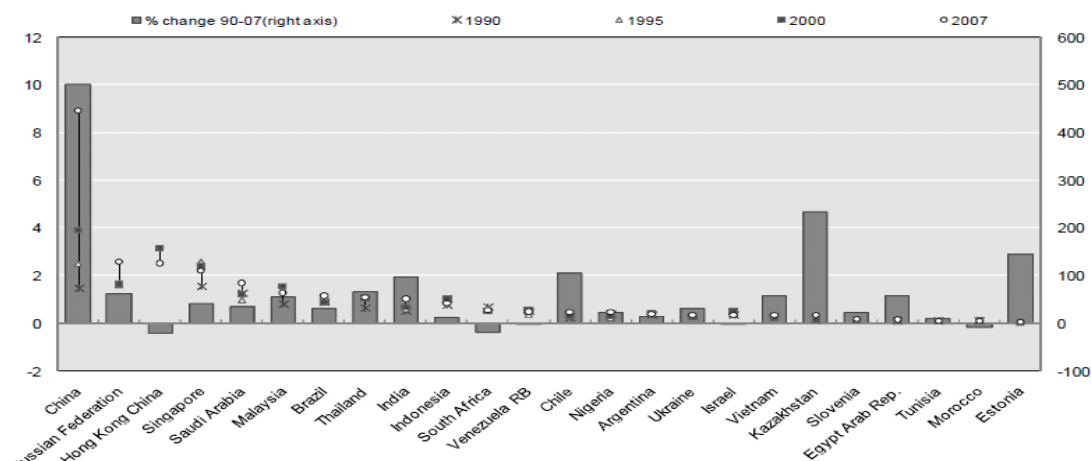
Source: IMF BOP and WDI.

While these emerging economies are also providing growing markets for imports, for many of them (particularly the Asian economies) much of their growth during the 1990s was export-led, as evidenced by their substantial trade surpluses. Since 2000, emerging and developing countries have accounted for 60 per cent and 50 per cent of the growth in world exports and imports of goods respectively.

These countries therefore, and China in particular, are gaining overall world goods market shares to the detriment of industrialised countries. However, the majority of this shift in world market shares has been in low quality goods. Curran and Zignago (2009) show that the EU continues to perform well in the more up-market goods, where it has a world market share of 31 per cent (compared to 20 per cent in all non-energy goods). They find that growth of Chinese exports between 1995 and 2004 was almost exclusively in low-market products, and emerging economies are generally making slow progress in entering the up-market sector. Developed countries in general, and the EU in particular, retain a clear advantage over high-end goods.

2.1.1.1 *Intra-Regional Goods Trade*

Part of the acceleration in Asian goods exports until 2008 was due to fast-growing intra-regional trade within Asia, with China forming the hub of intra-Asian trade.

In 2008, 50 per cent of China's goods imports were from East and Southeast Asia and 35 per cent of its goods exports went to these economies[2].

Over a third of these exports to Asian economies, however, consist of exports to Hong Kong. If trade between China and Hong Kong is excluded from the figures, 49 per cent of China's goods imports arrived from East and Southeast Asian countries and only 23 per cent of its goods exports were sent directly to these markets. In comparison, in 1990, 26 per cent of China's imports came from East and Southeast Asia excluding Hong Kong and 25 per cent of China's exports were sent to these markets.

As well as the growth of China's market, the increased imbalance between imports from, and exports to, other Asian economies also reflects China's role as a final assembly point for regional goods. Intermediate goods are exported from other Asian economies to China, to be assembled into final products and sent on to global markets.

At the same time, the role of Hong Kong as an intermediary for trade with China appears to be diminishing. In 1990, 43 per cent of China's exports were sent to Hong Kong and 27 per cent of China's imports came from Hong Kong. By 2008 this had fallen to 13 per cent of China's exports and 1 per cent of China's imports.

2.1.1.2   *Trade in Intermediate Goods*

Increasing trade in intermediate goods has been a major driver of growth in world trade.   The share of intermediate goods and services in total trade varies hugely across countries, making cross country comparison of trade data problematic.

Increasing trade in intermediate goods is one of the major reasons for world trade experiencing a faster growth rate than world GDP. Each time goods cross a border, an international transaction is recorded. When international supply chains include a number of tasks, unfinished goods may cross national borders several times during the assembly process. This is particularly true for complex goods involving both technical and non-technical components, such as transport equipment and electronics.

This has resulted in the share of intermediate manufactured products in non-fuel world trade growing to around 40 per cent in 2008.

---

[2] Analysis from UN Comtrade data

This fragmentation of production is also increasingly apparent in services, with different aspects of a complex service produced by different affiliates in different regions of the world.

However, the relative importance of intermediate goods and service trade varies hugely across countries, depending on their export specialisation. For example, roughly two-thirds of Taiwan's trade in 2008 was in intermediate goods (65 per cent of its imports and 71 per cent of its exports). As mentioned above, China has become a regional hub for the final assembly of manufactured goods, and as such its import figures are boosted by unfinished goods, and its export figures are bolstered by re-exports of finished goods, even though the value added within China may be fairly low.

The fact that certain countries have become regional hubs for final assembly, or have substantially higher re-export levels, has a major effect on overall trade figures, making cross-country comparisons increasingly difficult. For example, the UK exports aircraft components to France, which are then added to the final aircraft before the end product is exported to destination markets. This distorts the trade figures for both the UK and France, as it appears that the UK exports a disproportionate amount of its advanced engineering goods to France and relatively little to markets such as China and the USA. France, on the other hand, appears to be a net importer of advanced engineering products from the UK, but to hold a relatively large share of, for instance, the Chinese advanced engineering import market. The total value of the aircraft is included in French export figures, even though only a proportion of the value were added in France.

2.1.2 Shares of Services Exports

The UK has increased its share of world services exports since 1990, reaching 8.2 per cent in 2002-2007 and 7.2 per cent in 2009, and has remained the second largest services exporter, despite the rise of emerging market exporters. The USA, Germany, France, Japan and Italy have all lost world services export share since 1990, although the USA still maintains by far the highest share of world services exports. Germany has recovered some of its loss in services market share since 2000, and has the third largest market share below the UK, at 6.5 per cent. Among OECD members, France has experienced the largest decline in world services export share since 1990, while Ireland has achieved the highest percentage increase.

Figure 2.4: OECD Countries' Shares in World Services Exports, 1990-2007
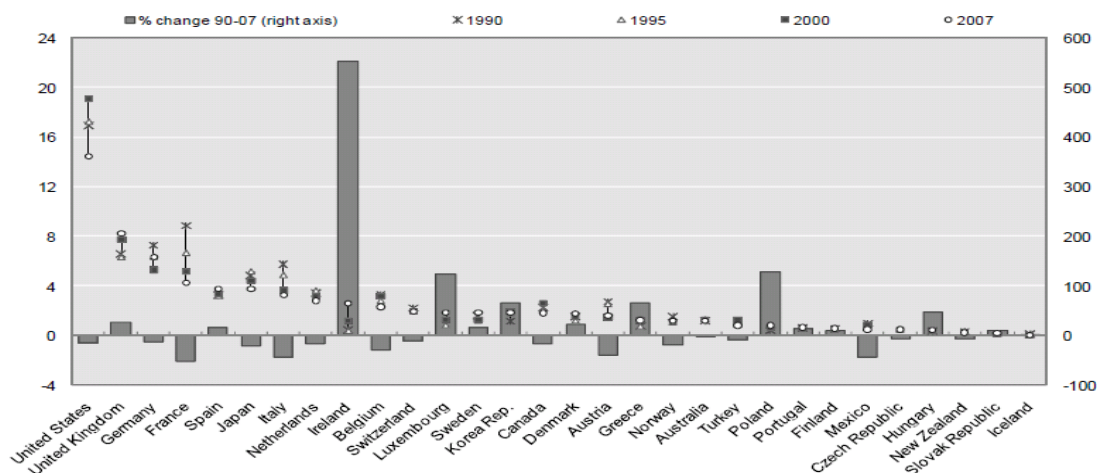
Source: IMF BOP and WDI.

Ireland's 550 per cent increase in services market share is in fact even higher than China's c430 per cent increase shown below. While China's increase in services export share is therefore still impressive, it is significantly smaller than its increase in goods export share and it has only the 5th largest share of services exports overall, at 3.9 per cent. Russia and Brazil also have lower shares of world services exports, around half as large as their goods export shares. India, on the other hand, has gained services export share much faster than it has goods market share, and its overall share of global services exports reached 2.6 per cent in 2009, compared to a share of goods exports of just over 1 per cent.

Figure 2.5: EM Countries' Shares in World Services Exports, 1990-2007
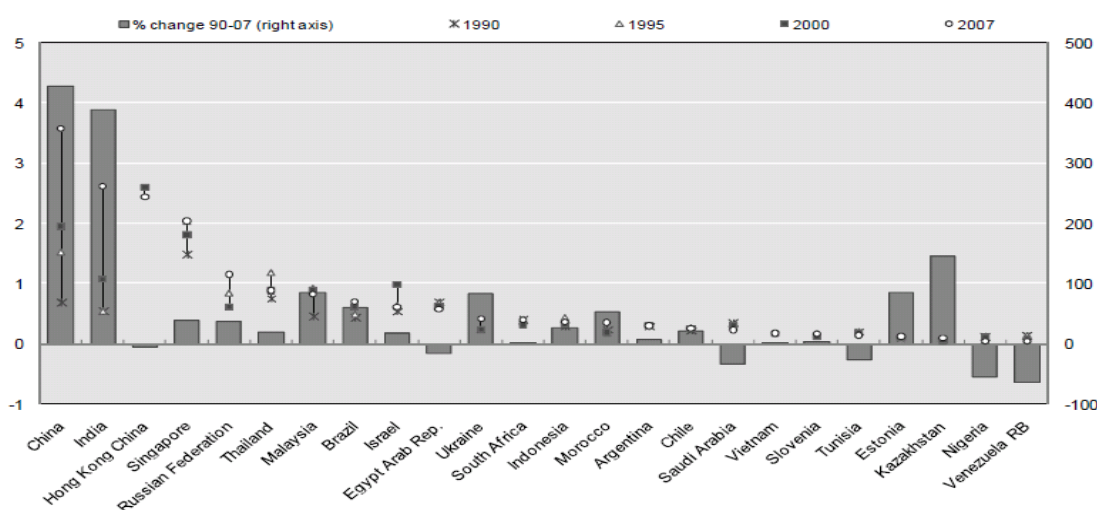
Source: IMF BOP and WDI.

2.2   UK Market Share in Emerging Asia

Eaton et al (2007) and Casson (2007) consider UK market share in key Asian economies, as well as Brazil and Russia, relative to other exporters, namely the USA, Germany, France and Japan. They find that, while UK exports to Asian markets rose substantially, the UK lost goods market share relative to the other exporters during 1994-2005 in eight of the twelve markets studied. The UK's goods export share in India, Singapore and South Korea rose over the period, while the UK's share of goods exports to Indonesia was unchanged. The loss of market share was greatest in Vietnam, although UK export volumes to Vietnam still rose by 150 per cent. The range of the UK's falling market share was found to be smaller than that of its competitors, around 1-2 per cent, compared with much higher levels for Japan and the USA in some markets. While all competitors lost market share in some destinations, France did best, with a decline in only four of the twelve markets.

In terms of services exports to emerging Asian markets, the UK has a strong market share in business and financial services (including information services and intellectual property) and in consultancy (including architecture and engineering). However, the UK is relatively weak in road and rail services, construction services, and agricultural and mining services. European service providers in general are facing increasing competition from Asian economies serving their neighbours, namely China and Japan. Meanwhile, the UK is making only slow progress in developing services exports to Brazil and Russia.

Nevertheless, the services in which the UK has strengths are sectors which are knowledge intensive, have good potential for future innovation and development, and provide services that are likely to be in increasing demand as incomes in emerging economies grow.

Casson (2007) also notes that the UK acts as a hub for US businesses that want to export services to some Asian markets. This may be due to domestic political issues in the USA, which make it more desirable to export to these markets from the UK, or there may be greater expertise in the UK in accessing certain markets, for example India, due to historical links.

2.3   Analysis of Shifts in Market Share

Using Shift in Shares Analysis, Eaton et al (2007) find that in six of the eight Asian markets where the UK goods export share fell, a shift towards other suppliers for the same goods accounted for most or all of the decline, i.e. there was little shift in demand away from UK goods, but rather away from UK providers. Engineering goods exporters in particular lost sales to rival exporters.

IIS (2009) therefore conclude that where the UK lost market share in key goods import markets between 2002 and 2007 this was primarily due to declines in competitiveness rather than shifts in import demand away from the

products where the UK excels. The change in market share and the importance within this of shifts in demand for UK and competitors' goods versus changes in competitiveness is given by exporter and destination in Table B.1 in Annex B.

Using Margins of Entry Analysis, Eaton et al and IIIS also disaggregate the value of what each competing exporting country sells to each importer into the extensive margin (the number of products) and the intensive margin (how much of each product). They show that the UK exports almost as wide a range of products as Germany, Japan and the USA (the product extensive margin), but not nearly as much of them (the product intensive margin).

Between 1994 and 2005 the UK expanded the range of varieties of goods that it sold to each of the markets studied by Eaton et al (Asian markets plus Brazil and Russia) except Thailand and the extent of expansion was roughly in line with its competitors. Nevertheless, IIIS find that while the UK's extensive margin is never below 70 per cent (of six-digit Harmonised System goods exported within each priority sector) Germany, Japan and the USA still tend to sell a wider range of products to most destinations.

Eaton et al conclude that the primary cause of loss of market share on the intensive margin (revenue earned per product) appears to be the higher prices charged for UK goods. Price rises increased the revenue per item, but this was not enough to compensate for the relative decline in quantity sold compared to competitors.

These findings suggest that at least some UK companies were successful at selling products at higher prices than their overseas competitors, albeit in lower quantities. One explanation could be the strong sterling, which may have prompted adjustments among UK exporters or priced some UK suppliers out of the market. Another reason could be that UK suppliers are selling higher quality goods than their competitors. In either case, the sterling's recent depreciation, combined with rising incomes in high-growth markets increasing the demand for higher quality goods, could place UK exporters in a good position for future growth (although the effect of exchange rate depreciation should not be over-estimated or over-simplified. This is discussed further in Chapter 7).

The UK may also have outsourced a lot of its lower priced manufacturing industry overseas to places like China, more so than its competitors, as suggested by the UK's relatively high levels of outward FDI. If so, UK firms may be generating substantially more sales revenues in some markets than implied by export figures by selling these goods directly from overseas subsidiaries. Earnings on these sales would then flow to the UK through the income account on the balance of payments, rather than through the trade account. Hence export volumes from the UK would appear lower compared to competitors and relatively more of the manufactures that are exported from the UK would be high priced goods. Relative levels of outward FDI compared to exports for the UK and key competitors are examined further in Chapter 6.

2.4   The Relationship between Goods and Services in World Trade

Despite a very gradual shift in global trade towards services, the ratio of goods to services within world trade has remained close to 80:20 for at least three decades. Trade in goods and services have generally fluctuated together, suggesting that there might be strong complementarities between trade in goods and services.

This hypothesis is strengthened by the fact that transport and travel, which are direct inputs into trade in goods, account for more than half of total services trade. However, during the past 15 years, the relative importance of transport and travel has declined 12 percentage points, as other services, notably business services, have gained ground. This does not necessarily mean that trade in services is less driven by trade in goods, however, since international transactions have become much more complex and services-intensive. For instance, vertical fragmentation of the value chain requires more and better logistics and communication inputs; differentiation of products, eg by customisation to different niche markets, requires more design and market research inputs; while more complex government regulation as well as proliferating private product standards requires more testing, documentation and legal services. All these factors have contributed to a shift towards more business services supporting trade in goods.

While the global ratio of goods to services exports remains around 80:20, however, the national balance between goods and services exports varies substantially across countries.

2.5   Goods and Services Exports by Country

Services account for a relatively large share of UK exports. The UK share of world services exports is second only to the USA.

In 2009, China overtook Germany to become the largest exporter of goods with 9.6 per cent of the global goods export market. Germany accounts for 9 per cent of goods exports, the USA 8.5 per cent and Japan 4.7 per cent. The UK exports the 10th largest value of goods, accounting for 2.8 per cent of the world total[3]. In services, however, the USA leads with 14 per cent of world exports, followed by the UK with 7.2 per cent and Germany with 6.5 per cent.

---

[3] These figures refer to total export values, and should be interpreted with caution. Countries that import a large volume of intermediate goods, add some value, and then re-export these

Figure 2.6: Exports of Goods and Services by Source Country in 2009, $m
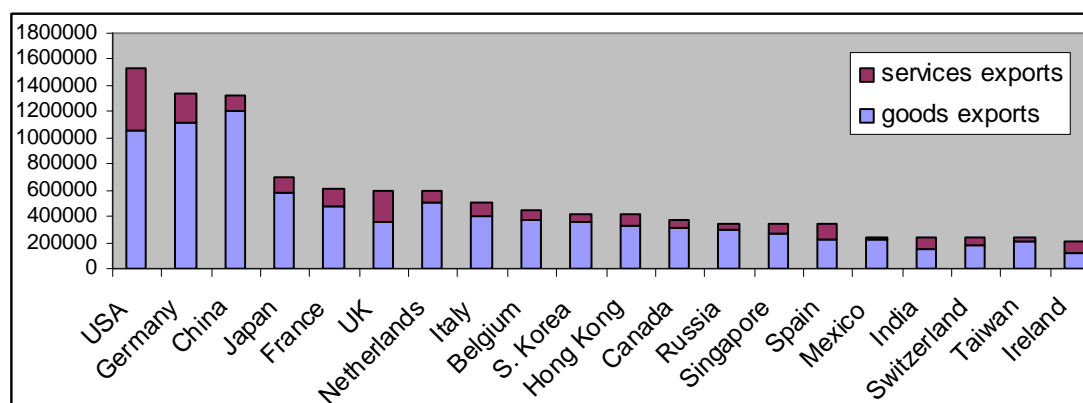
Source: WTO Trade Data

Of those countries with total exports above US$200 billion, goods make up more than 80 per cent of exports in 11 out of 20 countries. More than 90 per cent of Mexico and China's exports are in goods (94 per cent and 90 per cent respectively). Among the other 9 countries, Ireland has the highest proportion of services in its exports, at 45 per cent, followed by the UK at 41 per cent, Spain and India at 36 per cent and the USA at 31 per cent.

Outside of the 20 largest exporters the difference in ratios is even more extreme. Oil exporters Nigeria and Venezuela both gain 97 per cent of their export revenue from goods, and goods also account for more than 90 per cent of exports from Bangladesh, Indonesia and Vietnam. Meanwhile, many small island economies are heavily reliant on tourism services: 80 per cent of the Maldives' export revenue, and a massive 95 per cent of Macau's export revenue, is in services. Luxembourg also relies on services for 74 per cent of its export revenue.

2.6   UK Exports and Imports of Goods and Services

Total goods exports from the UK in 2008 amounted to US$455,596 million (in UN trade figures, £251,102 million in the ONS figures), while services exports totalled US$282,221 million (in UN trade figures, £170,399 million in the ONS

goods, will have the full value of the exported goods included in their export figures, despite only adding a proportion of this value within country.

figures). Goods exports had increased by 61 per cent since 2000, while services exports had expanded by 135 per cent.

Meanwhile, goods imports had increased by 86 per cent, and services imports had risen 107 per cent since 2000, to US$631,804 million and US$205,339 million respectively in 2008. Goods imports rose particularly rapidly between 2003 and 2006, a 54 per cent increase in just three years, compared to a 38 per cent increase in services imports over the same period. In general, changes in goods import values have closely tracked changes in GDP values, as shown below (noting the different scale for GDP values, shown on the right-hand axis).

Figure 2.7: Total UK Exports, Imports and GDP, 1980-2009, $m
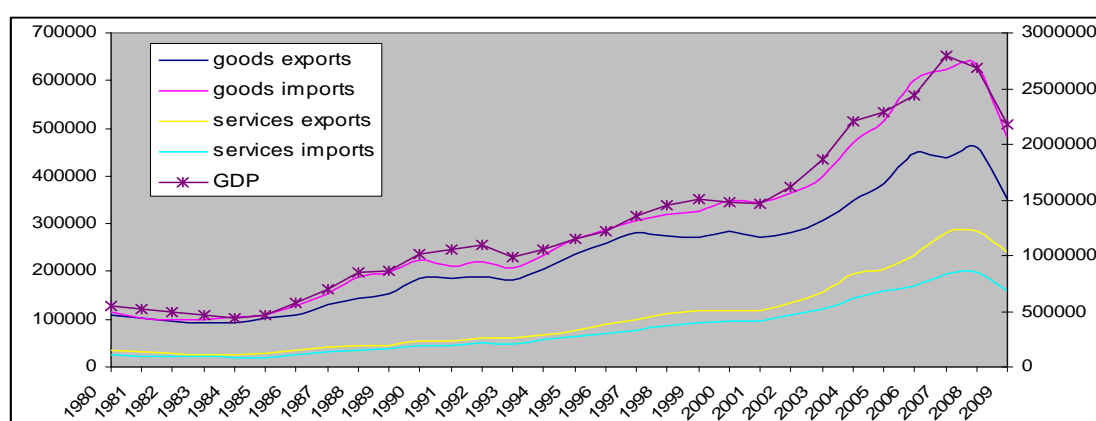
Source: IMF and WTO. GDP figures shown on right-hand axis.

2.7   The UK Trade Account

Until 1987 the services account surplus broadly offset the deficit on trade in goods.

Figure 2.8: UK Trade Balance, January 2008-July 2009
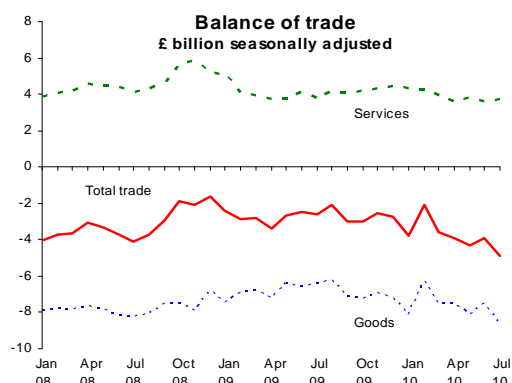
Source: ONS

The UK trade in services account has shown a surplus for every year since 1966, while the trade in goods account last recorded a net surplus in 1980-1982.

Until 1987, the surplus on trade in services broadly offset the deficit on trade in goods, but since then, the goods trade deficit has outweighed the service trade surplus, and the trade account has been in deficit.

In the three months to April 2010, compared with the previous three months, the total trade deficit narrowed to £8.4bn, from £9.4bn. This was due to the narrowing in the trade in goods deficit, to £20.8bn from £22.0bn, outweighing the fall in the trade in services surplus, to £12.4bn from £12.6bn. However, the total trade deficit then widened again during the three months to July 2010, to £13.2bn, from £9.6bn.

Figures 2.9 and 2.10 show the normalised trade balances[4] for OECD countries, for both goods and services. For goods, the UK has one of the relatively larger trade deficits among OECD members, which has worsened since 1990. However, in services, the UK has the 7th highest trade surplus, in normalised terms, which has improved since 1990.

Figure 2.9: Normalised Trade Balance in Goods, for OECD Countries, 1990-2007
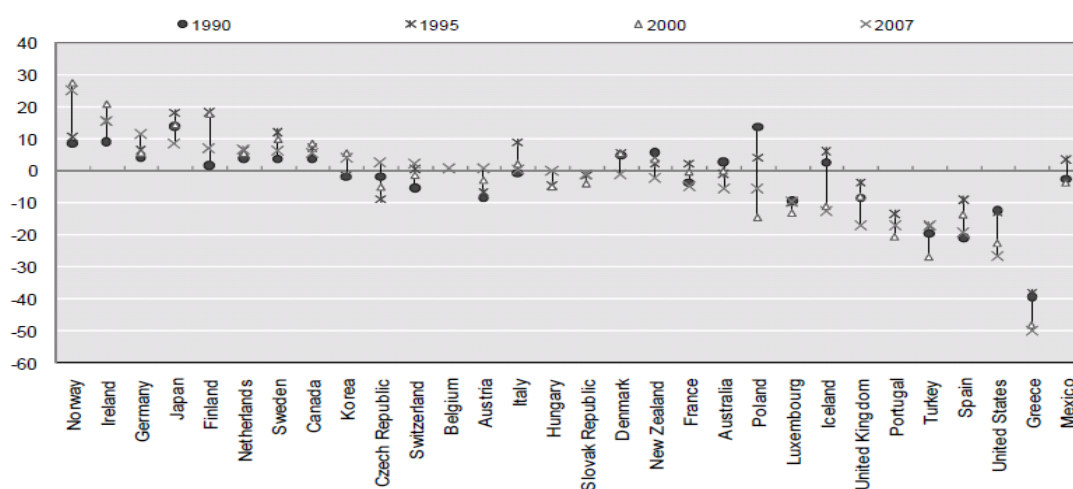
Source: OECD Macro Trade Indicators database.

---

[4] The normalised trade balance is measured as the trade balance divided by the sum of exports and imports, ie normalised by the country's own total trade. Its range varies between -1 and +1. A country that exclusively exports would have a normalised trade balance of +1, for a country that exclusively imports it would be -1.

Figure 2.10: Normalised Trade Balance in Services, for OECD Countries, 1990-2007
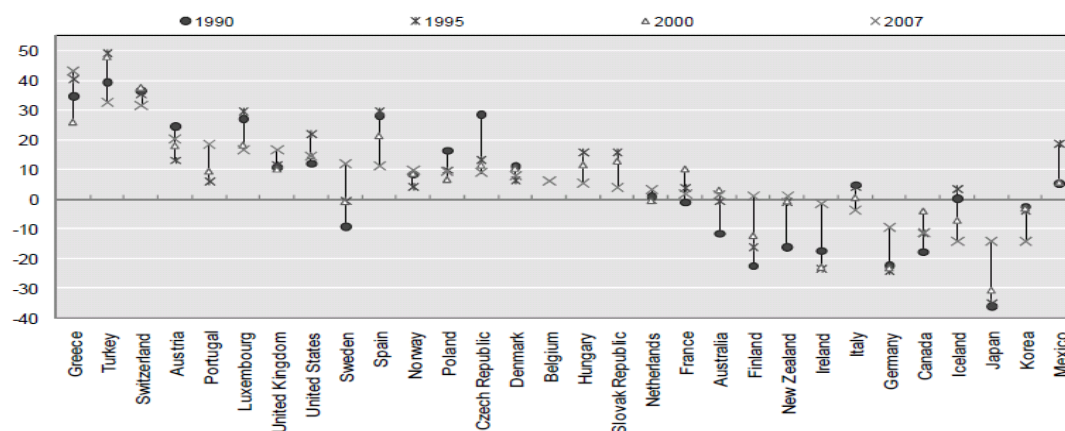
Source: OECD Macro Trade Indicators database.

2.8   Conclusions

- **Developed countries have lost world market share in goods exports to emerging economies, especially China. However, developed countries, especially in the EU, retain a clear advantage in high-end goods.**

- **Although UK goods exports to Asian markets rose substantially, the UK lost goods market share during 1994-2005, relative to the USA, Germany, France and Japan in eight of the twelve markets studied. The UK tended to export lower volumes of goods, but at higher prices.**

- **Services account for a relatively large share of UK exports, at 41 per cent in 2009. The UK share of world services exports is second only to the USA. The UK maintained its world market share in services exports between 2002 and 2007, whilst other advanced economies tended to lose market share.**

- **The services in which the UK has strengths are knowledge intensive, have good potential for future development, and are likely to be in increasing demand as incomes in emerging economies grow.**

CHAPTER 3: THE EXTENSIVE AND INTENSIVE MARGINS AND TRADE BARRIERS

Growth in trade is driven by changes in both the extensive and intensive margins – that is, the number of trade partnerships and the size of each trade flow between partners. Differences at the extensive margin generally contribute more to explaining trade patterns. Distance and other non-tariff barriers affect the extensive margin most strongly.

3.1 The Importance of the Intensive and Extensive Margins

Felbermayr & Kohler (2006) present detailed evidence that the post-war increase of world trade took place through both larger quantities traded between countries (the country intensive margin) and an increase in the number of country pairs that engage in trade (the country extensive margin).

However, at a more disaggregated level, several authors have stressed the quantitative importance of the extensive margin, over the intensive margin, in explaining trade flows.

Hummels & Klenow (2004 and 2005) find that larger and wealthier countries trade more, and that 60 per cent of the difference in aggregate trade flows comes from differences in the number of goods traded (the product extensive margin).

Galstyan & Lane of IIIS (2008) also find that the role of the product extensive margin is quite substantial, although it varies in significance across the countries in the sample.

The negative "gravity" relationship between trade and distance is driven almost entirely by the extensive margin: Both the number of trading firms and the number of traded products decline significantly with distance. Most empirical studies find a strong response of the extensive margin to changes in trade barriers or country size.

If anything, the intensive margin appears to increase with distance; long-distance trade is only worthwhile at higher volumes. A threshold level of bilateral trade needs to be reached for governments to incur the investment cost for the public infrastructure that is required to support trade.

Even now, there remains a significant proportion of country pairs where bilateral trade is zero. Among the OECD countries, Hildegunn, Miroudot and Lanz (2008) find that, in 2005, there were seven member countries from which Slovakia did not import any services, four from which Estonia did not import services, three for Finland, two for Korea and Poland and one for Australia and Austria. Thus there were 20 zero bilateral service trade flows within the OECD in 2005, down from 23 in 2001. While the other member countries imported services from all the other OECD countries, there are likely to be many smaller non-OECD countries from which they do not import any services. Hildegunn and co. also looked, within service imports, at bilateral trade in communication services. They found that there were 178 zero bilateral trade flows between OECD members in 2005, down from 200 in 2001. The USA, the UK and the Netherlands were the only members to import communication services from all other member countries, while in 2001, the USA had been the only member to do so[5].

At the firm level, Bernard et al (2009) find that around two-thirds of the variation in trade **across countries** appears to be due to the firm extensive margin, i.e. differences in the number of firms exporting to each country. When the number of products sold by each exporter is also taken into account, the extensive margin accounted for 77.4% of the cross country differences. **Across time,** the influence of the intensive versus extensive margins depends on the length of time considered. They found that annual variation in US trade was dominated by the intensive margin, followed by firms adding or dropping products or countries, and then firm entry and exit from exports. Over five-year and ten-year periods, the relative contribution of the extensive margin rises; in the USA the intensive margin accounted for just 35 per cent and 23 per cent of the ten-year export and import growth, respectively, between 1993 and 2003.

The rising importance of the extensive margin over time can be partly attributed to the fact that new exporters tend to start small and do not add a significant amount to trade volumes in their first year. However, if they survive, new firms tend to grow relatively fast and become large, increasing the contribution of the extensive margin (ie new entry) in the long run.

3.2 Current Extensive and Intensive Margins in Top UK Export Destinations

Figure 3.1 shows the approximate extensive and intensive margins for 2008 goods exports to the UK's top 20 destinations. These figures are not exact,

---

[5] Note, OECD membership has been unchanged since 2000, when Slovakia became a member.

as they are an aggregation of sectoral figures, despite the fact that many firms operate in more than one sector. Nevertheless, they give an idea of the importance of the extensive and intensive margins in the level of goods exports to different destinations. The number of UK firms exporting to the USA and Ireland is particularly high, but average values exported are highest to Germany. Average values exported to Russia are also relatively high.

Apart from the USA, the top 12 markets in which goods exporters are active are all in Europe. China is only 27th in terms of the approximate number of goods firms, despite being the UK's 10th largest goods export market by total value.

Figure 3.1: The Extensive and Intensive Export Margins to Top 20 UK Goods Export Markets
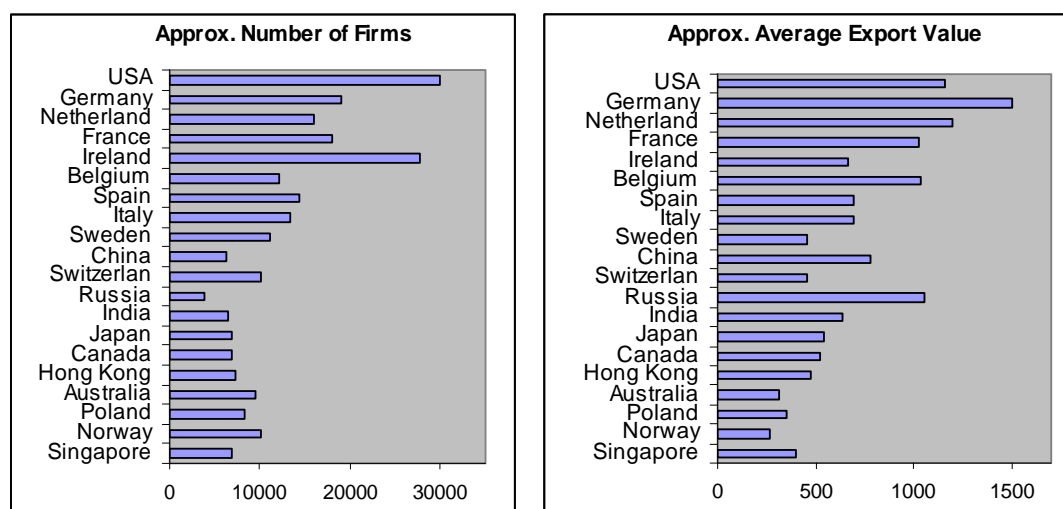
Source: Derived from HMRC's trade data, markets given in order of total goods export values

However, these are static figures, and do not show which markets are most popular in terms of new exporters entering them, or existing firms increasing export volumes to them, in recent years. We now turn, therefore, to the extensive and intensive margins of *growth* in UK goods exports.

3.3   Extensive and Intensive Margins of UK Export Growth to Key Markets

3.3.1   Growth at the Extensive and Intensive Margins at Market Level

Russia was the UK's fastest growing goods export market between 2002 and 2008, with a 390 per cent increase in the total value of goods exports. This was followed by Qatar (320 per cent increase) and China (317 per cent increase). Goods exports to Dubai increased by 204 per cent, and another 18 markets saw imports of UK goods increase by between 100 and 200 per cent over the period.

At the other end of the scale, growth in goods exports to some established markets was low: 19 per cent, 21 per cent and 22 per cent growth in goods exports to Japan, France and Italy respectively over the period. Amongst UKTI's high growth markets, goods export growth was lowest to Taiwan (13 per cent), followed by Indonesia (33 per cent) and Mexico (47 per cent).

If we aggregate across sectors, again with the caveat that this is inexact due to many firms operating in more than one sector, we can break goods export growth to each market down into growth in the number of firms and growth in the average values exported by each firm.

Figure 3.2: Approximate Growth at the Extensive and Intensive Margins in Goods Exports to the UK's Main Markets, 2002-2008
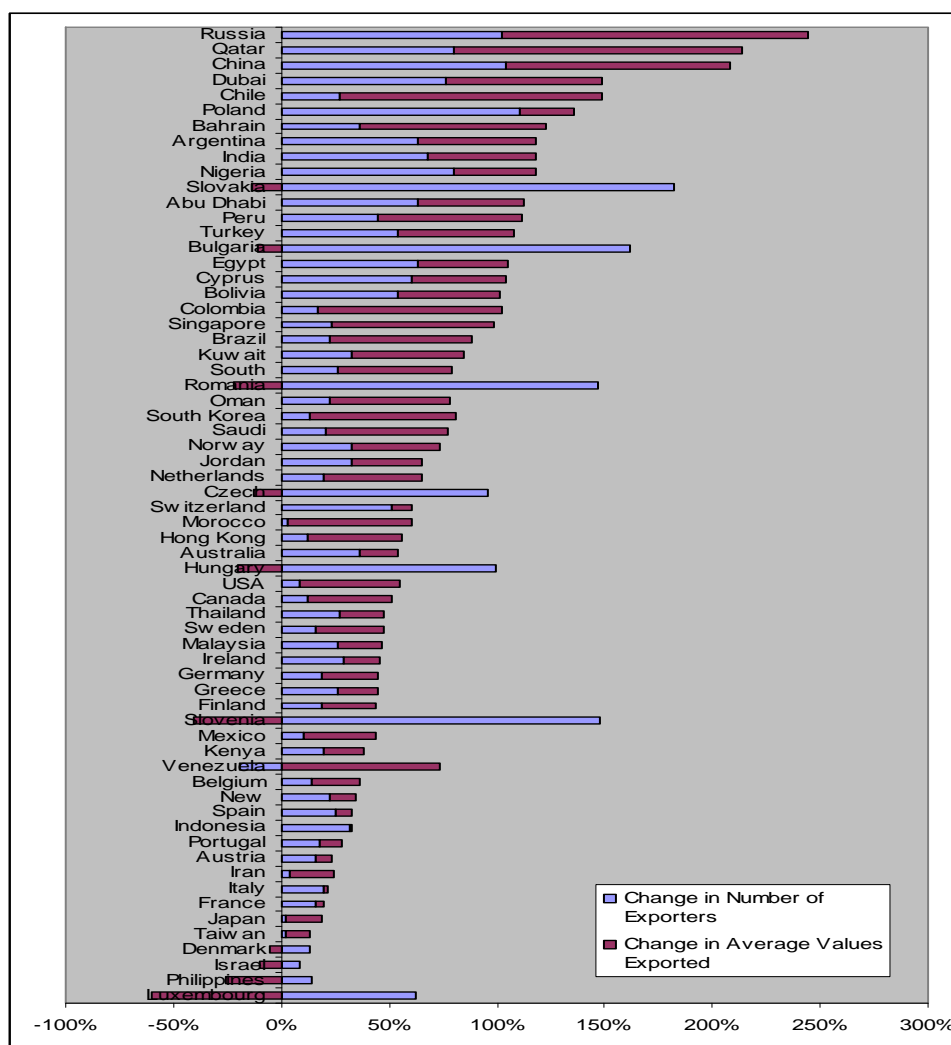
Source: Derived from HMRC's trade data, markets given in order of total goods export growth

In general, growth in goods exports to high growth markets is relatively evenly split between an increase in the number of UK firms entering these markets and an increase in the value exported by each firm. Latin American markets, however, show more of a bias towards the intensive margin driving UK goods export growth. Growth in goods exports to the USA, Canada and Japan also appears to be dominated by growth in the values exported by each UK firm.

Growth in goods exports to European markets, on the other hand, is dominated by new firms entering these markets. In New Member States in particular, there has been strong growth in the number of UK goods exporters, but in many cases the average amount exported by each firm has declined. This may be due to the accession process, and the subsequent accession of these countries into the EU, reducing the barriers to market entry, so that it became profitable for more UK firms to enter these markets, even at relatively low volumes of exports compared to previous exporters.

3.3.2   Growth at the Extensive and Intensive Margins at Sectoral Level

The contributions of the extensive and intensive margins to growth in UK goods exports vary substantially across sectors and markets. The extensive margin has been more prominent than the intensive margin in the majority of goods sectors' export growth to China, Russia and India. The share of exports explained by the extensive margin tends to be larger in sectors with more differentiated products (Koenig).

Within each market, the relative importance of the extensive and intensive margins in the growth of UK goods exports varies substantially *by sector*. The sectoral figures are also more accurate, given that figures have not been aggregated. Growth in goods sector exports to key markets, at the extensive and intensive margins, is shown in Table 3.1 below.

Blue denotes a higher importance of the number of exporters in driving export value growth, yellow reflects the higher importance of increasing average values per firm, pale blue signifies that both are similarly important and green indicates that both the number of exporters and the average value has decreased. In each case, the percentage change in the number of exporters is given, followed by the percentage change in the average value exported per firm.

Table 3.1: The Relative Importance of Growth in Number of UK Exporters versus Average Values

2002-08 per cent change	Russia	China	India	Brazil	S.Africa	Saudi	Mexico	USA	German	Japan
UK goods export growth	390	317	152	103	93	89	47	59	49	19
IT & Electronics	72/-54	122/36	127/-48	43/-71	38/-52	48/-40	-14/-55	13/-32	8/-19	14/-69
Security	123/39	177/24	131/132	27/-17	48/10	21/-13	86/30	53/21	18/-11	46/-12
Telecoms Equip	40/24	136/-63	132/1	34/-23	53/6	41/1	70/-65	50/-10	13/-81	51/-57
Household Goods	95/-19	126/-25	84/17	35/34	45/-30	16/36	-4/-71	11/-12	21/-8	-5/3
Recreational	123/-64	94/-36	95/-49	11/-82	62/-21	-4/354	27/-48	0/8	16/-34	-3/-27
Environment	250/200	114/55	86/34	61/-58	39/33	12/160	100/41	16/19	23/29	15/-51
Transport Infrastructure	73/-93	163/-30	116/344	115/55	109/245	56/91	150/-54	62/28	32/7	82/134
Clothing	154/199	168/-13	83/17	16/71	70/6	28/-31	-3/153	14/-32	12/30	-10/-20
Giftware	85/44	143/45	73/-30	-26/-15	62/-36	16/44	-18/23	-2/32	31/-36	8/26
Paper & Packaging	101/77	101/482	101/344	6/30	15/-21	16/136	13/105	17/-9	13/2	12/-8
Textiles & Furnish	82/-26	63/36	27/-37	-8/33	-3/20	-5/32	6/57	-8/12	5/6	-12/2

2002-08 per cent change	Russia	China	India	Brazil	S.Africa	Saudi	Mexico	USA	German	Japan
Energy	142/-40	97/39	68/169	10/30	29/1129	38/282	-1/286	8/545	28/311	1/-20
Food & Drink	49/59	109/236	80/127	-1/130	41/180	15/-32	31/1	2/38	23/-8	-5/-9
Automotive	101/803	101/408	77/49	2/187	14/132	12/97	-12/32	-2/-3	21/-11	-1/18
Healthcare Equipment	96/188	84/45	70/132	14/102	38/17	20/21	50/20	24/33	28/5	3/105
Biotech & Pharma	95/205	61/244	52/37	-8/86	22/55	12/28	2/18	33/27	49/56	14/-17
Metals & Minerals	164/9	102/273	60/47	40/653	10/40	22/207	1/71	6/115	24/99	2/157
Chemicals	81/96	108/2	51/88	24/85	20/1	8/75	21/40	20/27	23/45	9/27
Construction	150/266	115/31	134/49	24/85	24/83	33/112	-5/17	14/19	24/24	2/7
Creative & Media	99/255	181/-11	30/119	22/82	59/41	18/69	-12/284	-6/-2	4/33	-1/-17
Engineering (inc Aero)	110/220	94/109	58/67	27/24	18/75	27/55	19/150	6/36	12/30	1/45
Agriculture	64/59	81/84	56/109	26/182	9/37	-2/44	-4/-70	-4/79	18/30	-10/6

Source: BIS Sectoral Trade Statistics, derived from HMRC's Trade Data.

China, Russia and India stand out as having the most blue sectors – fast growth in the number of UK exporters – as well as much the highest growth in overall UK goods exports. Growth at the intensive margin has also been high in many sectors, such as the 803 percent increase in average values exported per automotive firm to Russia. The number of firms exporting to Mexico has fallen since 2002 in nine sectors, while eight sectors have experienced a decline in the number of exporters to Japan.

3.4   Trade Barriers

Trade barriers prevent higher trade on both the intensive and extensive margins, with barriers to market entry in particular affecting trade on the extensive margin. Crozet & Koenig (2010) find that, on average, the extensive margin channels 74% of the impact of trade barriers on total trade.

3.4.1   Variable Trade Costs and their Effect on the Extensive Margin

Variable trade costs affect the number of trading partners for homogenous goods more than for differentiated/innovative goods, resulting in trading networks with fewer trading partners. For differentiated/innovative products trading networks tend to be wider.

As noted above, studies using a gravity model have found that trade costs associated with distance affect all aspects of the extensive margin more than the intensive margin. Variable trade costs, including transport costs, will affect trade on the extensive margin, in terms of the number of country trading partners, more for homogenous goods than for differentiated/innovative goods[6] (Benedictis & Tajoli, 2009).   Since homogenous goods are more easily substitutable and compete more on price, these goods will tend to be exported from a country that is geographically close to the recipient market and that has low bilateral trade barriers with the recipient country. Those exporting countries with high transport and trade costs will find it difficult to compete on price and therefore the low volume of demand for their products will not justify the fixed costs of entering the market.

Differentiated products are less easily substitutable and therefore even those exporting countries with high transport and trade costs with the recipient country may find it beneficial to enter the market, depending on the size and nature of demand in that market. A preference for variety could provide

---

[6] Differentiated and innovative products are taken to be fairly synonymous in this context, since innovation is generally required in order to produce a differentiated product.

sufficiently price inelastic demand for their products to be sold at a level which can cover costs and still be profitable. Trade networks are therefore likely to be significantly wider, both geographically and in terms of the number of trading partners, for differentiated products. For example, the machinery industry has the most dense trade network, and is a highly differentiated industry. On the other hand, the least dense industries are petroleum and coal products and tobacco, which are based on relatively homogenous raw materials.

These results imply that homogenous goods are often sourced from regional trading partners and that, despite the perception that international competition in the world markets is stronger in industries producing more homogenous goods; this tendency can be tempered by the effects of distance and transport costs.

Even at aggregate level the world trade network is largely incomplete, with a density of about 0.44 (ie 66 per cent of country pairs do not trade). Unsurprisingly, at sectoral level the density is much lower, being on average about 0.19. So in a given industry, on average there is a probability of 19 per cent that two countries are linked.

Benedictic and Tajoli (2009) investigate the concentration of trade flows and the role of particular countries in trade networks. They find that the largest industrialised markets still account for a large proportion of total imports across most sectors, and play a dominant role in the import network. However, in exports, for quite a few sectors, source countries can be highly concentrated among smaller countries and emerging Asian economies. Therefore, the level of GDP can be a poor proxy of the role of a country as an exporter in a particular trade network. In the sectors where a country holds a comparative advantage, the country can play a key role in the trade network independently from its size or level of development.

They also find that, as the complexity of the goods produced in a given industry increases, the number of links in the trade network initially increases, as the number of countries exporting and importing the goods rises, and the trade network becomes more complex. However, this relationship is non-linear; eventually, as complexity increases even further and differentiation requires a high level of specialisation, the number of countries trading these goods declines to some extent.

> ## Box 1: Currency Unions and Exchange Rate Pegs
>
> Bergin and Lin's (2008) panel data analysis of the period 1973-2000 indicates that currency unions have raised trade predominantly at the extensive margin, with the entry of new firms or products. In contrast, direct exchange rate pegs have worked almost entirely at the intensive margin, increasing trade of existing products. This phenomenon is attributed to the more durable nature of currency unions, which therefore encourage firms to make the longer-term investment needed to enter a new market. Their model predicts that when exchange rate uncertainty is completely and permanently eliminated, all of the adjustment in trade should occur at the extensive margin.

3.4.2   Barriers to Market Entry and the Extensive Margin

Fixed costs of market entry have a larger impact on the extensive margin than on the intensive margin of trade. The effect is larger for differentiated/innovative goods than for homogenous goods, and the share of exports explained by the extensive margin is larger in these sectors.

The fact that not all countries trade with each other, that most firms do not engage in trade, and that those who do are larger and more productive than those who do not, all point in the direction of significant **fixed costs of entering foreign markets**. The more productive a firm, the more likely it is to recover the fixed costs of entering a foreign market.

Fixed costs or entry barriers include both policies and regulation in the importing country, such as licences and standard requirements, plus economic barriers such as search costs for a local partner or the building up of local distribution channels. In the Helpman, Melitz and Rubinstein (2008) framework, these fixed costs are inferred from their effect on the extensive margin of trade, ie they determine the number of firms, and ultimately the number of countries, a country will import from.

Hlousek (2009) studies the increase in trade between Visegrad countries and the EU-15 following trade liberalisation, and finds that the growth in exports was mainly on the extensive margin – the countries began to export goods they had not previously been trading. Our analysis of UK data above support this conclusion at the firm level: There was a large increase in the number of UK goods exporters entering New Member States between 2002 and 2008, ie during the accession period, when regulations in the accession states were brought into line with those of existing EU members, and the accession of the A8+2 into the single market reduced the overall costs of doing business with these markets.

Smeets et al (2010) study 1,200 large Dutch firms in 2006-2007, and find that market entry costs play a prominent role in the decision to enter a market. Only a quarter of the firms sampled export to more than 50 markets, yet these firms account for 60 per cent of the export value, suggesting that only the larger or more productive firms export to a wider range of markets. 9 per cent of the sample exported to only one destination. Smeets et al consider different market entry costs and find that low levels of institutional and regulatory quality, corruption and cultural dissimilarity are important barriers to entering export markets. However, they have little influence on the subsequent decision on export volumes. They also find some evidence that these market entry cost effects on the export decision are relatively important when considering entering small markets. Exports to large markets, on the other hand, react more strongly to changes in trade and transport costs.

Andersson (2007) examines Swedish firm-level export data and finds that fixed costs have a larger impact on the extensive margin than on the intensive margin of trade. Moreover, the impact of fixed cost trade barriers on the extensive margin, in terms of the number of firms engaging in trade, is larger for differentiated goods than for homogenous goods. Differentiated goods often require higher search costs for local partners, higher costs of adaptation to local markets, and are more complex to test against local standards. Homogenous goods, on the other hand, are more greatly affected by variable costs such as tariffs and transport costs, since these affect their ability to compete on price, as discussed in Section 4.3.1.

Rauch (1999) also finds that entry barriers have a lower impact on exports of more homogenous goods (eg goods traded on organised exchanges or that have a reference price). He argues that acquiring information about differentiated goods is costly, so that differentiated goods effectively face a higher entry barrier.

Koenig (2005) studies French firms and finds that the distance elasticity of the amount exported by an individual firm (the intensive margin) is larger in sectors where goods are more homogenous, whereas the distance elasticity of the number of firms (the extensive margin) is smaller in sectors where goods are more homogenous. This finding appears to contrast with the finding, reported in the previous section, that at the country level, extensive margin effects of distance-related variable costs are larger for homogenous goods. This suggests that the fixed costs of entry arising from distance can dominate the effect of variable costs on the extensive margin at firm level, and, as argued by Rauch, that these fixed costs are greater for firms selling differentiated products. Consistent with this idea, Koenig also finds that the share of exports explained by the extensive margin, in terms of the number of firms exporting, is larger in sectors with more differentiated products.

NIESR's 2010 secondary analysis of the International Business Strategies, Barriers, and Awareness survey confirmed that innovative firms report a significantly higher number of market entry barriers. Innovation was found to be the only consistent predictor of the number of barriers a firm faces. In terms of the severity of barriers faced, innovation was again the most significant influence, with innovative firms more likely to report more severe barriers, particularly with respect to contacts, establishing an initial dialogue, and building relationships with key contacts. This appears to be true across markets, suggesting that in any one market, innovative firms face higher barriers than non-innovative firms. However, highly innovative firms were also more likely to enter the BRICs and other emerging markets than non-innovative firms, and these markets are likely to entail higher entry barriers for UK firms than, for example, established European markets. The result that innovative firms are more likely to venture into emerging and distant markets also supports the conclusions of Benedictis & Tajoli (2009), that innovative/differentiated products tend to have geographically wider trade networks.

3.4.3   The Effect of the Elasticity of Substitution

Aggregate trade flows are less sensitive to changes in trade barriers when goods are more substitutable.

When transport costs vary, not only can each exporter respond by changing the size of its exports (the intensive margin), but the set of exporters is likely to vary as well (the extensive margin). Chaney (2008) finds that the price elasticity of substitution in demand has opposite effects on each margin. A higher elasticity makes the intensive margin more sensitive to changes in trade barriers, whereas it makes the extensive margin less sensitive.

When trade barriers decrease, new and less productive firms enter the export market. When the price elasticity of substitution is high, a low productivity is a severe disadvantage. These less productive firms can only capture a small market share. The impact of those new entrants on aggregate trade is small. On the other hand, when the elasticity is low, each firm is sheltered from competition. The new entrants capture a large market share, and the impact of those new entrants on aggregate trade is large. So a higher price elasticity of substitution increases the sensitivity of the intensive margin to changes in trade barriers, whereas it dampens the sensitivity of the extensive margin.

Chaney (2008) shows that when the distribution of productivity across firms is Pareto (a good approximation of the observed distribution of US firms) the effect on the extensive margin dominates. The elasticity of aggregate trade with respect to trade barriers (both variable and fixed) is negatively related to the elasticity of substitution. Therefore, when the elasticity of substitution is low, a reduction in barriers to entry for UK firms in China will result in more UK firms entering the Chinese market (as well as existing exporters exporting larger volumes), and a large increase in overall UK-China exports, potentially increasing the UK's market share. As such, the effect of trade barriers on trade flows is magnified by the elasticity of substitution. Aggregate trade flows are less sensitive to trade barriers when goods are more substitutable (Chaney, 2008).

A high elasticity of substitution also translates productivity differences into large differences in the size of exporting and non-exporting firms. As firm sizes become more dispersed, fixed costs have a lesser impact on exports: large firms can easily overcome those fixed costs.

3.4.4   Barriers to Entry in Services

The nature of trade costs facing services is different from goods. Services do not go through customs and cannot be observed crossing a border. However, there are considerable trade barriers behind the border, related to compliance with regulation, which require considerable resources on the part of the exporter. Such costs are usually independent of subsequent export flows and must therefore be considered as fixed and largely also sunk. For instance, service providers typically need a licence to operate. In some service sectors, such as professional services, local qualification requirements need to be fulfilled and documented, and compliance with local standards is required. This constitutes a sizeable barrier if firms need to go through different screening and qualification procedures for each new market they enter.

In addition, services are often highly differentiated, so likely to face higher fixed costs of market entry. Hence the share of exports explained by the extensive margin, in terms of the number of firms exporting, is likely to be larger in these sectors.

3.4.5   Comparison of Barriers among OECD Countries

The OECD product market regulation (PMR) indicators provide a regulatory profile of the member countries on a number of dimensions, including explicit barriers to trade and investment, competition issues, red-tape and government intervention in the economy. In addition to such regulatory barriers to entry, there are commercial entry costs such as market research and customising the services to local preferences. Given the role of service trade in supporting goods trade, service trade barriers are likely to have a bearing on trade costs in goods and vice versa.

While all OECD countries have carried out reforms to reduce product market regulation barriers, there remains significant variation in the extent of these barriers, and the ranking among member countries has changed somewhat. The USA had just overtaken the UK in 2008 as the member country with the lowest regulations, while Spain, Japan, Switzerland, Italy and the Czech Republic improved their regulation index by the largest proportion between 1998 and 2008. This is shown in Figure 3.3 below.

Figure 3.3: Product Market Regulation Index for OECD Countries
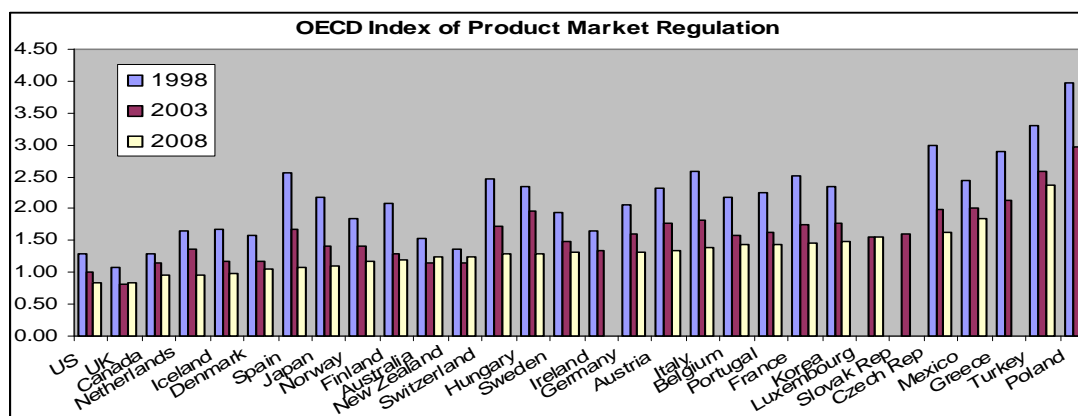
Source: OECD

In terms of the explicit trade and investment barriers index, within the PMR indicators, the UK had the lowest trade and investment barriers among all OECD member countries in 1998, and has reduced barriers further since then, but Iceland and the USA have lowered barriers even further (as shown in Figure 3.4). Spain, Hungary and Iceland experienced the highest percentage improvement in their trade and investment barrier indexes between 1998 and 2008.

Figure 3.4: Barriers to Trade and Investment Index for OECD Countries
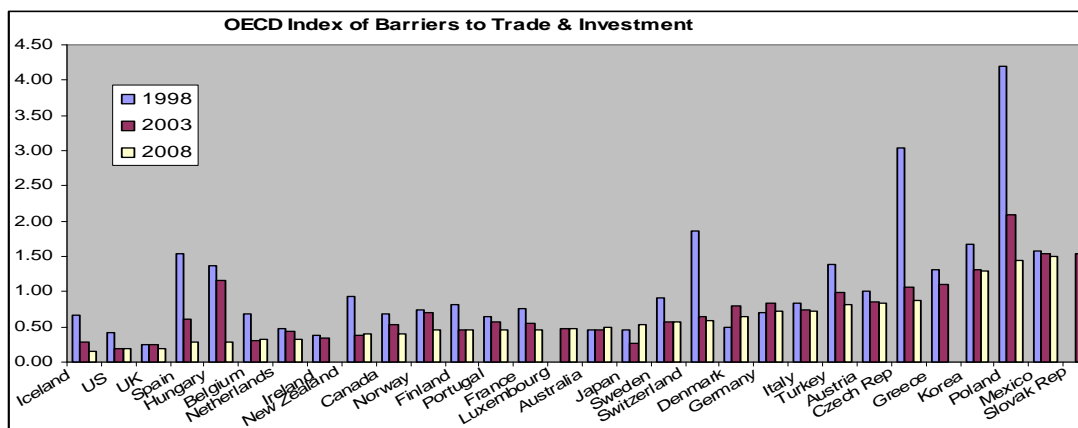
Source: OECD

3.5 Conclusions

- **Trade barriers prevent higher trade on both the intensive and extensive margins, with barriers to market entry in particular affecting trade on the extensive margin.**

- **Variable trade costs affect the extensive margin for homogenous goods more than for differentiated goods, resulting in trading networks with fewer trading partners. For differentiated products trading networks tend to be wider, except where trade is hampered by market entry costs.**

- **The impact of fixed market entry costs is larger for differentiated goods, as these costs tend to increase with product complexity, and the share of exports explained by the extensive margin is larger in these sectors.**

- **Services are also strongly affected by market entry barriers, with highly differentiated services facing the highest market entry costs.**

3.6 Policy Implications

The Government has a role to play in reducing variable trade and transport costs, particularly tariffs, and in reducing market entry costs, ie the cost of overcoming institutional and regulatory barriers, market failure in the provision of access and information, and cultural dissimilarities.

A reduction in trade costs should increase trade at both the extensive and intensive margins, but particularly the intensive margin, increasing the volume of exports that are profitable for UK providers.

A reduction in market entry costs, however, will mainly increase trade at the extensive margin, allowing a larger number of UK firms to enter an export market. Smeets et al (2010) and Koenig (2005) suggest that market entry costs dominate over transport and trade costs in the decision to export at all, or to export to a particular market, i.e. they form the greatest barrier to trade growth at the extensive margin.

Given that the extensive margin appears to have been the stronger driver of global trade growth and the stronger driver of growth in differentiated exports in particular, it is important to help firms overcome market entry costs.

Smeets et al (2010) suggest that, especially for firms exporting from a small and open economy such as the Netherlands, establishing new trade relationships could have a significantly larger impact on aggregate trade than intensifying existing ones. They argue that traditional trade policies aimed at lowering tariffs and non-tariff barriers are less effective in helping these new trade relationships to develop. Instead, other instruments such as trade missions, bilateral negotiations and economic diplomacy may have a larger impact in unlocking new export markets. In their words: *"This is not only a matter of establishing business networks and infrastructure for doing business; it also entails pressing for institutional and regulatory reforms…"*

A further policy implication follows on from the fact that only the most productive firms will choose to export, and to a wide range of markets. If market entry costs are reduced, slightly less productive firms will be able to enter the export market, but still the least productive firms will not export. There is therefore little need to pick winners; they will select themselves.

CHAPTER 4: TRENDS IN UK TRADE ACROSS SECTORS

Goods still account for the majority of UK exports, though the share of services in exports is rising, particularly financial services. The UK's revealed comparative advantage is strong in many services, as well as in some transport infrastructure and life sciences. These exports are amongst those likely to be in increasing demand amongst the middle classes of emerging economies.

4.1   UK Exports by Sector

Despite the increasing proportion of services within UK exports, goods still accounted for 59% of UK exports in 2009, and, by broad classification, the four largest categories of exports continue to be in manufacturing, with 'machinery and electrical products' accounting for 14% of total UK exports. Financial services make up 12% of total UK exports and professional services are close behind, but some other services such as recreational activities are inherently less tradable.

In spite of the dominance of manufacturing in UK exports, however, these sectors account for a much higher proportion of exports in other G7 countries: The blue points in the chart below show the G7 average, with machinery and electrical products and other manufacturing together accounting for over 40% of exports in the average G7 country, and basic manufacturing and metals also accounting for a higher proportion of exports. The UK has much higher than average exports in services, but the UK's proportion of exports in agriculture and minerals and chemicals, rubber and plastic is close to the average.

Figure 4.1: Share of Total Exports by Sector, 2008
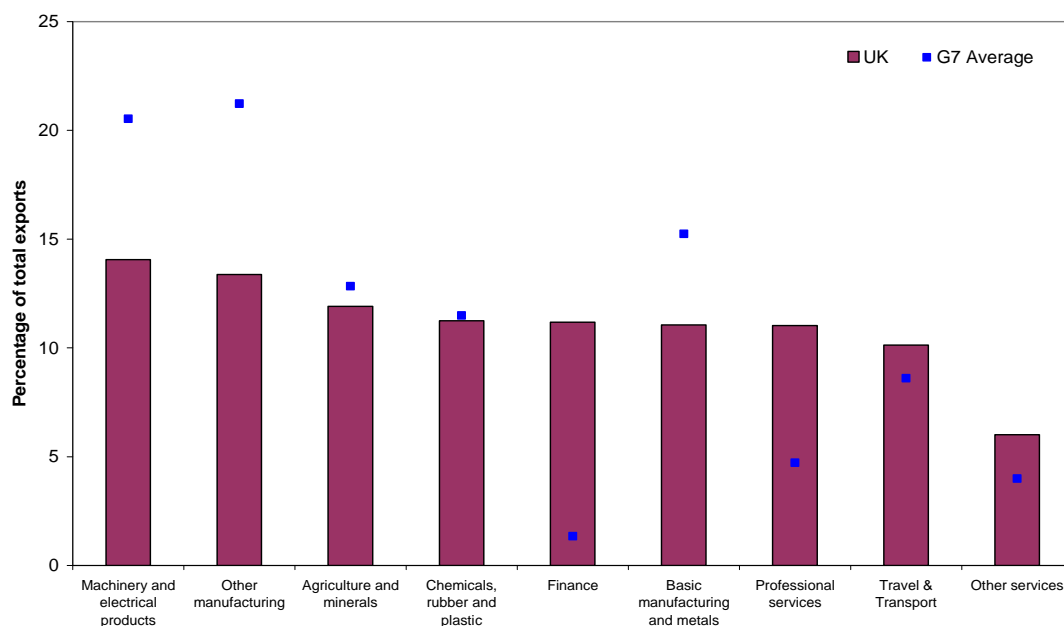
Source: OECD and BIS calculations

In the ONS figures, manufacturing exports are disaggregated further, so that chemicals becomes the industry with the largest exports, followed by financial services, then other business services, and then intermediate goods followed by capital goods.

The 2009 IIIS study gave a breakdown of UK goods exports by sector, which reflect UKTI's sector breakdown. In the table below, we have taken the IIIS figures and added services export figures where applicable, using UN data for 2007.

Table 4.1: Total Goods and Services Exports in 2007 by Sector

Sector	Goods & Services Exports, US$ m
Advanced engineering	113,743
Financial & professional services	102,605
Creative industries	34,572[7]
Construction & Global sports projects	32,166
ICT	31,501
Energy	31,090
Agri-Technology	22,010
Life sciences	17,970
Education and skills	7,959
Mass transport	1,478
Environment and water	220

Source: UN trade data

In terms of current importance for total UK exports, therefore, advanced engineering and financial and professional services are clear front-runners. The creative industries, construction, ICT and energy also make substantial contributions.

Many of the above sectors have been the subject of deeper analysis of the level of exports, including more detailed breakdowns than used by the UN. For example, the British Council estimated that total UK exports of education in 2003-04 amounted to a conservative estimate of £8,640 million. If private sector training, consultancy and educational-related goods and services were included, they estimated that the total value of 2003-04 exports for the industry was as high as £27,772 million. However, these all-inclusive estimates then detract from the totals for other sectors, for example educational broadcasting could no longer be included as part of creative and media, and consultancy could no longer be included in professional services. Unless the sectoral lines are redrawn, therefore, it is simpler to stay with the UN figures, which provide consistency across the sectors. They also provide consistency across countries, in order to compare UK export performance to other competitors, via the UK's Revealed Comparative Advantage.

---

[7] Advertising is included in Creative Industries, and is assumed to account for the same proportion (80%) of advertising and market research exports as it does for turnover. Excluding advertising, the exports for Creative Industries would amount to £30.8 billion.

4.2   The UK's Revealed Comparative Advantage by Sector

The UK's revealed comparative advantage shows those sectors where the UK holds a relatively strong share of the export market, and gives an idea of whether the UK has an advantage over competitor countries, due to particular skills, knowledge, technologies, input costs or historical advantage.

IIIS' estimates of RCAs in goods sectors have been combined with further estimates of RCAs by service sector[8], to obtain the sectoral breakdown of RCAs shown in figure 4.2 below.

Figure 4.2: Revealed Comparative Advantage by Goods and Services Sectors in 2007
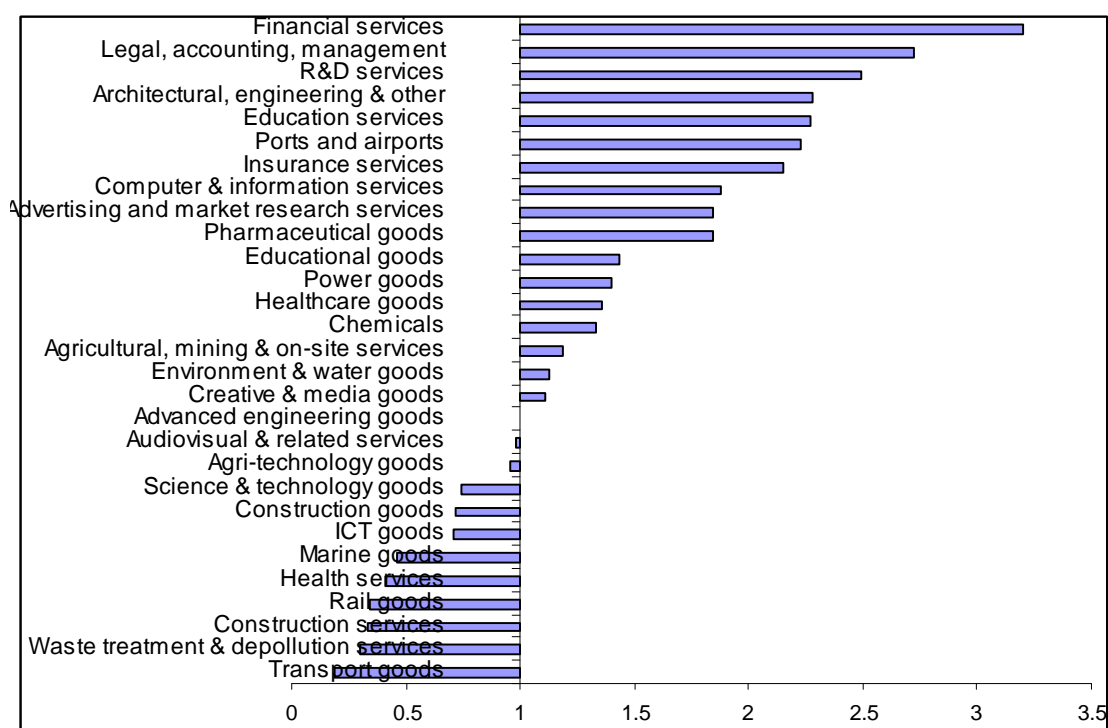
Source: IIS 2009 Report and UN Services Trade Data

The UK's RCA in financial and profession services is clear, as well as other services that support industry, such as architecture, technical services, advertising and R&D services. On the goods side, the UK has a high RCA in

---

[8] The RCA for each service sector compares the UK's share of global exports in that sector to the UK's share of all services exports (8.3%), and is calculated from UN 2007 data, in line with the IIIS RCAs for goods.

ports and airports and pharmaceutical goods, and a fairly high RCA in educational, power and healthcare goods, as well as other chemicals.

4.3 Revealed Comparative Advantage of Emerging Economies

The revealed comparative advantage of low-wage emerging economies such as China, India and Indonesia has also been considered, to indicate the sectors where the UK might face the fastest-growing medium-term competition for market share from these economies as they expand. Allowance should be made for the fact that in the longer term these economies are likely to move into higher value-added goods and services.

The RCA of these economies is particularly high in clothing, office equipment, telecoms equipment, electrical and other machinery, and computer information and services.   Their revealed comparative disadvantage is currently high in royalties and licence fees, aerospace products, pharmaceuticals, road vehicles, financial and insurance services and personal, cultural and recreational services. At present, UK trading strengths are relatively uncorrelated with the low-wage emerging economies, except perhaps India's strength in business services. The correlation coefficient between the UK and the low-wage economy RCAs is -0.44. Analysis by the OECD reaches a similar conclusion.

An alternative way to consider those sectors that are most exposed to low wage competition is to look at the R&D and skill intensity of each sector, as low-wage economies will be slower to catch up in R&D and skill-intensive sectors, until they up-skill. Estimates of labour quality show that R&D, computer services, financial services and other business services are all highly skilled sectors across the UK, the US, France and Germany. R&D intensity is found to be strongest in engineering and transport equipment and pharmaceuticals.

4.4 Growth in UK Exports by Sector

By goods sector, energy and metals and minerals have experienced the greatest percentage increase in UK exports since 2002, as shown below, and sectors such as biotechnology and pharmaceuticals are becoming increasingly important.

Figure 4.3: The Value of UK Goods Exports by Sector in 2008, compared to 2002
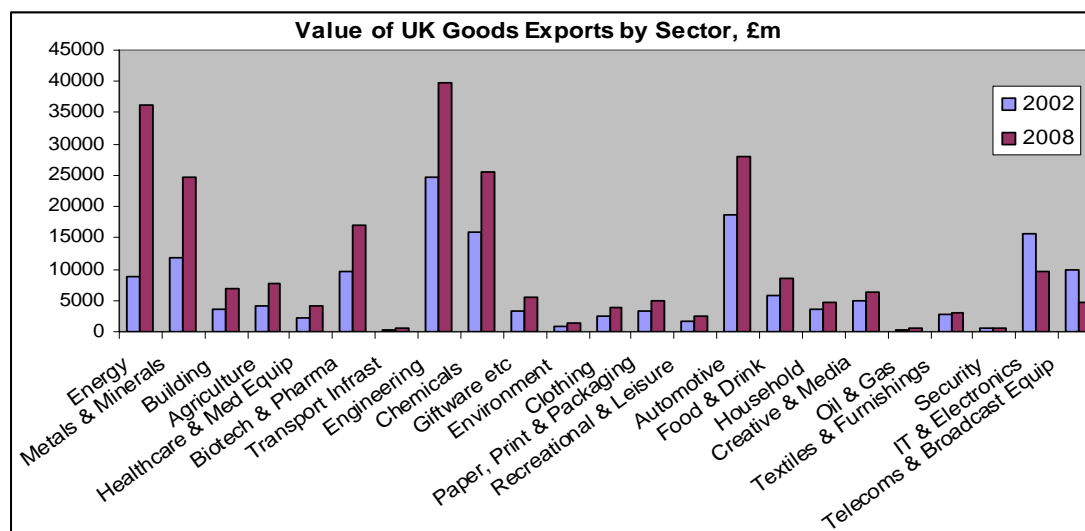
Source: BIS Sectoral Exports, from HMRC Trade data. Sectors ordered by percentage increase 2002-2008

In services, all of the eleven broad sectors included in Figure 4.4 below have experienced growth in UK exports between 1998 and 2008, but the percentage increase has been varied, from a 37 per cent increase in travel services exports to a 347 per cent increase in financial services. Financial services exports overtook other business services exports in 2007 as the largest services export sector, and travel services fell from the second largest services export sector in 1998 to the fourth largest in 2008, behind transport services. Construction services exports and personal, cultural and recreational services exports have grown by over 200 per cent and over 100 per cent respectively over the ten-year period, but still remain the smallest services export sectors, according to ONS sectoral classifications.

Figure 4.4: The Value of UK Service Exports by Sector in 2008, compared to 1998 and 2003
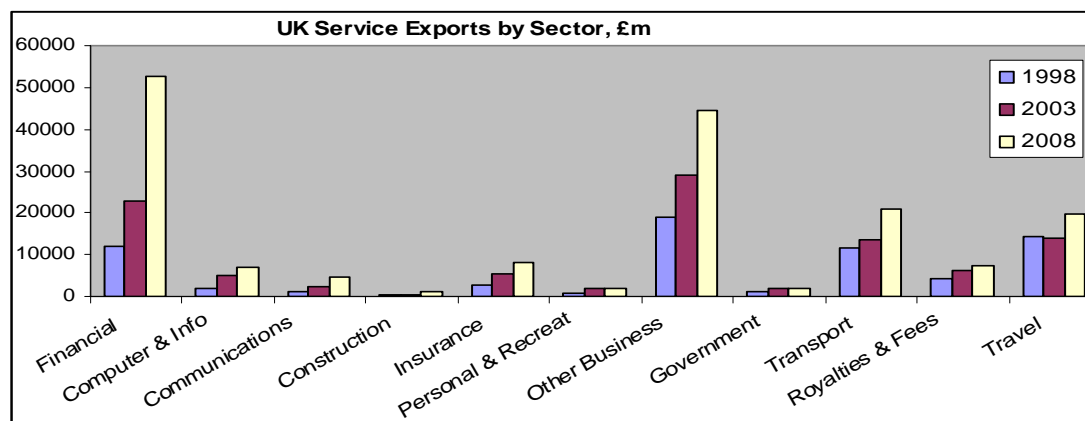
Source: ONS Pink Book 2009. Sectors ordered by percentage increase 1998-2008

4.5   Growth in the Number of UK Exporters

Many sectors experienced growth of over 100 per cent in the number of UK exporters in China, India and several other high growth markets between 2002 and 2008, though these were not always the sectors whose overall export values grew the fastest.

The following table shows export growth for each goods sector and key market, divided into growth in the number of exporters and growth in the average value exported by each firm. The dark green shading indicates where the growth in the number of exporters has exceeded 100%, and the light green shows an increase in the number of exporters exceeding 50%. The orange, on the other hand, shows where the number of UK exporters has declined. The sectors are listed by overall goods export growth.

Despite low or negative overall export growth in security, IT and electronics and telecoms equipment, these sectors have nevertheless benefited from fairly strong market entry by firms exporting to the BRICs and Middle Eastern economies. Life sciences and engineering, on the other hand, have seen high export growth, but mainly through existing exporters increasing their export revenue, rather than through new exporters. This may indicate goods sectors and key markets where there is increasing demand, but where firms may face high market entry barriers.

Table 4.2: Growth in the Number of Exporters and Average Amount Exported by each Firm

2002–2008 % change	Sector export growth	Russia	Qatar	China	India	UAE	Turkey	Brazil	S.Africa	S. Korea	Saudi	US	German	Mexico	Indonesia	Japan
UK goods export growth		390	320	317	152	143	137	103	93	90	89	59	49	47	33	19
Energy	308	142/-40	97/135	97/39	68/169	95/46	59/65	10/30	29/1129	1/736	38/282	8/545	28/311	-1/286	24/-59	1/-20
Metals & Minerals	109	164/9	81/227	102/273	60/47	46/211	52/244	40/653	10/40	18/365	22/207	6/115	24/99	1/71	18/64	2/157
Construction	85	150/266	88/165	115/31	134/49	51/244	80/171	24/85	24/83	19/100	33/112	14/19	24/24	-5/17	101/58	2/7
Healthcare Equip	81	96/188	75/14	84/45	70/132	8/57	52/144	14/102	38/17	35/32	20/21	24/33	28/5	50/20	26/74	3/105
Agriculture	81	64/59	42/146	81/84	56/109	49/113	54/-9	26/182	9/37	1/33	-2/44	-4/79	18/30	-4/-70	-10/-13	-10/6
Biotech & Pharma	80	95/205	31/34	61/244	52/37	85/74	91/3	-8/86	22/55	36/93	12/28	33/27	49/56	2/18	-1/-78	14/-17
Transport Infrast	77	73/-93	95/658	163/-30	116/344	113/-82	122/204	115/55	109/245	3/-1	56/91	62/28	32/7	150/-54	6/247	82/134
Engineering	61	110/220	80/171	94/109	58/67	69/68	49/70	27/24	18/75	10/43	27/55	6/36	12/30	19/150	52/49	1/45
Chemicals	60	81/96	58/269	108/2	51/88	51/11	42/24	24/85	20/1	13/95	8/75	20/27	23/45	21/40	15/-17	9/27
Environment	59	250/200	157/50	114/55	86/34	91/31	51/65	61/-58	39/33	50/-30	12/160	16/19	23/29	100/41	20/57	15/-51
Giftware	59	85/44	65/2232	143/45	73/-30	39/0	87/10	-26/-15	62/-36	-15/85	16/44	-2/32	31/-36	-18/23	-2/51	8/26
Clothing	55	154/199	91/30	168/-13	83/17	65/80	55/55	16/71	70/6	28/-22	28/-31	14/-32	12/30	-3/153	53/-6	-10/-20
Recreational	51	123/-64	21/8	94/-36	95/-49	35/28	113/-8	11/-82	62/-21	17/-20	-4/354	0/8	16/-34	27/-48	50/-26	-3/-27
Paper & Packaging	53	101/77	100/-47	101/482	101/344	139/-32	50/32	6/30	15/-21	8/-6	16/136	17/-9	13/2	13/105	34/44	12/-8
Automotive	50	101/803	85/289	101/408	77/49	12/154	67/138	2/187	14/132	17/70	12/97	-2/-3	21/-11	-12/32	34/143	-1/18
Food & Drink	46	49/59	25/234	109/236	80/127	2/148	58/69	-1/130	41/180	-3/-24	15/-32	2/38	23/-8	31/1	-19/219	-5/-9
Household Goods	27	95/-19	67/56	126/-25	84/17	53/109	89/24	35/34	45/-30	-3/23	16/36	11/-12	21/-8	-4/-71	25/-30	-5/3
Creative & Media	27	99/255	131/-76	181/-11	30/119	119/-64	69/-17	22/82	59/41	11/15	18/69	-6/-2	4/33	-12/284	39/-49	-1/-17
Textiles & Furnish	6	82/-26	17/78	63/36	27/-37	57/258	-7/18	-8/33	-3/20	-23/-38	-5/32	-8/12	5/6	6/57	0/-12	-12/2
Security	2	123/39	144/130	177/24	131/132	149/335	58/29	27/-17	48/10	74/86	21/-13	53/21	18/-11	86/30	75/85	46/-12
IT & Electronics	-40	72/-54	207/63	122/36	127/-48	134/-52	62/-57	43/-71	38/-52	27/4	48/-40	13/-32	8/-19	-14/-55	45/-75	14/-69
Telecomms Equip	-54	40/24	176/-52	136/-63	132/1	111/-38	106/-40	34/-23	53/6	94/-17	41/1	50/-10	13/-81	70/-65	168/-54	51/-57

Source: UKTI analysis of HMRC goods trade data, divided into sectors by EPA, BIS

Table 4.3 Percentage of UK establishments exporting, 2000-2006, by industry (figures are percentages)

Industry (1992 2-digit SIC)	2000	2004	2006
Mining & quarrying (10-14)	22.0	32.9	38.5
Food & drink (15)	37.3	35.1	44.4
Textiles (17)	62.1	56.7	61.3
Clothing & leather (18)	28.5	46.6	59.7
Wood products (20)	22.9	19.9	24.0
Paper (21)	43.6	44.5	67.1
Publishing & printing (22)	20.4	29.4	40.6
Chemicals (23-24)	73.7	78.4	86.5
Rubber & plastics (25)	55.9	50.8	60.2
Non-metallic minerals (26)	36.1	44.1	46.3
Basic metals (27)	69.8	73.3	80.6
Fabricated metals (28)	32.4	39.2	44.8
Machinery & equipment n.e.s. (29)	57.2	66.7	71.4
Electrical machinery (30-32)	67.7	58.4	66.4
Medical etc instruments (33)	63.9	68.0	80.5
Motor & transport (34-35)	55.3	53.4	65.0
Furniture & manufacturing n.e.s. (36)	39.7	38.5	50.9
Construction (45)	3.5	3.7	6.6
Sale/repair of motor vehicles (50)	n.a.	7.3	13.9
Wholesale trade (51)	36.3	42.3	48.8
Retail trade (52)	n.a.	8.3	15.7
Hotels & catering (55)	n.a.	4.8	13.6
Transport (60-62)	3.7	18.8	24.1
Transport support (63)	15.4	37.5	43.3
Post & telecom (64)	7.1	25.8	29.5
Financial (65-67)	10.2	29.6	26.3
Real estate (70)	0.5	5.4	5.8
Machine rentals (71)	5.5	14.9	15.1
Computing (72)	35.7	48.2	59.5
R&D (73)	54.7	50.7	63.5
Other business (74)	16.0	26.9	26.6
Motion Picture production (9211)	na	na	43.9
All sectors	26.1	25.7	30.6

Source: weighted data from CIS3/4/5 (authors' own calculations)

Table 4.3 shows that the proportion of UK firms who export has increased since 2000, both in manufacturing and in services, although the proportion of turnover derived from overseas sales remains low for the majority of these firms.[9]   And that there is a large variation across sectors at the 2 digit level both in terms of the firms exporting and the proportion of turnover derived from overseas sales. Lower survival rates among non-exporters have contributed to an increase in the proportion of firms exporting in many UK sectors, especially in manufacturing.

4.6   Recent Changes in Import Demand for Priority Sectors and Markets

The IIIS 2009 study considered how the demand for imported goods had changed within 10 key destination markets[10] between 2002 and 2007. Across these markets, marine and transport experienced the highest average growth rates, of 26% and 23.5% respectively. Creative and media goods and ICT goods showed the lowest annual growth, of 6% and 3% respectively. Adding creative and media and ICT *services* is likely to improve on these figures somewhat. Also, demand for creative and media and ICT goods and services is likely to increase faster in these markets in the future, as incomes rise and the middle classes expand, as discussed below.

[9] Harris & Li (2010)
[10] Brazil, China, Germany, India, Japan, Mexico, Russia, Saudi Arabia, South Africa and the USA.

Table 4.4: IIIS calculations of how Import Demand has changed in Priority Goods Sectors and Key Markets, between 2002 and 2007

	AE	CON	ICT	E&W	TRA	P&A	RAI	EDU	PHA	HEA	CRE	POW	S&T	AGT	MAR	CHE
Brazil	14.84	17.04	-5.28	6.39	6.91	-5.99	12.30	7.12	17.68	15.60	-6.68	5.07	8.36	15.54	11.30	15.80
China	21.02	19.37	0.05	2.81	-14.55	37.65	37.78	34.25	22.48	17.57	6.92	23.38	22.80	12.07	14.21	21.93
Germany	10.11	14.03	-9.05	-0.16	2.35	37.09	0.86	13.49	31.04	14.86	-0.88	7.55	12.55	6.84	78.76	18.40
India	33.61	33.08	13.35	47.28	46.44	47.67	12.70	14.63	16.81	18.76	8.97	23.85	26.74	33.03	19.01	23.90
Japan	7.52	3.76	-7.63	3.29	10.17	9.11	1.20	-8.61	1.20	5.72	3.38	7.25	5.89	3.36	10.83	8.54
Mexico	6.43	8.27	-2.46	6.24	25.34	1.46	39.52	3.98	20.63	3.62	-1.23	1.05	-0.23	12.32	5.42	12.63
Russia	47.49	31.96	27.67	37.08	2.74	17.86	-18.05	3.95	38.62	31.13	31.81	36.10	24.98	31.34	19.09	27.35
S. Arabia	16.63	29.49	21.40	48.24	84.25	-26.43	-10.12	29.15	21.78	15.35	13.28	29.37	26.91	17.37	64.57	16.65
S. Africa	22.80	19.02	3.87	13.43	40.76	8.58	25.91	25.13	13.99	13.85	5.83	16.51	16.63	14.98	35.94	12.13
USA	5.05	11.34	-12.78	20.35	30.87	29.25	1.85	4.34	13.70	12.17	1.61	5.44	8.76	7.83	4.38	9.76

Source: IIIS 2009

4.7 Expected Future Growth in Overseas Demand by Sector

There are many factors that look set to influence the type of goods and services demanded across the world in the future, including:

- Expanding middle classes, rising incomes and increasing consumer demand for sophisticated, higher value-added products

- Growing demand for environmental protection/standards

- New technologies, driving both consumer and business demand

- Changing demographics

As the figure below demonstrates, as consumer incomes rise, expenditure is expected to increase disproportionately on recreation, medical care and transport/communications.

Figure 4.5: Expenditure Behaviour in High Income Economies
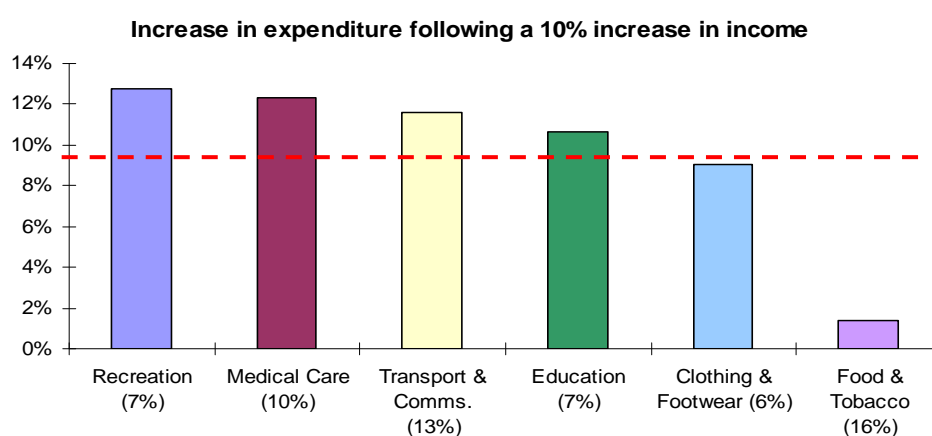
Source: W. Michael Cox and Richard Alm, Federal Reserve Bank of Dallas, 2007 Annual Report. "Opportunity Knocks". Note: Share of overall consumer expenditure given in brackets.

Within these, spending will shift towards the luxury, high quality end of the market, such as laser eye treatment and foreign travel. Such a shift would also be a continuation of historic trends, which saw for example the proportion of UK incomes spent on food roughly halve through the 20th century.

Rising incomes are also associated with increased demand for environmental amenities such as better air quality. This triggers government action and more rapid deployment of energy efficient, less polluting technologies. In addition, international agreements on carbon reduction should drive forward

demand for goods and services which use lower levels of carbon during both their production and their use.

The ability to reduce the environmental impact of products and services could potentially form an important source of competitive advantage. The definition of a low-carbon good or service is debatable, but the global market for low-carbon and environmental goods and services is estimated at £3 trillion a year. This includes traditional environmental goods and services, renewable energies, alternative fuels, nuclear power, building technologies and carbon finance, providing particular opportunities in utilities/energy, research and development and construction.

Developments in ICT will continue to lead to new products and services for consumers and business. These include common platforms or technologies that facilitate the digital economy (e.g. iphone, igoogle, ebay), business developed applications that deliver the actual products of the digital economy, and user generated or 'crowd sourced' products that make use of these common platforms and applications.

These developments will drive growth in the research and development, communications and computer services sectors, but also to some extent across all sectors.

An ageing population in advanced economies and an increase in the number of people under 25 in emerging economies, could cause the path of demand to diverge for the two sets of economies. In advanced economies there will be more demand for healthcare, housing and utilities, whilst the demand for education and vehicles should decrease. The nature of financial and retail services may also adapt to the demand of older customers.

4.7.1　UNCTAD Report on the Creative Economy

The 2008 UNCTAD Report on the Creative Economy highlighted the Creative Industries as an area of global growth. They found that, between 2000 and 2005, trade in creative goods and services increased at an average annual rate of 8.7%. Their preliminary figures valued world exports of creative products at US$424.4 billion in 2005, compared to US$227.5 billion in 1996. **Creative services** enjoyed even faster growth; 8.8% annually between 1996 and 2005. UNCTAD found that this growth occurred in all regions and groups of countries, and they expect it to continue into the next decade, assuming that the global demand for creative goods and services continues to rise.

However, as the UNCTAD report points out, this is one of the high-growth sectors that developing economies could leapfrog into, requiring less investment than high-tech manufacturing. Therefore, the UK and other advanced economies will face increasing competition from emerging and even developing economies, as they expand into these sectors.

4.8   Conclusions

- **Advanced engineering goods and services and financial services form the largest components of UK exports, as classified by UKTI sectors.**

- **Machinery and electrical products accounted for 14 per cent of UK exports in 2008, but this was substantially below the G7 average of just over 20 per cent.**

- **UK financial services exports increased by 347 per cent between 1998 and 2008, and energy and metal and mineral exports also rose significantly.**

- **The number of UK firms exporting to large high growth markets has risen substantially between 2002 and 2008 in most goods sectors, but especially in transport infrastructure and telecommunications equipment. The demand for transport imports in these markets has also risen particularly fast.**

- **The expanding middle classes in emerging markets are likely to continue to increase their demand for transport and telecommunications, and also for services such as health, education and recreational activities. Ageing populations in advanced economies will also require further healthcare imports. In addition, new technologies and the low carbon economy should also be important drivers of demand across sectors.**

CHAPTER 5: TRENDS IN UK TRADE ACROSS MARKETS

5.1 UK Exports by Market

The tables below show the UK's top export partners for both goods and services in 2008. For each trading partner, the three largest export sectors by total value are given, and for goods exports, the number of exporting firms in each sector is also recorded.

Table 5.1: Top 20 Destinations for UK Goods by Total Value Exported in 2008

Destination	Sector 1	Sector 2	Sector 3
USA	Engineering (£7.6bn) (7273 exporters)	Energy (£7.2bn) (811 exporters)	Biotech & Pharmaceutical (£3.4bn) (268 exporters)
Germany	Energy (£5.3bn) (633 exporters)	Engineering (£4.3bn) (3457 exporters)	Chemicals (£4.1bn) (2012 exporters)
Netherlands	Energy (£8.2bn) (532 exporters)	Chemicals (£2.0bn) (1646 exporters)	Biotech & Pharmaceutical (£1.3bn) (218 exporters)
France	Engineering (£2.8bn) (3137 exporters)	Energy (£2.4bn) (574 exporters)	Automotive (£2.0bn) (777 exporters)
Ireland	Energy (£3.5bn) (865 exporters)	Agriculture (£1.7bn) (1394 exporters)	Chemicals (£1.1bn) (2693 exporters)
Belgium	Metals & Minerals (£2.7bn) (807 exporters)	Automotive (£2.5bn) (635 exporters)	Chemicals (£2.4bn) (1367 exporters)
Spain	Automotive (£1.7bn) (645 exporters)	Biotech & Pharmaceutical (£1.4bn) (201 exporters)	Chemicals (£1.2bn) (1506 exporters)
Italy	Automotive (£1.8bn) (556 exporters)	Engineering (£1.1bn) (2477 exporters)	Metals & Minerals (£1.0bn) (819 exporters)

Destination	Sector 1	Sector 2	Sector 3
Sweden	Automotive (£1.0bn) (514 exporters)	Metals & Minerals (£0.8bn) (674 exporters)	Energy (£0.7bn) (328 exporters)
China	Engineering (£1.4bn) (1894 exporters)	Metals & Minerals (£1.0bn) (413 exporters)	Automotive (£0.7bn) (248 exporters)
Switzerland	Metals & Minerals (£0.9bn) (498 exporters)	Creative & Media (£0.8bn) (603 exporters)	Giftware & Tableware (£0.6bn) (417 exporters)
Russia	Automotive (£1.6bn) (198 exporters)	Engineering (£0.7bn) (909 exporters)	Chemicals (£0.3bn) (439 exporters)
India	Metals & Minerals (£2.2bn) (496 exporters)	Engineering (£0.8bn) (2005 exporters)	Chemicals (£0.2bn) (764 exporters)
Japan	Engineering (£0.7bn) (1453 exporters)	Metals & Minerals (£0.5bn) (315 exporters)	Automotive (£0.5bn) (421 exporters)
Canada	Engineering (£1.3bn) (1851 exporters)	Energy (£0.6bn) (184 exporters)	Biotech & Pharmaceutical (£0.4bn) (101 exporters)
Hong Kong	Engineering (£1.0bn) (1647 exporters)	Metals & Minerals (£0.6bn) (322 exporters)	Giftware & Tableware (£0.4bn) (355 exporters)
Australia	Engineering (£0.7bn) (2416 exporters)	Biotech & Pharmaceutical (£0.4bn) (146 exporters)	Automotive (£0.4bn) 592 exporters)
Poland	Automotive (£0.4bn) (429 exporters)	Engineering (£0.4bn) (1647 exporters)	Chemicals (£0.4bn) (995 exporters)
Norway	Engineering (£0.8bn) (2402 exporters)	Energy (£0.4bn) (285 exporters)	Metals & Minerals (£0.2bn) (603 exporters)
Singapore	Engineering (£1.3bn) (1936 exporters)	Chemicals (£0.2bn) (640 exporters)	Energy (£0.2bn) (227 exporters)

Source: BIS Sectoral Trade Data, originally sourced from HMRC Trade Data

Table 5.2: Top 20 Destinations for UK Services by Total Value Exported in 2008

Destination	Sector 1	Sector 2	Sector 3
USA	Financial (£11.1bn)	Other Business Services (£9.2bn)	Insurance (£4.5bn)
Germany	Financial (£4.5bn)	Other Business Services (£2.9bn)	Travel (£1.3bn)
Netherlands	Other Business Services (£3.9bn)	Financial (£2.9bn)	Transport (£1.0bn)
France	Financial (£3.9bn)	Other Business Services (£2.2bn)	Travel (£1.3bn)
Ireland	Other Business Services (£2.4bn)	Financial (£1.9bn)	Travel (£1.0bn)
Switzerland	Other Business Services (£2.8bn)	Financial (£2.1bn)	Travel (£0.4bn)
Spain	Transport (£1.5bn)	Financial (£1.5bn)	Travel (£0.9bn)
Japan	Financial (£2.7bn)	Other Business Services (£0.8bn)	Transport (£0.6bn)
Italy	Financial (1.1bn)	Travel (£0.8bn)	Other Business Services (£0.8bn)
Australia	Financial (£1.0bn)	Transport (£0.9bn)	Travel (£0.8bn)
Belgium	Other Business Services (£1.4bn)	Financial (£1.1bn)	Transport (£0.5bn)
Singapore	Transport (£0.7bn)	Other Business Services (£0.7bn)	Financial (£0.6bn)
Canada	Financial (£0.8bn)	Travel (£0.5bn)	Other Business Services (£0.5bn)
Saudi Arabia	Other Business Services (£1.7bn)	Financial (£0.4bn)	Travel (£0.3bn)
China	Transport (£1.1bn)	Travel (£0.5bn)	Financial (£0.4bn)
Denmark	Transport (£0.9bn)	Other Business Services (£0.6bn)	Financial (£0.4bn)
Russia	Financial (£1.1bn)	Other Business Services (£0.5bn)	Travel (£0.2bn)
Hong Kong	Financial (£0.9bn)	Transport (£0.4bn)	Other Business Services (£0.4bn)
Luxembourg	Financial (£1.3bn)	Other Business Services (£0.6bn)	Travel (£0.03bn)
India	Transport (£0.5bn)	Travel (£0.5bn)	Other Business Services (£0.4bn)

Source: ONS Pink Book 2009

5.2   UK Markets Compared to those of Competitors

As a gravity model would predict, the top export markets for the UK and for its competitors are governed by a combination of geographical proximity and market size. All of the UK, Germany and France's top eight goods export markets are in Europe except the USA, whereas only three European markets make it into the USA's top eight export markets, and just Germany scrapes into 8th place among Japan's goods export markets. Japan's top two goods export markets are the USA and China, which are then followed by South Korea and other Asian markets. The USA's largest goods export markets consist of Canada, Mexico, China and then Japan, followed by Germany, the UK, the Netherlands and then South Korea and Brazil ahead of France and Belgium.

Cultural and linguistic ties, as well as the euro area, are likely to help explain the fact that the USA is top of the UK's goods export markets, but second behind France for German goods exports, and only the 6th market for French goods. Ireland, India, Canada and Australia also appear higher up the UK's list than they do for Germany and France, whereas Austria and the Czech Republic are more important for Germany, and Turkey and Algeria appear higher for France. India is only the 27th largest market for German goods and the 25th largest for French goods. Otherwise, UK, German and French goods export destinations do not differ greatly, with China in 9th, 10th and 11th place, and Russia in 10th, 12th and 12th place, for France, the UK and Germany respectively. Brazil appears between 21st and 26th for the three European exporters, and also for Japan, though it is the 9th largest market for US goods exports.

5.3   The Change in Importance of Different Markets over Time

The top five markets for both goods and service exports from the UK have remained the USA, Germany, the Netherlands, France and the Republic of Ireland for several decades. However, other markets have risen or fallen substantially in their importance for UK exporters over the decades.

In 1970, the South African Customs Union was the 8th largest market for UK goods exports, India was the 30th and China came in at 39th. By 1980, Nigeria and Saudi Arabia both came in ahead of Australia, which had slipped from 7th to 16th for goods exports. In 1990, Spain had risen from 18th to 9th, Hong Kong crept into the top 20 at 18th, and India came in at 22nd. China climbed its way up from 36th in 1990 to 26th in 1990, and then 10th in 2008.

Goods exports to Russia, India and the UAE had also leapfrogged those to Japan and Canada by 2008, and Poland was close behind Australia at 19th.

Figure 5.1: Pattern of Goods Exports to Major Markets[11] over Time
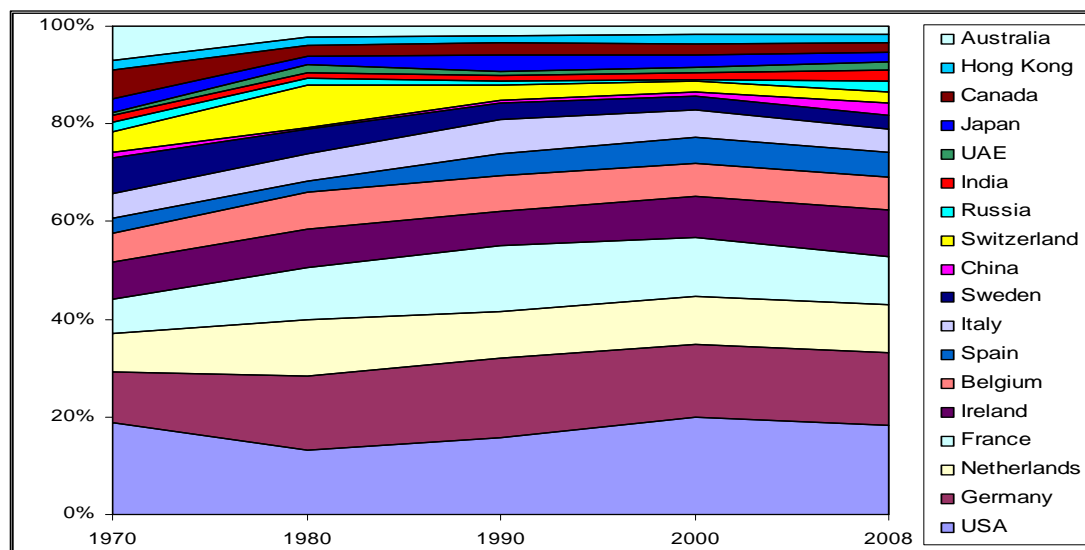
Source: UN Comtrade. Countries given in order of goods export values in 2008, from the USA to Australia.

5.4   IIIS Analysis of Key Markets

IIIS (2009) studied goods exports from four competitor countries (Germany, Japan, the UK and the USA) to 11 key destination markets (Brazil, China, Germany, India, Japan, Mexico, Russia, Saudi Arabia, South Africa, the UAE and the USA) between 2002 and 2007. They focused on 16 priority goods sectors, which accounted for around 83 per cent of the UK's total 2007 goods exports and 85 per cent of goods trade to the 11 destination markets. It is important to note, therefore, that their analysis only relates to these sectors and markets, and does not cover many sectors, including all service sectors.

They found that, across most of the sectors analysed, the 11 key markets accounted for at least a third of total UK exports. Within this group of markets and sectors, between 2002 and 2007, the UK had diversified its exports away from its historically more important trading partners such as the USA, Germany and Japan towards the eight emerging markets. The IIIS analysis of market share is set out in Chapter 7.

---

[11] Top 18 destinations as of 2008

5.5   The Number of UK Exporters in Different Markets

The USA remains on average the most popular market among UK goods exporters, in terms of the number of firms that export there, followed by Ireland, Germany and other EU Member States. Poland and Dubai have overtaken Canada and Japan in terms of the average number of exporters across all goods sectors. The table in Table 5.3 overleaf shows the number of UK firms exporting to the USA, Germany and key emerging markets in the different goods sectors. The engineering sector has the highest number of UK firms in each of these markets, but other sectors show greater variation across markets. For example, there are a relatively large number of energy firms exporting to China, and relatively few creative and media firms. As might be expected, few UK clothing firms export to Malaysia, Thailand or Egypt, but relatively more clothing firms have entered the Russian market. There is a relatively high number of biotechnology and pharmaceuticals firms exporting to South Africa, and so on.

As the green colouring indicates, the majority of markets and sectors experienced an increase in the number of UK exporters, ie growth on the extensive margin, between 2007 and 2008. However, where the boxes are shaded red, there was been a decline in exporter numbers between the two years. This is particularly prevalent in South Africa, South Korea and Japan and also in Mexico and Taiwan, and even in the USA the number of UK firms fell in more sectors than it rose.

Table 5.3: The Number of UK Exporters in 2008 by Sector and Market (averaged over the four quarters)

Partner	Engin-eering	Chem-ical	IT & Electr	House-hold	Metal &Min	Auto-mot	Build-ing	Crea-tive	Paper etc	Tex-tiles	Cloth-ing	Gift-ware	Tele-comm	Ener-gy	Health & Med	Recre-ation	Agri-cultur	Food Drink	Envir	Bio Phar	Secur-ity	Trans-port
USA	7,273	1,947	2,619	2,046	1,516	1,556	1,343	2,272	1,140	828	899	937	1,030	811	892	924	443	363	450	268	265	91
Germany	3,457	2,012	835	1,405	1,329	910	926	786	1,152	723	685	690	453	633	442	442	626	366	295	282	213	51
Poland	1,647	995	316	568	475	429	473	358	512	338	252	297	168	229	179	182	279	158	116	99	88	19
H. Kong	1,647	716	555	486	322	268	285	322	254	340	288	355	308	189	187	157	139	169	84	88	88	38
S. Africa	1,964	750	456	358	371	410	334	389	284	189	120	174	209	162	215	171	139	126	108	121	70	30
Dubai	1,859	562	409	474	397	314	492	255	249	208	269	272	270	212	168	156	119	119	102	87	96	31
Canada	1,851	518	433	370	336	337	277	422	264	222	258	226	217	184	182	212	135	198	99	101	57	30
Japan	1,453	614	411	392	315	421	243	428	244	274	412	294	172	151	197	214	132	194	100	81	39	23
Singapore	1,936	640	482	359	394	325	357	271	207	135	144	147	253	227	176	116	91	144	129	93	87	37
India	2,005	764	431	278	496	270	308	220	270	183	101	114	182	190	165	64	107	73	125	81	58	24
China	1,894	826	387	308	413	248	269	170	254	240	111	89	148	189	141	70	118	78	126	55	61	26
S. Arabia	1,243	433	181	189	247	158	288	110	136	113	149	114	91	125	159	43	74	61	86	92	58	16
Russia	909	439	166	296	190	198	236	149	200	127	175	155	89	93	96	104	69	85	65	41	36	10
S. Korea	1,051	457	257	183	232	144	134	170	107	109	107	84	122	89	121	72	66	61	92	67	38	16
Malaysia	1,165	450	244	154	231	181	162	101	112	76	50	56	95	92	133	45	65	72	75	65	43	13
Nigeria	931	274	197	306	168	208	235	128	142	86	141	98	115	108	94	62	56	53	52	69	35	10
Thailand	906	419	150	112	202	165	108	61	90	98	38	79	67	76	85	34	75	56	49	43	27	7
Egypt	906	358	145	137	165	141	217	81	97	81	42	41	71	86	67	31	54	40	58	45	43	10
Taiwan	826	371	249	126	154	89	88	135	75	69	52	71	80	74	78	51	40	78	58	50	23	12
Brazil	850	390	124	85	176	213	103	75	70	46	20	16	58	65	46	18	38	38	58	44	23	14
Qatar	719	175	93	129	177	95	245	77	57	62	77	58	71	74	74	24	35	54	55	41	54	10
Mexico	555	234	83	68	92	124	69	48	70	48	25	29	42	37	55	20	26	32	37	38	10	5
UAE	518	108	75	70	102	50	100	67	37	39	28	32	34	61	32	23	21	30	37	37	34	9
Indonesia	459	234	43	37	96	49	68	29	59	53	28	16	19	28	28	8	24	14	20	21	9	6

Green denotes an increase from 2007, red a decrease, grey no change. Countries and sectors listed in order of average exporter numbers.

5.6 Future Opportunities

Emerging Markets are expected to record growth rates up to seven times higher than established markets over the next five years, providing ever increasing opportunities for UK exporters in these markets.

Some of the UK's major historic trading partners will be overtaken in importance by these high growth markets. Long term forecasts[12] suggest that by 2050 the combined size of the seven largest developing economies will grow to 150 per cent of the size of the G7 countries, from a current level of around 25 per cent. By 2050, China is predicted to be the largest economy in the world, reaching 129 per cent of the size of the US economy from a starting point of 23 per cent in 2007. Further, survey evidence suggests that British firms themselves perceive opportunities in emerging markets.

Among the high growth markets there are those that are at a more advanced stage in their development, such as Korea, Singapore, Taiwan and Turkey, and those that are growing faster from a lower level of GDP per capita, such as China, India, Indonesia and Vietnam. Middle Eastern high growth markets (Qatar, Saudi Arabia and the UAE) already have relatively high levels of GDP per capita, but Qatar's economy is still expected to grow at around 9 per cent per annum over the next five years. There are also several countries emerging as a new wave of high growth markets; Bangladesh, Egypt, Nigeria and the Philippines are expected to record average growth rates above 7 per cent per annum between now and 2050, creating more long-term opportunities.

5.6.1 Immediate and Medium Term Opportunities

The Centre for International Business (CIBUL) at Leeds University's Business School uses both market size and growth to provide insight into where future demand for UK products may develop over the next four years, in their 2010 "*Global Market Attractiveness Post 'Credit Crunch' Project*".

They first short-list 52 countries as the markets likely to provide the most attractive business opportunities for British companies, on the basis of their share of total British exports (accounting for around 95 per cent of UK exports between them) and their share of global GDP (totaling around 90 per cent of world GDP) in 2008.

---

[12] For example PWC, 2006, 2008

Using IMF projections for national annual growth in GDP and GDP per capita, and the level of GDP and GDP per capita, their index ranks the short-listed countries by relative market attractiveness in the immediate future (2010-2011) and the medium-term future (2012-2014). The actual and projected annual growth rates between 2008 and 2014, for major emerging markets, are given in Annex B.

This analysis suggests that the top ten most attractive markets for the period 2010-2011 are likely to be, in rank order, China, Qatar, the USA, Angola, India, Korea, Libya, Japan, Indonesia, Russia, Pakistan, the Ukraine and Mexico. By 2012-2014, the top ten are predicted to be China, the USA, India, Libya, the Ukraine, Russia, Romania, Korea, Mexico, and Singapore. Just one western European country – Sweden – makes it into the top twenty by 2012-2014 in this analysis, and others slip dramatically, with Germany one of the highest in 30th place. On the other hand, Hong Kong SAR (11th), Thailand (12th), Japan (13th), Pakistan (14th), Malaysia (15th), Indonesia (16th), Egypt (17th), Taiwan (18th) and Poland (19th) are all present in the top twenty.

The study suggests that the industrialised countries, burdened by debt and high unemployment, may recover only slowly from the global slowdown, and that international strategies which place greater emphasis on Asian emerging markets such as China, India, Indonesia, Thailand and Malaysia plus, but to a lesser extent, the more advanced Asian economies of Hong Kong SAR, Korea, Singapore and Taiwan, are likely to rewarded. Although many Asian economies are reliant on manufacturing exports and have been badly affected by slumps in global trade and external demand, the study argues that many have also been insulated from the USA sub-prime market (with the exception of Hong Kong SAR and Singapore, which are important global financial centres) and that domestic demand has largely been resilient to the global downturn in a number of them.

In summary, the study predicts that:

- Firstly, the large emerging markets of Asia are likely to replace traditional engines of growth for the global economy.

- Second, although the USA is suffering the worst financial crisis since the Great Depression, and consumer confidence has been hit badly by financial and housing wealth losses, job insecurity and downward pressure on salaries, the size of its economy relative to others and its growth potential during the recovery phase still represent an important prospect for British companies.

- Third, a number of countries which have not been traditional destinations for British investments and trade come to greater prominence over the period covered by the study. Africa, Libya, Egypt, Angola and Nigeria figure prominently in these predictions, as do the Ukraine, Russia, Romania and Poland in Europe. Although each of these countries is suffering to varying degrees from the combined effects of instability in world capital markets (which has severely limited access to external

funding), lower export demand (from the industrialised countries in particular), and a drop in commodity prices (especially for energy), the research team expects them to recover at a faster rate than the more advanced economies.

While the broad conclusions of the study are unlikely to be contentious, observers' views on the prospects for specific countries will differ considerably, depending on the range of indicators considered, and on assumptions made regarding other factors likely to influence performance, such as social and political stability.

5.6.2 Long Term Opportunities

Goldman Sachs first coined the term "BRICs" (Brazil, Russia, India and China) and also the "Next Eleven" emerging markets when they looked ahead to consider what the world economy could look like by 2050.

Their 2007 paper projects that the BRICs plus Mexico and Indonesia could join the USA as the seven largest economies in the world in 2050. Nigeria could overtake France, and Korea, Turkey, Vietnam and the Philippines could potentially outgrow the Italian economy, as shown in figure 5.2. In a December 2009 update, Goldman Sachs concludes that the emerging economies have weathered the global recession better than advanced economies, and that their 2050 projections shown below are now more, rather than less, likely to materialise. They suggest that China could now catch the US up by 2027, and the BRICs could equal the G7 by 2032. Within the BRICs and Next Eleven markets, the 2009 update shows that China, Brazil, India, Indonesia and the Philippines have performed better than expected, and Bangladesh, Egypt, Korea, Nigeria, Turkey and Vietnam have performed broadly as expected. However, Russia has been badly hit by the crisis, and Iran, Mexico and Pakistan have so far performed slightly worse than expected.

Figure 5.2: Goldman Sachs' Projections of the Top Markets in 2050 by GDP
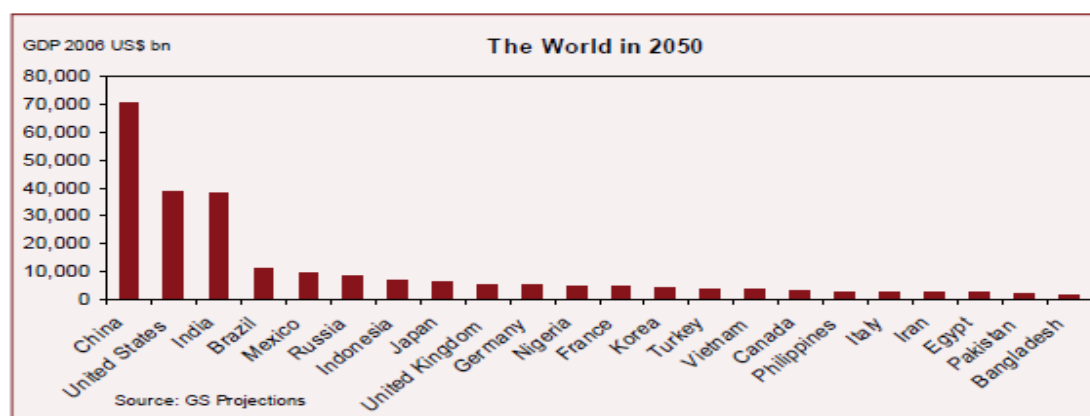
In terms of GPD per capita, and therefore the spending power of the middle classes, Goldman Sachs predict that Korea and Russia could join the "rich" club, and Mexico, Brazil, China and Turkey could enter the upper middle income group, comparable to EU Member States such as Italy. In Nigeria, Pakistan and Bangladesh, however, the average disposable income would remain low, perhaps lower than is desirable for many UK exporters.

Figure 5.3: Goldman Sachs' Projections of Income per Capita in the Largest Markets in 2050
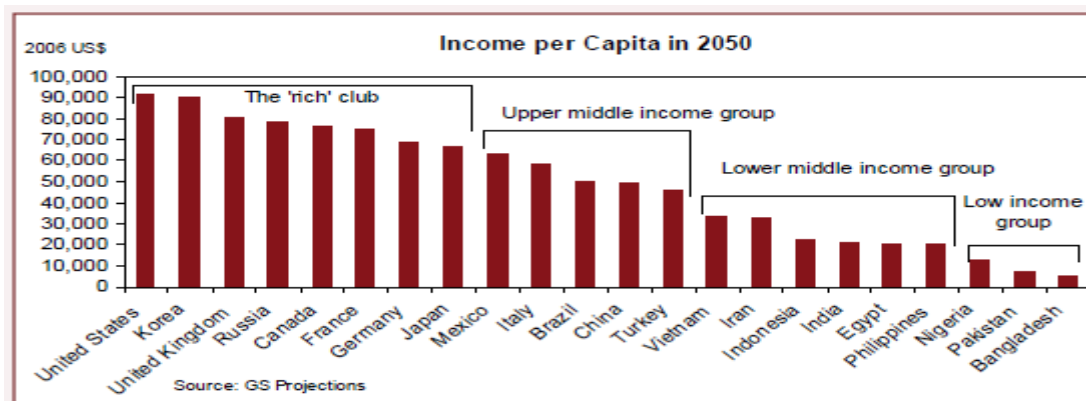
When comparing the above projections for average income per capita, it is also important to consider how incomes are likely to be distributed within different economies. In emerging Latin American economies, the distribution of wealth and disposable income tends to be highly uneven, with Gini coefficients in the 50's[13], and may remain so for some time. Other markets, particularly resource-rich economies, may initially experience some increase in income inequality alongside growth. Thus, average income per capita figures will be inflated by the richest proportion of the population, while most households will have a far lower ability to purchase imported goods and services. Eventually, however, sustained growth is likely to bring about a rise in the middle classes and higher demand for imports across a larger proportion of the population. The income elasticity of demand for imports is considered in greater depth in Section 9.6 below.

In 2007, PWC also wrote an updated version of their *"World in 2050"* paper. They project that by 2050, the "E7"; the BRICs plus Mexico, Indonesia and Turkey, will be around 50 per cent larger than the current G7. They also consider 13 other emerging economies[14] with the potential to grow significantly faster than the established OECD economies. Vietnam's GDP in particular is forecast to grow at 9.8 per cent per annum between 2007 and 2050.

---

[13] Recent Gini coefficients for major emerging markets are given in the table in Annex B.
[14] Vietnam, Nigeria, Philippines, Egypt, Bangladesh, Pakistan, Malaysia, Thailand, Iran, Argentina, South Africa, Saudi Arabia and Poland.

In 2010, the EIU[15] stressed the importance, of the 'CIVETS', a term first coined by HSBC chief executive Michael Geoghegan, as a new tier of markets beyond the BRICs. They comprise Colombia, Indonesia, Vietnam, Egypt, Turkey and South Africa. The reasons given are that the CIVETS are sizeable emerging markets, with large, young populations, and they are well placed for sustained high growth, given that they have diversified economies not excessively reliant on commodities and reasonably sophisticated financial systems (at least in the case of the non-Asians in the group). Apart from Vietnam they do not have large current account deficits (and Vietnam's is falling) and apart from Egypt public debt in these economies is fairly low. The economic fundamentals, therefore, look robust, and all these countries proved pretty resilient during the recent global economic crisis. The EIU expects the CIVETS to post average annual GDP growth of 4.5% over the next twenty years—slightly below the 4.9% average they are projecting for the BRICs, but well above the 1.8% forecast for the G7.

5.7   Trade Barriers in High Growth Markets

Recent evidence from surveys of UK exporters carried out for UKTI suggests that barriers may be greater and more diverse in emerging rather than established markets.

Surveys carried out in 2008, 2009 and 2010 show that respondents had found it more difficult to export to high growth markets than other, more established markets.

In the UKTI and EIU report *"Survive and Prosper: Emerging Markets in the Global Recession"* (2009), 51 per cent of firms reported that unclear, bureaucratic regulations presented the greatest government-related obstacle to their business operations in their main emerging markets. Forty-four per cent reported concerns about political risk, 43 per cent expressed concerns about macroeconomic instability, and 21 per cent thought weak intellectual property rights were a problem.

Similarly, the UKTI Internationalisation Surveys have shown that companies in high growth markets have encountered a higher number of barriers to export. The difference is particularly marked for legal and regulatory barriers, and for language and cultural barriers. The table below from the 2010 International Business, Barriers and Awareness Survey demonstrates how UK exporters

---

[15] http://gfs.eiu.com/Article.aspx?articleType=wif&articleId=242

are more likely to have reported at least one barrier in India, Russia and China than in the main EU markets or the USA. Legal and regulatory barriers appear to be highest in India, whilst linguistic and cultural barriers and a lack of contacts, information and resource are particularly difficult in China.

Table 5.4: Barriers to Export by Market

	Market							
	China	Fra-nce	Ger-many	India	Ire-land	Italy	Rus-sia	USA
Base: All exporters	54	62	51	42	36	31	33	98
Types of Barriers								
Leal & Regulatory	57%	34%	33%	70%	44%	34%	47%	37%
Customs	42%	20%	12%	41%	3%	13%	63%	26%
Contacts	44%	32%	40%	24%	16%	22%	38%	27%
Information	32%	16%	16%	21%	7%	17%	27%	13%
Resource	31%	16%	16%	30%	6%	14%	27%	20%
Language & culteral	40%	25%	21%	24%	0%	23%	28%	3%
Bias	20%	32%	31%	15%	10%	26%	10%	16%
Number of Barriers								
At least one barrier	82%	70%	67%	91%	54%	58%	89%	66%
- One	10%	21%	21%	25%	25%	15%	15%	18%
- Two	13%	9%	12%	26%	19%	13%	24%	19%
- Three	15%	19%	11%	7%	3%	10%	25%	15%
- Four or more	45%	21%	23%	33%	7%	20%	26%	15%
No significant barriers	18%	30%	33%	9%	46%	42%	11%	34%

Source: 2010 International Business, Barriers and Awareness Survey

Aside from political and macroeconomic concerns, therefore, the evidence suggests that particular issues in emerging markets include bureaucracy, language, cultural differences, protection of intellectual property, and the ability to identify appropriate business partners.

The results of London Economics' (2009) case study programme[16] have highlighted that even firms with considerable experience in high growth markets faced difficulties in identifying relevant contacts when entering new high growth markets. They find that larger, more export experienced companies are more likely to use UKTI support to enter high growth (as compared to other) markets and are also more likely to already have a presence in these markets, although Brazil was an exception to this rule.

Barriers to entry are likely to be higher for British firms when the market is both geographically and culturally distant from the UK, potentially putting the UK at a disadvantage from those exporting countries with closer ties to that particular market. This lack of social networks and access to information and contacts reinforces the need for UKTI support to help firms overcome the costs associated with entering such markets.

According to World Bank and Heritage Foundation indicators on selected emerging markets, the difficulty of doing business is particularly high in Brazil, Nigeria, Russia, India and Vietnam. China and Egypt are among the next most difficult, whereas European and Middle Eastern markets, and advanced Asian economies such as Singapore and Taiwan, score higher in terms of ease of doing business and trading, and in terms of economic freedom and openness to trade.

5.8   High Growth Markets and their Match with UK Capabilities

The UK's relative market share varies substantially across high growth markets, reflecting both the match with UK export capabilities, and the importance of existing trade and cultural ties. Growth in the number of exporters to high growth markets has contributed substantially to overall growth in UK goods exports to these markets.

---

[16] Part of the London Economics "Review of the evidence base for UK Trade & Investment's support for firms in High Growth Markets".

The chart below shows the UK's relative presence, in the goods sector, in 25 key emerging markets[17]. The UK's 2007 goods market presence is above its overall world presence in only four of these markets; Nigeria, Qatar, South Africa and Saudi Arabia. Since 2002, the UK has lost market share among goods exporters in all but three of these markets: Russia, Indonesia and Mexico.

Figure 5.4: The UK Share of Key Emerging Markets' Goods Imports in 2002 and 2007
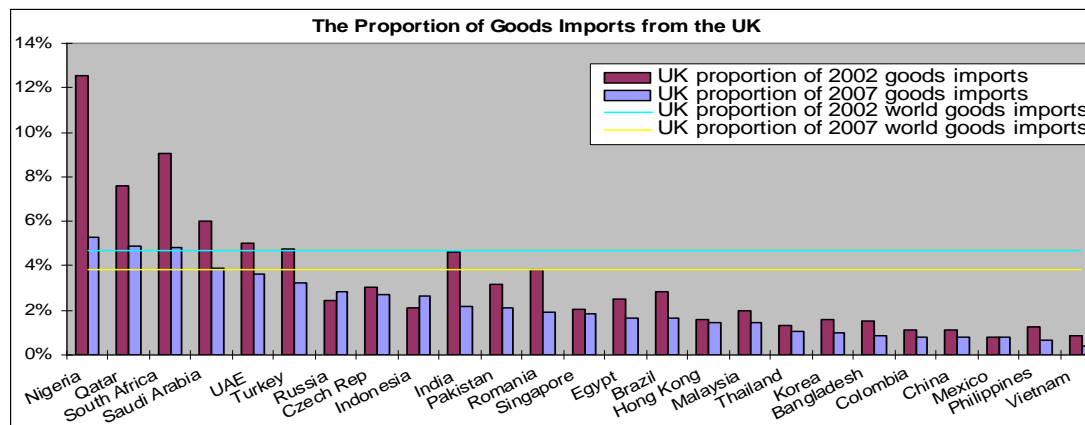
Data sourced from UNCTAD, unavailable for Taiwan.

The next chart shows the UK's market share for services. In 2007, the UK held a stronger position in South Africa, Nigeria, Qatar, Bangladesh, Saudi Arabia, Turkey, Singapore and Egypt than its overall share of world markets would imply. The UK's service market share has also increased in half (nine) of the markets for which 2002 and 2007 data is available. In some markets, such as Saudi Arabia, Singapore, Egypt and Russia, this increase in market share has been quite substantial.

---

[17] These 25 markets are UKTI's 17 High Growth Markets (minus Taiwan, for which data is unavailable, and with separate data for China and Hong Kong), plus, for comparison, two emerging economies in the EU - the Czech Republic and Romania - and six less developed emerging markets – Bangladesh, Colombia, Egypt, Nigeria, Pakistan and the Philippines.

Figure 5.5: The UK Share of Key Emerging Markets' Service Imports in 2002 and 2007
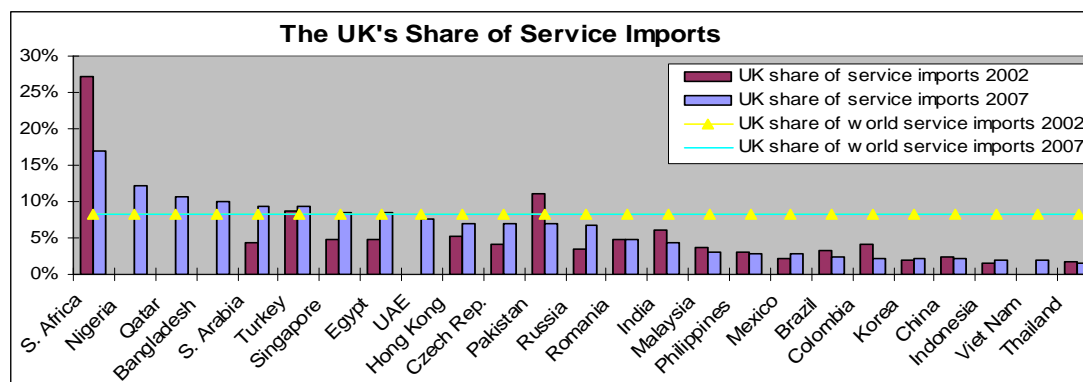
Data sourced from UNCTAD, unavailable for Taiwan, and 2002 figures are unavailable for several markets.

These charts reflect both the market match with UK export capabilities and the importance of existing trade and cultural ties. British links to markets such as South Africa and Nigeria have historically increased trade between the UK and these markets, and social and cultural networks need to be maintained, and expanded upon, to retain UK market share.

However, in other markets such as Korea and Mexico, the UK has lower historic and cultural ties, and market access suffers from a lack of information, understanding and networks. In addition, markets such as Thailand and Vietnam may have lower relative demand for the goods and services the UK excels at providing, given low average income per capita and low levels of urbanisation.

The growth in UK goods exports to each of the 26 emerging markets[18] between 2002 and 2007 is shown below, split into growth in the number of UK exporters and growth in average values exported by each UK firm. The number of firms exporting to China and Qatar (the extensive margin) has increased substantially since 2002, while average values exported to Russia have increased by over 200 per cent.

---

[18] The 25 from footnote 16, plus Taiwan.

Figure 5.6: Growth in Goods Imports into Key Emerging Markets from the UK, divided into Growth at the Intensive and Extensive Margins, 2002-2007

Source: HMRC, Statistics & Analysis of Trade Unit.

In terms of services, Saudi Arabia has been the recipient of the greatest increase in UK export values among these markets, followed by Russia and Romania. At the other end of the scale there has been little growth in UK services exports to Colombia, the Philippines and Malaysia.

Figure 5.7: Growth in Service Imports into Key Emerging Markets from the UK, 2002-2007
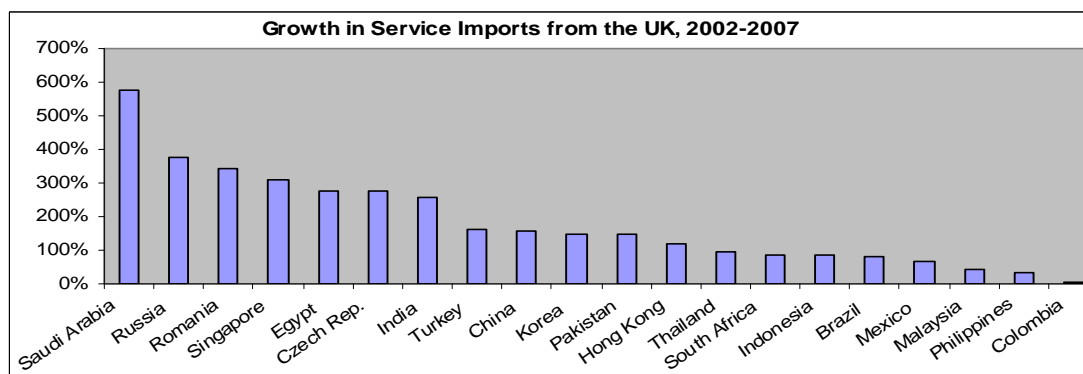
Source: UN Service Trade Database. Unavailable for Vietnam, UAE, Qatar, Nigeria, Pakistan, & Bangladesh.

These figures should be viewed in the context of overall trade volumes and the current importance of each of these markets. The chart below shows the 2007 level of imports from the UK for each market under consideration. Aside from the mere size effect, there is a distinction to be made between those markets where UK exporters are already successful, and those where both market growth and support in overcoming barriers could significantly increase opportunities for UK firms.

Figure 5.8: The Total Value of UK Goods and Service Imported into Key Emerging Markets, 2007
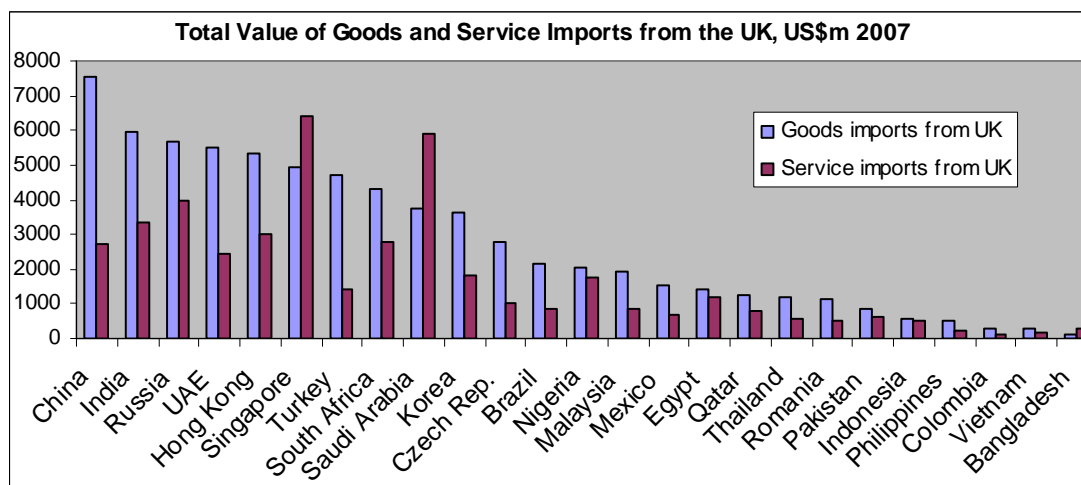
Source: UN Trade Data

5.9 Innovation and Technology in High Growth Markets

The gains from trade and investment in terms of productivity and knowledge spill-overs are likely to be increased when trading with, and encouraging investment from, markets with strong innovation, R&D and technological knowledge. On the other hand, countries with low production of innovative goods themselves may be more receptive to innovative imports. The exportation of innovative products to high growth markets can extend the shelf life of these goods, beyond the point at which, in established markets, they are replaced by newer products, thereby increasing the return to innovation for UK firms. The 26 emerging markets from above are ranked in Table 5.5 below, according to their innovation score in the 2009-2010 Global Competitiveness Report from the World Economic Forum. Scores against some of the components of the overall innovation score: R&D spending, innovation capacity and capacity for scientific research are also given, as well as the OECD's ranking for average revealed advantage across high-tech sectors, for the larger markets.

Table 5.5: Innovation and Technology Index Scores in High Growth Markets

	Innovation Score 2009/2010	Change in Innovation Score 2007/2008 - 2009/2010	Company Spending on R&D	Capacity for Innovation	Quality of Scientific Research Institutions	Availability of Scientists & Engineers	OECD Rank for High-Tech Patents, 2003-2005
Taiwan	5.28	0.04	5.0	4.8	5.2	5.5	15
Singapore	5.09	0.01	5.1	4.4	5.6	5.2	2
Korea	4.84	-0.52	4.9	4.7	5.0	4.9	12
Malaysia	4.06	-0.44	4.3	4.1	4.7	4.7	
Czech Rep	4.01	0.06	4.1	4.2	5.1	4.9	23
China	3.93	0.33	4.2	4.2	4.4	4.6	18
UAE	3.87	0.50	3.8	3.5	4.1	4.7	
Hong Kong	3.86	-0.48	3.7	3.4	4.4	4.0	
India	3.73	-0.17	3.6	3.6	4.9	5.6	17
Saudi Arabia	3.7	0.26	3.6	3.7	4.3	4.5	
Qatar	3.65	0.11	3.0	2.5	4.6	5.2	
Indonesia	3.57	0.01	3.8	3.4	4.2	4.7	
South Africa	3.54	-0.17	3.6	3.6	4.7	3.1	31
Brazil	3.52	0.02	3.8	3.9	4.2	4.2	28
Vietnam	3.45	0.23	3.8	3.7	3.7	4.2	
Russia	3.35	0.04	3.3	3.5	4.2	4.4	17
Thailand	3.29	-0.33	3.3	3.1	3.8	4.3	
Colombia	3.17	0.06	2.9	3.0	3.5	3.8	
Turkey	3.11	-0.25	2.9	3.3	3.6	4.4	29
Romania	3.10	0.01	2.9	3.0	3.5	4.3	
Nigeria	3.06	-0.16	3.5	3.3	2.9	4.5	
Egypt	3.03	-0.14	3.2	2.6	3.2	4.3	
Mexico	2.99	-0.12	2.9	2.8	3.7	3.6	27
Pakistan	2.98	-0.17	2.8	3.1	3.6	3.9	
Philippines	2.84	-0.19	3.1	2.9	3.2	3.6	
Bangladesh	2.52	-0.04	2.2	2.3	3.0	4.1	

Source: Global Competitiveness Report 2009-2010, World Economic Forum, and Compendium of Patent Statistics 2008, OECD. OECD rankings for the number of high tech patents only apply to countries with more than 300 patents between 2003 and 2005.

Taiwan, Singapore and Korea perform by far the best against these measures of innovation, R&D and technology and the Czech Republic also scores nearly as highly as Malaysia. Pakistan, the Philippines and Bangladesh score the lowest and Colombia, Romania, Nigeria and Egypt also have low innovation scores, though not as low at Mexico, and Colombia is also higher than Turkey.

It should be noted that most of these are static measures; innovation, R&D spending and the high-tech sector would generally be expected to expand with development, especially in fast-growing, export-oriented economies. The Change in the Innovation and Sophistication Scores between 2007/2008 and 2009/2010 (column 2) gives an indication of where innovation is improving. The scores for UAE, China, Saudi Arabia, Vietnam and Qatar show a particular improvement, while Korea, Hong Kong, Malaysia, Thailand and Turkey's scores have seen the greatest decline. The Capacity for Innovation Ranking (column 4) also signals the scope for future improvements in innovation. This is particularly low for Bangladesh and Qatar, and is also low for Egypt, Mexico and the Philippines. Nigeria scores quite well against most components of the innovation measure, but its overall score is pulled down by the quality of scientific research institutions.

5.10 Future Import Demand Among the Middle Classes

Box 2: Estimates of China and India's Future Middle Classes

The World Bank estimates that by 2030 China and India could account for as much as 44 per cent of the global middle class; 361 million (38 per cent) and 57 million (6 per cent) respectively. Projections by Goldman Sachs (2008) and McKinsey (2006, 2007) are significantly higher. Goldman Sachs expects that by 2020, 70 per cent of the Chinese population will be middle class (though their definition of middle class requires a relatively low level of income). While India's urban middle class is expected to remain smaller than China's, the former could have more highly affluent households, making up nearly a third of the urban population in 2025, as opposed to 10 per cent in China. These highly affluent households should spend a large proportion of their income on imports, and are particularly receptive to the highest quality goods and services.

5.10.1 How Export and Import Elasticities are Expected to Change with Growth

Income growth is associated with growth of exports and imports to varying degrees. High growth countries have relatively favourable income elasticities, with imports growing less quickly than exports. The income elasticity of manufactured exports is higher than for total goods exports. Imports and exports of the G7 countries are slightly more responsive to changes in a country's total income over the decade to 2006, compared to the decade to 1994.

Traditional models of foreign trade typically find large variations in estimated income elasticities in foreign trade across countries, as well as differences between import and export income elasticities within individual countries (as surveyed in Marquez, 2002).

Some researchers (eg Marquez & McNeilly, 1987) have pointed out that there are significant inter-commodity differences in income elasticities, and therefore differences in the commodity structure of trade across countries could be driving differences in income elasticities for total exports and imports. If the commodity structure of a country's trade changes over time, this could also drive a shift in income elasticities within an individual country over time.

Krugman (1989) first documented the existence of a "45-degree rule" under which relative income elasticities of demand for imports and exports are systematically related to relative growth rates. However, a similar concept was already in existence, for example, Thirlwall (1979) showed that countries' growth rates can be approximated by the ratio of the rate of growth of exports volume and the income elasticity of demand for imports. Further research (eg McCombie, 1985, Bairam, 1988) has shown this result to be robust for other samples of countries and years.

Figure 5.9: IMF OLS Estimates Demonstrating Krugman's 45-Degree Rule
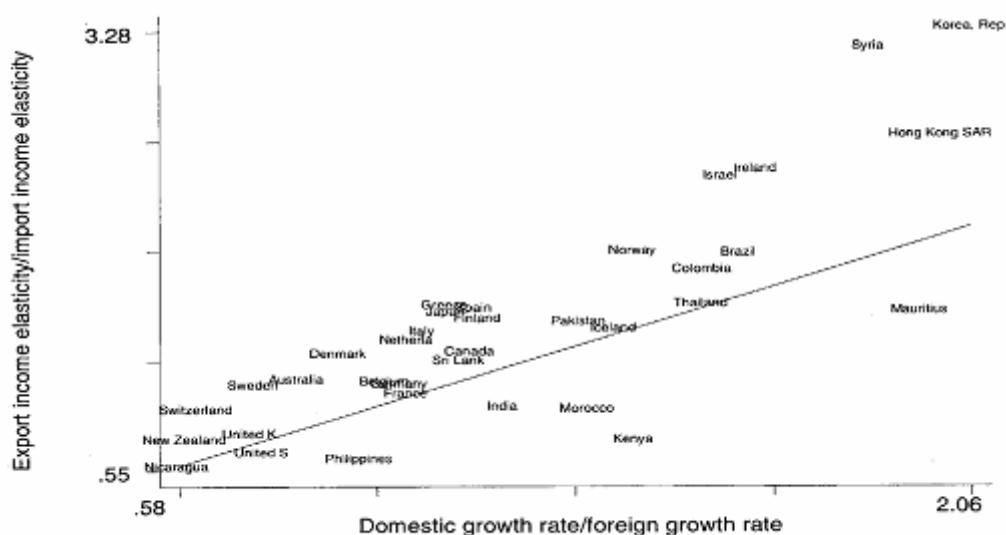
Notes: The straight line is the 45-Degree line which goes through the origin and has a slope of one.

Source: IMF Working Paper. Sample Countries, 1960-1998

According to Krugman's 45-Degree Rule, a fast-growing country is able to expand its share of world markets by increasing the number of goods it produces faster than the other country. When one country is growing faster than the other, its goods become relatively cheaper. The demand for a given product will rise due to the income effect. At the same time, however, there

67

are more product varieties from the fast-growing country and the demand for a given product will decrease due to the substitution effect. The two effects end up cancelling out, leaving the demand for a given product unchanged. As a result, the expansion of the market of fast-growing countries is via increased product varieties instead of the deterioration of the terms of trade. Therefore, high growth countries have favourable income elasticities in exports relative to imports.

Another complementary explanation is that the income elasticity of manufactured exports is higher than that of total goods exports. In other words, trade in manufactured goods responds more than other goods exports to changes in income. From 1960 to 2008, the average elasticity for total goods was 1.7, but for manufactured goods it was 2.1 (WTO 2009). Hence, as incomes rise in large emerging markets, the demand for manufactured goods is likely to increase relative to the overall demand for goods in general, to the benefit of manufactures exporters.

Whatever the explanation, the relationship between relative (domestic to foreign) growth and relative (export to import) elasticities appears to hold in most empirical studies. Caporale & Chui (1999) use co-integration techniques to estimate the income elasticities of trade for a group of 21 countries over the period 1960-1992, and find that the 45-degree relationship holds. Yu Wi uses OLS, co-integration and random effects methodologies, and cannot reject the 45-degree rule. However, Ghatak & Price (1996) consider nine East Asian economies over a similar period, and fail to find evidence supporting the rule.

Therefore, as growth slows compared to foreign growth rates and consumption shifts more towards manufactured goods relative to other goods, income elasticities in demand for imports should increase, both absolutely and relative to the income elasticities in demand for exports. Most studies find some evidence of instability in national income elasticities over, time (from Deyak, Sawyer & Sprinkle in 1989, to Hooper, Johnson and Marquez in 1998).

Cran, Crowley & Quayyum (2007) find that both the imports and the exports of the G7 countries are slightly more responsive to changes in a country's total income over the decade to 2006, compared to the decade to 1994. Yu Wi identifies years of structural change for relative growth rates and estimates elasticities for sub-periods between these structural breaks. There seems to be a positive relationship between the relative growth rates and the relative income elasticities across different periods for a given country. For example, the ratio of the domestic growth rate to the foreign growth rate for the USA was 0.66, 0.85 and 1.65, for the periods of 1960-1972, 1973-1991 and 1992-1998, while the ratio of relative income elastisticities was 0.43, 0.68 and 1.39 respectively. Across countries and periods in the panel, the 45-degree line generally fits the data well, the odd outlier excepted.

5.10.2   Estimates of Current Elasticities of Demand for Imports

The traditional import demand function is specified as a log-linear function of the relative price of imports and real income. However, this function ignores non-stationarity. Abdelhak Senhadji (IMF Staff paper, 1998) instead uses a derived import demand equation that is log-linear in the relative price of imports and an activity variable defined as GDP minus exports. He finds that average price elasticity of demand for imports is close to zero in the short run but is slightly higher than one in the long run. It takes five years for the average price elasticity to achieve 90 per cent of its long-run level.

A similar pattern holds for income elasticities: imports react relatively slowly to changes in domestic income. The short-run income elasticities are on average less than 0.5, while the long-run elasticities are close to 1.5. The short-run income elasticities vary significantly across the sample 66 countries, from 0.0 in Zaire to 1.36 in Haiti, while the long-run income elasticities are even more widely dispersed, from 0.03 in Zaire to 5.48 in Uruguay. As a general rule, industrial countries are found to have both higher income and lower price elasticities than developing countries, as the 45-degree rule would predict. Senhadji's estimates of the long-run income elasticity of demand for imports are given in the table below for some key markets. On average, these estimates are relatively close to those of similar studies, such as Reinhart (1995), although these estimates are now fairly dated.

Table 5.6: Senhadji's Estimates of Long-Run Income Elasticity by Market

Market	Estimated LR income elasticity	Market	Estimated LR income elasticity
Brazil	1.24	France	2.02
China	2.16	Germany	2.73
India	1.33	Japan	1.04
Indonesia	0.98	UK	2.43
Korea	1.32	US	2.45
Mexico	1.31		
South Africa	0.67		
Thailand	1.67		
Turkey	1.78		

Source: Senhadji (1998)

In general, then, we would expect the income elasticities of the high growth markets on the left-hand side to be if anything higher than these estimates now, and converging towards the higher income elasticities of the established markets on the right-hand side. However, the low estimate of income elasticity of import demand in Japan warns against relying on this assumption.

Still, in all but two of the above markets, income elasticity of demand for imports was already estimated in 1998 to be greater than one. This suggests that, as incomes rise in high growth markets, so the long-run demand for imports will increase even faster.

The estimated price elasticities of demand for imports can be used as a proxy for what will happen if tariffs and non-tariff barriers decrease, since this will in effect make imports cheaper compared to domestic goods. Senhadji (1998) finds the average long-run price elasticity of import demand across countries to be close to 1.5 and Kee, Nicita & Olarreaga (2008) estimate the average price elasticity of import demand across countries and goods to be 1.67. They also find, unsurprisingly, that price elasticity of import demand is higher for homogenous goods than heterogeneous goods. Therefore, any reductions in trade barriers, including informal barriers, should create a more-than-proportionate increase in demand for imports over the long run.

5.11 Conclusions

- **The top five markets for both goods and service exports from the UK have remained the USA, Germany, the Netherlands, France and the Republic of Ireland for decades. However, other markets have changed substantially in their importance for UK exporters over the decades, with increasing diversification of UK goods exports towards emerging markets.**

- **Emerging Markets are expected to record growth rates up to seven times higher than established markets over the next five years, providing ever increasing opportunities for exporters.**

- **The long-run income elasticity of demand for imports is already greater than one in most emerging economies, suggesting a higher-than-proportionate increase in imports as incomes increase.**

- **The UK's relative market share varies substantially across high growth markets, reflecting both the match with UK export capabilities and the importance of existing trade and cultural ties.**

- **Recent evidence from surveys of UK exporters carried out for UKTI suggests that barriers may be greater and more diverse in emerging rather than established markets.**

- **Reductions in trade barriers, including informal barriers, should create a more-than-proportionate increase in demand for imports over the long run.**

- **Government has an important role to play in helping more UK firms overcome entry barriers into high growth markets, especially innovative firms, to help increase growth of exports at the extensive margin.**

CHAPTER 6: INTERNATIONALISATION STRATEGIES: EXPORTS VS FDI

6.1   World FDI and Country Shares

World FDI in general has been increasing rapidly since the mid 1990s, particularly between 2005 and 2007, when the world outward FDI stock rose 53 per cent in just two years. The gap between the USA and UK shares in the world FDI stock has narrowed, as the US share has fallen more rapidly.

Despite the huge growth of US outward FDI, its share of world FDI has still fallen, from 39 per cent in 1980, to 24 per cent in 1990, 22 per cent in 2000 and just 18 per cent in 2007, before increasing slightly again in 2008 to 20 per cent. The UK's share of world outward FDI moved from 15 per cent in 1980 to 13 per cent in 1990, back to 15 per cent in 2000, and then fell to 11 per cent in 2007 and 2008, as FDI from the rest of the world accelerated. As the UK's market share has fallen less than that of the USA over the period, the gap between the two market shares has narrowed, from 24 percentage points in 1980, to only nine percentage points in 2008.

Meanwhile, Germany has seen its share of outward FDI remain around 8-9 per cent, and France's share has steadily increased from 5 per cent in 1980 to 6 per cent in 1990, 7 per cent in 2000 and 9 per cent in 2008. Japan's world share has moved up and down, but in 2008 was 4 per cent, equal to its share in 1980. China and India's share of outward FDI stock is still very low, but has been growing, from a negligible share in the '80s and '90s to nearly 1 per cent for China and just under half a percent for India in 2008. China's outward FDI stock expanded 345 per cent between 2003 and 2008, while India's outward FDI stock rose by a staggering 960 per cent over the same period (this compares to an 88 per cent increase in world FDI stock).

Figure 6.1: World Outward FDI Stock, 1980-2008
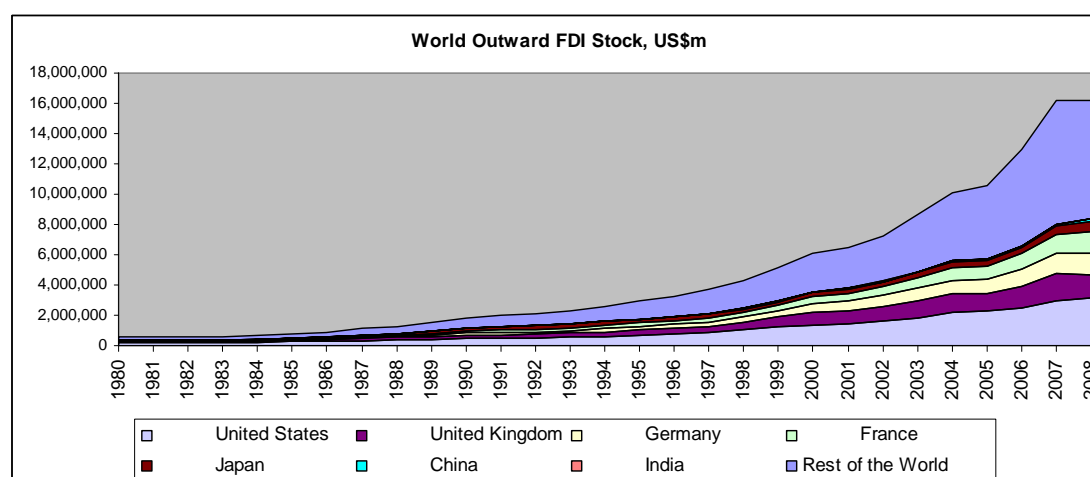
Source: UNCTAD

Firms undertake FDI primarily in order to expand and compete with domestic and other firms on the respective markets. In the case of services, a local presence often represents the sole possibility to enter a market because of the high degree of personal contact required (e.g. retail banking, restaurants, hotels, etc). A local presence, however, may also turn out to be essential for manufacturing firms because the size of the market share that can be conquered by exporting alone is typically limited. Further gains in market shares often require some form of local presence such as a subsidiary which ensures the production of products adapted to local needs and preferences. Sales into overseas markets from UK subsidiaries abroad thus complement sales via exports and represent a substantial share of total overseas sales for many UK multinationals. FDI activities are therefore an important indicator of international competitiveness, in addition to export volumes.

6.2 Outward FDI by Sector

Countries tend to have significant outward FDI in sectors in which they are also strong exporters. Thus the UK appears to be strong in knowledge-based services such as finance, and in food and drink, chemicals and pharmaceuticals; all sectors in which UK export performance also tends to be strong.

There are two possible explanations. One is that exporting and FDI are complementary, because foreign direct investment in marketing and distribution is essential to profitable operation in many foreign markets. The second explanation is that exporting and FDI are substitute strategies a firm will choose between, and that different firms will make different choices, either in general or with respect to different markets. A country that has significant competitive advantages in a particular industry, based on superior technology, brand names or other knowledge-based assets, will therefore have both high export volumes and higher outward FDI stock in that industry. Foreign

markets with low transport costs and tariffs, and few non-tariff barriers (such as adverse discrimination in procurement) may be served most advantageously by exports, while markets with high transport costs and tariffs or substantial non-tariff barriers may be best served by FDI. Countries with high commercial or political risks to FDI (due to weak protection of intellectual property, for example, and instability of the policy regime) are served by exports. Countries with sustainable policies and low business risks are served by FDI, if other factors also favour this strategy.

6.2.1   UK Outward FDI by Sector

Overall, the UK performs strongly in FDI and acts as a hub for companies that want to invest in certain markets. The majority of UK outward direct investment is in services (59 per cent in 2008), with less in the manufacturing sector (26 per cent) and much less in the primary sector (15 per cent). This is consistent with the idea that sales in services are more likely to require a direct presence in the market. However, within the primary sector, almost all outward FDI has been in mining and quarrying (including oil and gas), and this has grown strongly since 2005, as shown in Figure 6.2. In the manufacturing sector, outward FDI from the UK has been strongest in chemical, plastic and fuel products and food products. In services, outward FDI in financial services has overtaken outward FDI in transport and communications, so that financial services reported the highest net FDI international investment position abroad in 2007 and 2008 among all sectors. Direct investment in foreign retail and wholesale trade and repairs has also been significant.

**Figure 6.2: UK Outward FDI by Sector, in 2005-2008**
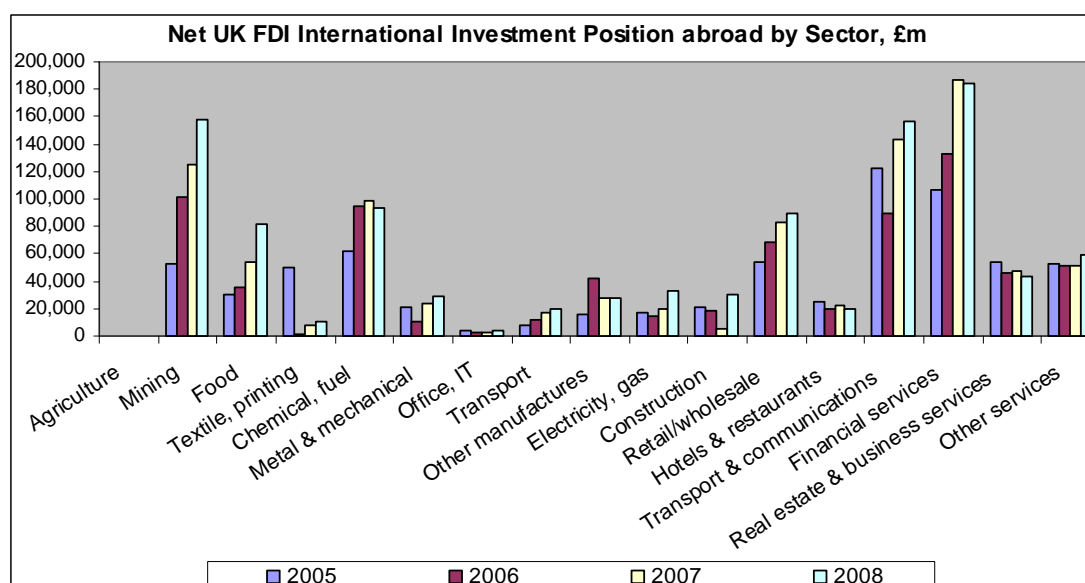
Source: ONS FDI 2008 Data

6.2.2   Sectoral Outward FDI by Region

Different sectors will target different markets for foreign direct investment. Figure 6.3 shows that FDI, in food, chemicals, transport and communication services and hotels and restaurants is highest in Europe, whereas FDI in mining, metals and mechanical equipment, transport equipment and financial services is highest in the Americas. Financial services and then mining and real estate and business services are the sectors with the highest stock of FDI in Asia.

Overall, FDI to Europe accounts for 56 per cent of total outward FDI, the Americas account for 33 per cent and Asia just 8 per cent. Two per cent of outward FDI is in Australasia and Oceania, and 2 per cent is in Africa.

Figure 6.3: UK Outward FDI by Sector in 2008, divided into the three dominant regions
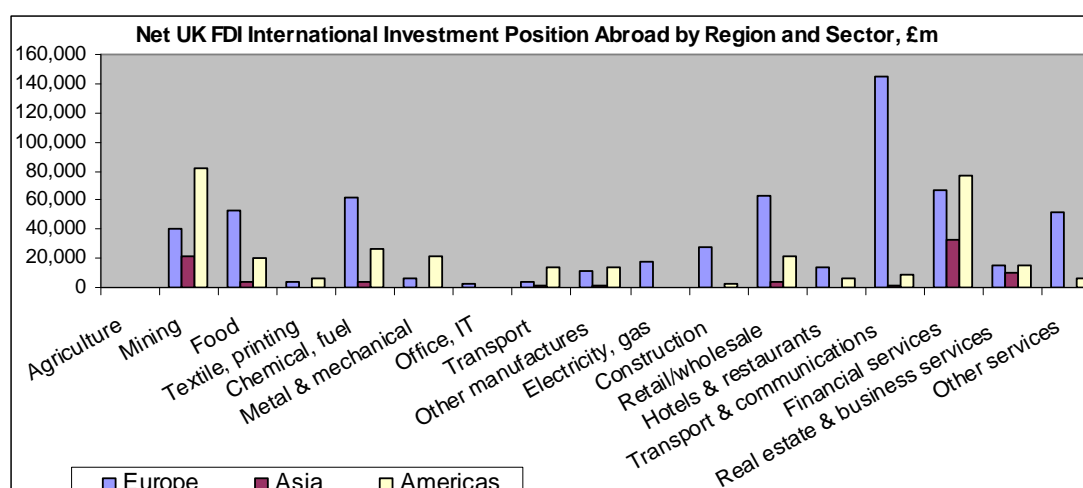
Source: ONS FDI 2008 Data

6.3   Overall Outward FDI by Host Country

The USA is by far the largest market for UK outward FDI, with the book value of net UK assets in the USA reaching £239 billion in 2008, a jump from £140 billion in 2004 and £202 billion in 2007. The Netherlands and Luxembourg follow, and then UK offshore islands, before Spain, which is now ahead of France as a location for UK direct investment. Russia, Brazil, China and India are among the top 25 locations, but total UK FDI stock still remains relatively low in these markets.

Figure 6.4: The Location of the UK's Outward FDI Stock, in 2004 and 2008
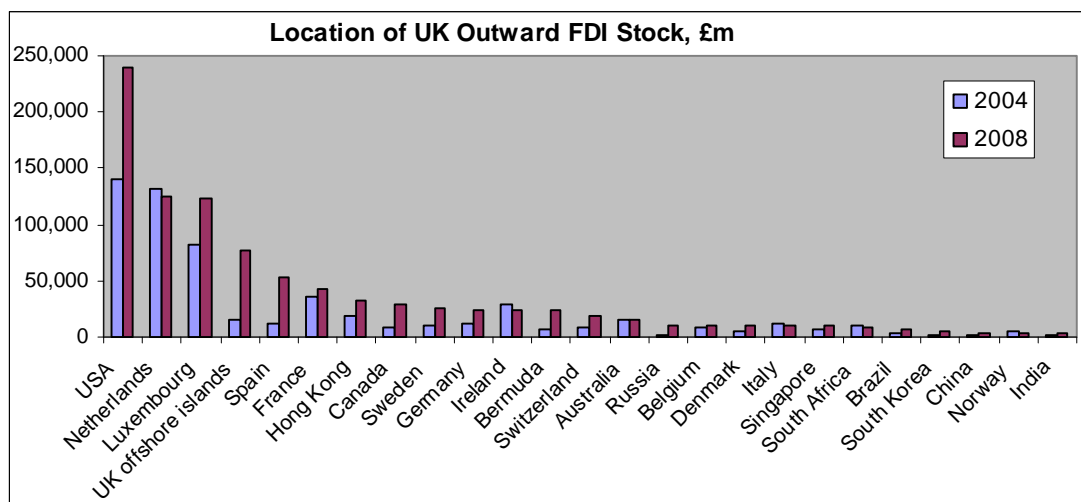
Source: UNCTAD

6.4   Ratio of FDI Stock to Exports

A useful measure of the relative importance of international trade and FDI in the international competition of firms is the ratio of sales of foreign subsidiaries (affiliates) established by multinational companies (MNCs) in foreign markets to exports. Such a comparison shows that sales of foreign affiliates by far surpass world exports (Sauvant, 2005). For the United States the ratio between sales of foreign affiliates abroad and exports stood at over 2.5 in 2006, and even in the case of Germany, with its high rate of exportation, outward foreign affiliate sales clearly exceed exports of goods and services[19].

Figure 6.5 below shows the ratio of total outward FDI stocks to total goods exports, given in percentage terms, for the UK and key competitors.

The UK has had a significantly higher ratio of FDI to goods exports than the other countries since 1998, followed by the USA and France.

---

[19] The UK, France, Spain and the Netherlands do not report outward foreign affiliate sales (FAS) to Eurostat yet. FAS will be available for all EU member states as of 2009 (published from 2010 onwards).

Those of Germany and Japan are substantially lower, and have remained fairly constant, compared to the increasing importance of FDI relative to goods exports for the other three countries. To some extent, this reflects the higher importance of service exports as opposed to goods exports for the UK in particular, and also for the USA. However, it also suggests that proportionally more UK firms may have opted for a direct investment strategy over exporting to foreign markets, a view supported by the UK's high overall FDI figures.

Figure 6.5: The Ratio of FDI Stock to Goods Exports for the UK and Key Competitors
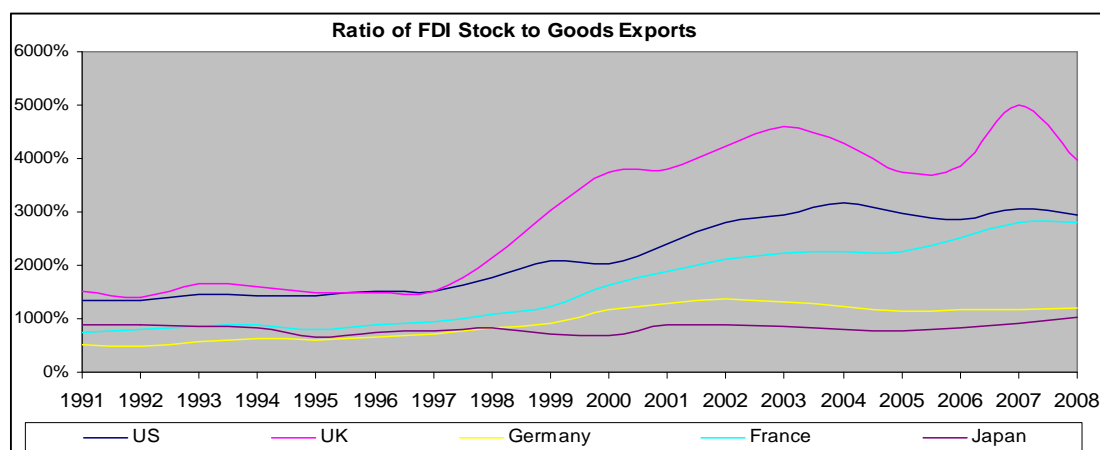
Source: UNCTAD and OECD

This propensity towards direct investment over exports is likely to be driven by a number of factors. The combination of high factor costs (high wages and land prices) and the strength of the pound sterling over the decade to 2007 will have encouraged many firms to produce abroad in order to compete on price more successfully in foreign markets.

6.5   Joint Ventures

A third option, instead of either wholly exporting or wholly direct investment in foreign enterprises, is to form a joint venture with a firm in the foreign market. Joint ventures have become an increasingly popular vehicle by which to enter a foreign market, particularly for SMEs with limited productive resources and/or foreign market knowledge. Kirby & Kaiser (2004) use a questionnaire and in-depth case interviews on nine UK and 12 German SMEs that have joint ventures in China. Their results show that joint venture has generally been a successful initiative for these firms, but also that these firms have faced many of the same difficulties experienced by direct investors and exporters. They argue that the key to success appears to be the choice of the joint venture partner, and conclude that, given the limited resources of small firms, assistance is required to help them locate and select appropriate partners.

6.6 Direct investment in the BRICs

6.6.1 The Shift of FDI towards the BRICs

Given the high barriers to imports into the BRIC economies, including non-tariff barriers such as bureaucratic regulations, foreign direct investment has become an increasingly attractive strategy for foreign firms wishing to enter these markets.

Large domestic markets, coupled with very high growth rates over the last years, and efforts, albeit in varying degrees, to improve their investment climates, have advanced the BRICs into the top five most attractive locations for FDI in recent UNCTAD surveys.

According to UNCTAD (2008), China is perceived as the most attractive location for FDI by investors globally, followed by India. As the sole non-BRIC country among the top five destinations, UNCTAD lists the United States in third position, followed by Russia and Brazil respectively. China's lead in locational competitiveness rests upon two pillars. The first is that MNCs take advantage of China's large supply of cheap labour and use China as a manufacturing platform for labour-intensive parts of production. The second is that high growth rates have led to the emergence of a Chinese middle class in the order of 300 million, which makes China an attractive destination for market-seeking investment as well. The latter rational is gaining in importance as the Chinese middle class continues to expand, while rising wages in China's coastal regions have significantly reduced China's cost advantage in labour-intensive manufacturing (Bartlett, 2008).

For now, however, the overwhelming majority of global FDI **stocks** continue to be in advanced countries with high asset prices and a long history of FDI. This can change only very gradually by flows shifting to emerging economies, and this shift is likely to be further slowed by market-specific risks and obstacles in emerging economies (Frenkel, Funke and Stadtmann, 2004). While many firms express a desire to locate in China and India, therefore, the reality of investing in such markets is more complex, and not all firms will carry out such investment.

For example, inefficient bureaucracy and a poorly developed infrastructure figure among the most important barriers for FDI in India (Bartlett, 2008). In China, investors' concerns about property rights and remaining restrictions and caps to foreign ownership in the service sectors restrict EU investments in banking and telecommunications. Another factor is the distance from European and US investors: Small- and medium-sized enterprises have been found to tend to limit their FDI engagement to geographically close countries (Stollinger & Hunya, 2009).

6.6.2   EU Investment in the BRICs

According to Eurostat (2009), the EU as a whole is the dominant investor in Brazil and Russia, and also invests more in China and India than the USA and Japan. After correcting for particularities in FDI data, such as the prominent role of Hong Kong and offshore centres in Chinese FDI, and of Mauritius in Indian FDI, the EU appears to be the largest investor in China and India, supported by evidence that the EU has the highest number of projects in China among all foreign investors.

FDI flows from the EU to the BRICs are highest in value for Russia, then Brazil, and then China, but China is the location with the largest number of EU projects among the BRICs. These divergent results can be explained by the small number of very large projects in the natural resource sector of Russia and the great number of finance- and trade-related small investments in China.

A breakdown of EU investment in the BRICs by broad sectors reveals that only about one third of the EU's FDI is in manufacturing; 60 per cent is in the services sector.

Global and EU-15 investments in the BRICs, as measured by the number of investment projects, were resilient to the global crisis until 2008. With regards to the expected drop in global FDI in 2009 and 2010, the BRICs may find themselves in a privileged position in several respects. First of all, they are large economies where FDI is mainly attracted by the local markets with growth expectations above world average, except in Russia. Local economic growth, especially in China and India, will allow for FDI to grow, as long as companies from crisis-hit countries are in a position to invest. With only a sluggish recovery in domestic demand in many developed markets, large multinationals may increasingly concentrate on the countries in the world where they can be most sure of expanding sales, such as China, India and Brazil, and shift investments there.

6.7   Investment in China and India

6.7.1   UK and Competitor Countries' FDI Stock in China and India

The stock of FDI statistics shown in Figures 6.6 and 6.7 are sourced from national sources - the ONS and French, German, US and Japanese equivalents – and have been converted into US dollars according to 2010 exchange rates, for comparability.

Figure 6.6 shows that the UK FDI stock in China has been similar to that of France over the last decade, but significantly lower than that of Japan, the USA and Germany, with US FDI increasing particularly rapidly, catching up that of Japan.

Figure 6.6: The UK and Key Competitors' FDI Stock in China, 1997-2008
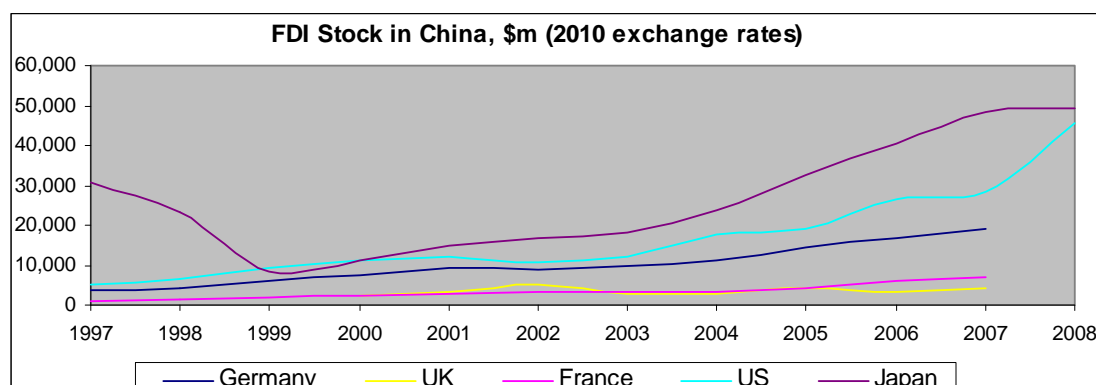
Source: UNCTAD and the National Sources used by UNCTAD (ONS and equivalent)

Figure 6.7 below shows that UK FDI stock in India has been comparable to that of competitors such as Germany and Japan, and significantly higher than FDI from France. US FDI, however, has been rising rapidly since 2003, and was well over twice as high as that from the UK, Germany or Japan in 2007.

Figure 6.7: The UK and Key Competitors' FDI Stock in India, 1997-2008
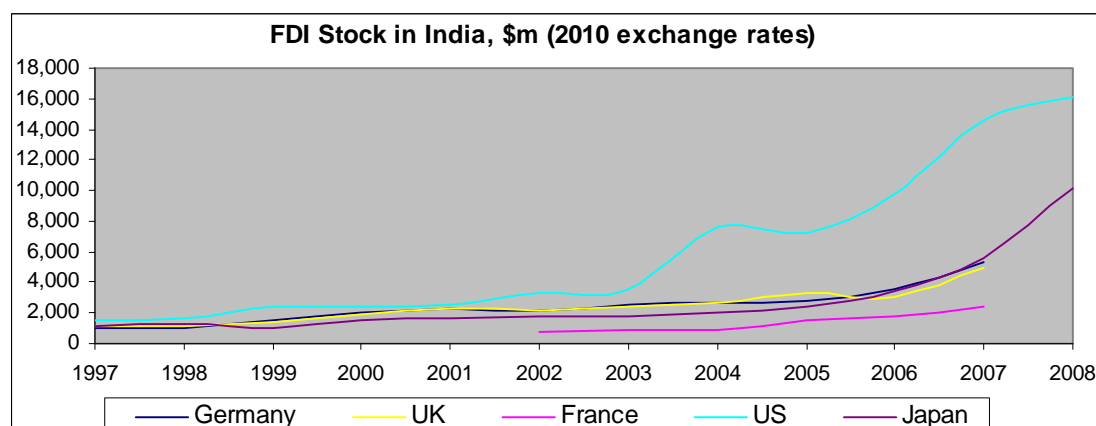
Source: UNCTAD and the National Sources used by UNCTAD (ONS and equivalent)

6.7.2   FDI Flows into China and India

Eurostat figures (in Figure 6.8 below) give the average annual outflow of FDI to China and India between 2004 and 2007, and the outflow in 2007. These show that, in terms of FDI flows, the UK has been the second largest direct investor from the EU in China and India over the period 2004-2007, behind Germany.

Table 6.1: Total FDI Flows into China and India from Key EU Competitors

€m	China, annual average 2004-2007	China annual flow 2007	India, annual average 2004-2007	India annual flow 2007
Germany	1,934	1,531	883	1,721
UK	972	1,669	608	975
France	758	1,433	281	366

Source: Eurostat

6.8 Strategies for entering Chinese and Indian Markets: Exports versus FDI

The charts below show that the UK had a higher FDI stock-to-exports ratio in China than key competitor countries during the period 2000 to 2005. However, this difference in approach appeared to have lessened in 2006 and 2007, with the UK recording a similar proportion of FDI to goods trade as France, and a lower ratio of FDI to total trade than France. It is worth noting that these figures are affected by current exchange rates, used to convert all the national FDI figures into US dollars, whereas trade figures are calculated in US dollars each year.

Figure 6.8: UK and Key Competitors' FDI-to-Goods-Exports Ratio for China
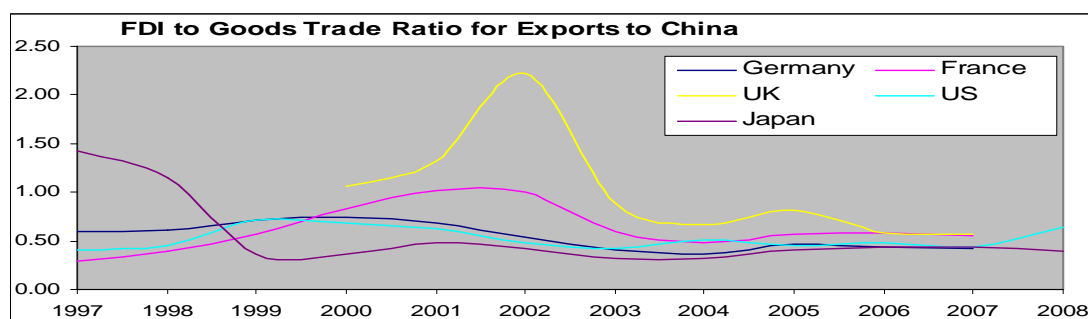
Source: UN Trade Statistics, FDI figures from the national sources UNCTAD uses.

Figure 6.9: UK and Competitors' FDI-to-Total-Exports Ratio for China

FDI to Trade (goods & services) Ratio for Exports to China

Legend: Germany, France, UK, Japan
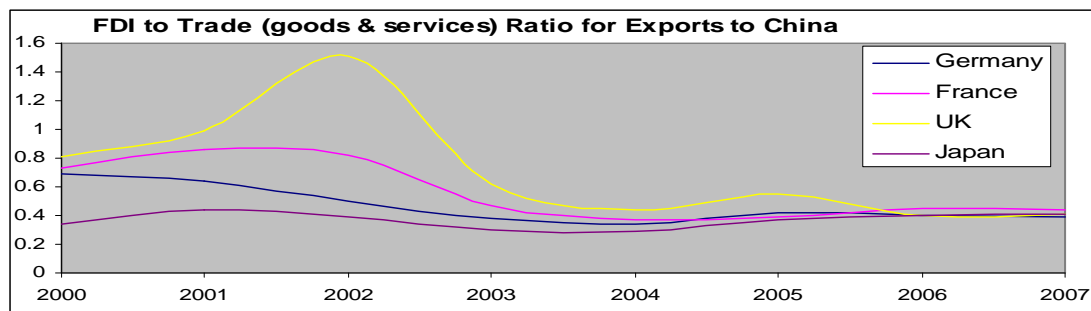
Source: UN Trade Statistics, FDI figures from the national sources UNCTAD uses.

In India, the UK's FDI stock-to-trade ratio has been similar to that of competitor countries, according to the figures shown below. Japan's FDI has been quite high compared to its total exports to India, which were lower than total exports from the UK in 2007, but higher than total exports from France.

Figure 6.10: UK and Key Competitors' FDI-to-Goods-Exports Ratio for India

FDI to Goods Trade Ratio for Exports to India

Legend: Germany, France, UK, US, Japan
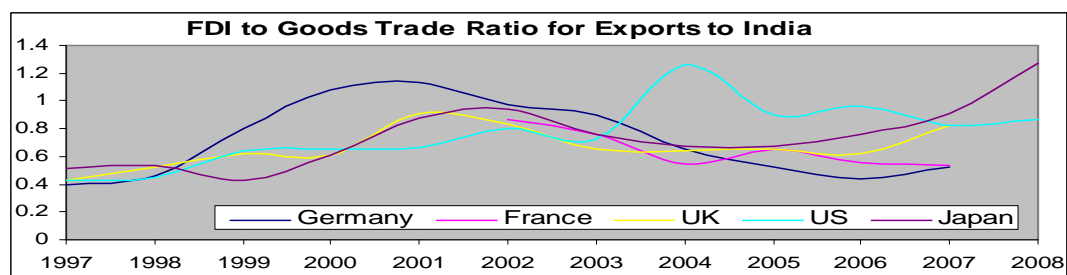
Source: UN Trade Statistics, FDI figures from the national sources UNCTAD uses.

Figure 6.11: UK and Competitors' FDI-to-Total-Exports Ratio for India

FDI to Trade Ratio for Exports to India

Legend: Germany, France, UK, US, Japan
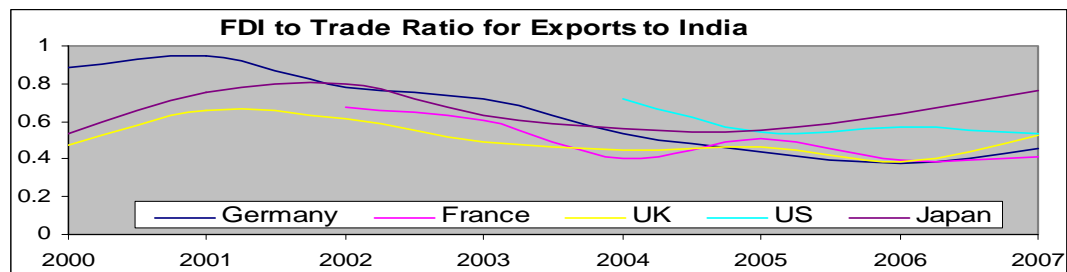
Source: UN Trade Statistics, FDI figures from the national sources UNCTAD uses.

6.9   Conclusions

- **World FDI in general has been increasing rapidly since the mid 1990s, particularly between 2005 and 2007, when the world outward FDI stock rose 53 per cent in just two years.**

- **The gap between the USA and UK shares in the world FDI stock has narrowed, as the US share has fallen more rapidly.**

- **Countries tend to have significant outward FDI in sectors in which they are also strong exporters.**

- **The majority of UK outward direct investment is in services (59 per cent in 2008), with 26 per cent in the manufacturing sector. 60 per cent of EU investment in the BRICs is in the services sector. This is consistent with the idea that sales in services are more likely to require a direct presence in the market.**

- **The financial services sector has become the UK sector with the largest stock of outward FDI.**

- **Overall, FDI to Europe accounts for 56 per cent of total UK outward FDI, the Americas account for 33 per cent, and Asia just 8 per cent.**

- **The USA is by far the largest market for UK outward FDI measured by total FDI stock, followed by the Netherlands and Luxembourg. Russia, Brazil, China and India are among the top 25 locations, but FDI stock still remains relatively low in these markets.**

- **The UK has had a significantly higher ratio of FDI to goods exports than key competitors since 1998, followed by the USA and France.**

CHAPTER 7: TRADE AND INVESTMENT AND EXCHANGE RATES

7.1 The Sterling Exchange Rate

Sterling appreciated considerably against the US dollar and the Japanese yen from 2002 to 2004 and remained at this appreciated level up until 2007. This appreciation of sterling was broadly in line with that of the euro over the 2002 to 2007 period. However, in 2007-2008 there was a 20 per cent depreciation of the sterling real effective exchange rate, as shown in Figure 7.1 below. Despite recovering by 10 per cent in the first eight months of 2009, sterling currently remains well below its 2000-2007 level. If sustained, this depreciation may help UK exporters improve international competitiveness in the coming years.

Figure 7.1: Real Effective Exchange Rate of the UK and other major currencies, 2000-2010
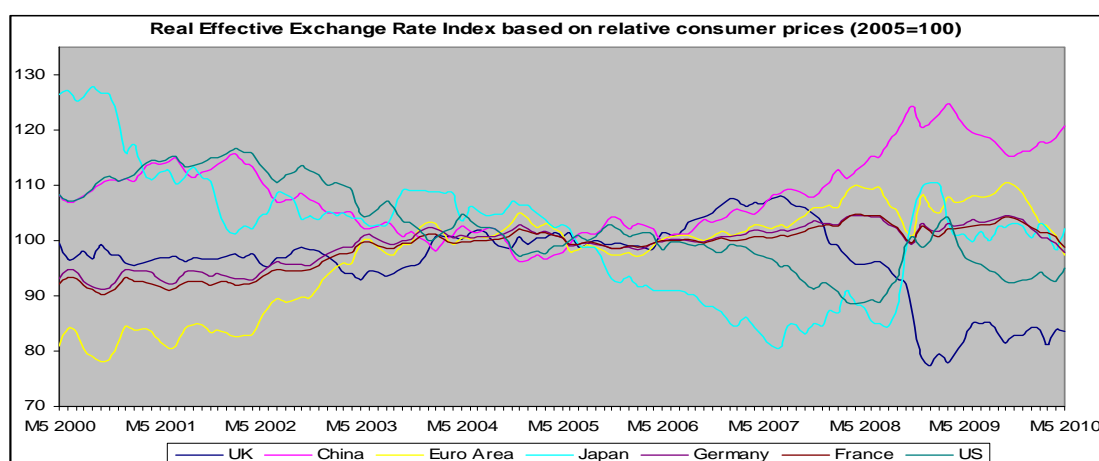
Source: IMF International Financial Statistics. The real effective exchange rate gives consumer prices in each country relative to consumer prices in a basket of other trade-weighted countries.

So far, the UK has yet to experience a sustained improvement in export growth over import growth. Firms may have delayed reacting to the depreciation until the pound stabilised and they were sure the depreciation would be sustained. The pound sterling has shown greater stability since August 2009, fluctuating at a level around 15% below its 2000-2006 level.

Most commentators still expect a lagged improvement in net exports, mostly through export growth at the extensive margin, with new firms entering the export market and existing exporters entering new markets. The adjustment at the intensive margin by current exporters to current markets may be fairly weak, as discussed below. Therefore, an improvement in the trade balance could potentially start to show in 2011, once new firms have entered export markets and established a share of these markets, and current exporters have also had time to adjust to the weaker pound.

7.2   Exporter Reactions to Exchange Rate Changes

Berman, Martin & Mayer (2009) present a model where, in the presence of distribution costs in the export market, high and low productivity firms react differently to exchange rate depreciation. Whereas high productivity firms optimally raise their mark-up rather than the volume they export, low productivity firms choose the opposite strategy. Hence, pricing to market is both endogenous and heterogeneous among firms. This heterogeneity has important consequences for the aggregate impact of exchange rate movements. The presence of fixed costs to export means that only high productivity firms can export, firms which precisely react to exchange rate depreciation by increasing their export price rather than their sales. They show that this selection effect can explain the weak impact of exchange rate movements on aggregate export volumes.

They then test the main predictions of the model on French firm level data with destination-specific export values and volumes for the period 1995-2005. Their results confirm that high performance firms react to exchange rate depreciation by increasing their export price rather than their export volume. The reverse is true for low productivity exporters. Pricing to market by exporters is also more pervasive in sectors and destination countries with higher distribution costs. In addition, sectors with import-intensive inputs will face higher production costs following exchange rate depreciation, as the imported inputs become more expensive. Therefore, they may be forced to increase the price of their exports to cover this cost, and their competitiveness in international markets may not really benefit from the depreciation.

In terms of new entry, however, Berman et al show that the probability of firms entering the export market increases following a depreciation. Provided that they do not import a significant proportion of their inputs, less productive firms are now able to compete on international markets, with sales exceeding the threshold level that will cover the fixed costs of entering foreign markets. The short-run extensive margin response to exchange rate changes is modest at the aggregate level because firms that enter, following depreciation, are smaller relative to existing firms. As was the case with trade barriers, the extensive margin response to the weaker pound should increase over time, as these new exporters grow and gain foreign market share.

Recent findings by JP Morgan are broadly consistent with this analysis. They suggest that the sterling's near 25% decline since mid-2007 has had only a small impact on trade performance to date, and that the lagged effect will mostly take place at the extensive margin, and will remain relatively small. Whilst net trade contributed an average of 1.2 percentage points to GDP growth in the six quarters to Q2 2009, JP Morgan's model suggest that this is mainly due to the collapse in import demand, with the sterling depreciation only adding around 0.1-0.3 percentage points to annual GDP growth over the past two years. This position is supported by the negative contribution of net trade to growth in the second half of 2009, as demand began to recover.

Figure 7.2: Modelled Contribution of Net Trade to GDP Growth following Depreciation
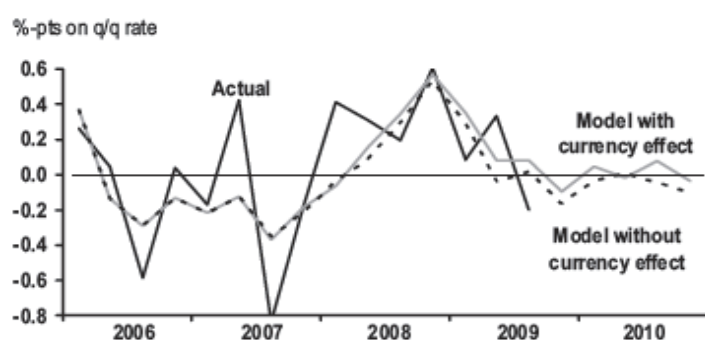
Source: JP Morgan

JP Morgan noted that sterling export prices have increase rapidly since the currency weakened. This suggests that firms have kept export prices stable in foreign currency terms, enjoying higher sterling profits, and/or covering higher import prices, rather than increasing export volumes. Berman et al's theory of high productivity firms optimally responding to exchange rate depreciation by raising their mark-up rather than export volumes may be particularly relevant in the case of the UK, given that the sectors UK exporters tend to specialise in have low price elasticities.

The Bank of England is more optimistic about the size of a delayed effect of sterling depreciation over the next couple of years, comparing this depreciation to that of 1992, which appeared to improve net trade in 1993 to 1995. However, JP Morgan has analysed other episodes of sterling weakness, and finds mixed effects on net trade. Following the early 1980s depreciation, net trade mostly acted as a drag on growth, and increases in net trade after the early 1970s depreciation may have been mostly due to demand movements. JP Morgan concludes that, as the economy recovers, rebalancing towards a more export-intensive economy will be a very slow process.

Recent analysis by the European Commission indicates that price competitiveness, measured as the real effective exchange rate, can explain an estimated 36% of the difference in the change in export market shares across euro area members, once the outlier of Slovakia is excluded.

At the same time, over 60 per cent of cross-country differences in market share changes are influenced by non-price competitiveness factors, such as product differentiation, technological content, or product quality.

An example of the importance of gains in non-price competitiveness is Slovakia, which in spite of an annual appreciation of the real effective exchange rate of over 2 per cent, increased its market shares by an average of almost 4 per cent a year. France, on the other hand, experienced a reduction in the real effective exchange rate comparable to that of Germany, yet its market shares fell by an average of 3 per cent a year, in contrast with small gains in Germany's market shares.

On top of differences in market shares, growth in exports overall is found to differ across euro area countries due to variation in the markets they export to and the type of goods and services they export. Countries sending a greater proportion of exports to markets with high growth in GDP and import demand have tended to record stronger export growth, as have those specialising in goods and services for which import demand has risen the fastest.

Overall, export growth is found to have been driven more by changes in foreign demand than by changes in price competitiveness or other factors, as demonstrated in the table below.

The detrimental effect of the slow recovery in demand in the EU, which accounts for over half of UK exports, is therefore likely to outweigh the positive effect of increased UK price competitiveness, dampening any improvement in UK export growth. This slow recovery may be prolonged by fiscal consolidation across the euro area, and UK export growth may not accelerate for some time, unless there is a substantial shift of UK exports into higher growth markets.

Table 7.1: The Contribution of Trade Determinants to Export Growth, Euro-Area Member States (1999-2008, average annual growth in percentage points)

Country	Total Export Growth	Real Effective Exchange Rate	Foreign Demand	Unexplained
Germany	7.3	0.5	6.4	0.4
Austria	6.4	-0.3	6.7	-0.1
Spain	4.5	-1.9	7.4	-0.9
France	3.5	0.8	5.3	-2.6
Italy	2.2	-4.6	6.7	0.2

Source: Commission Services. The contribution of each factor includes its lagged contribution.

There is hope, therefore, for the UK's trade balance to improve somewhat as a result of the sustained depreciation. While the response to exchange rate depreciation may be ambiguous at the intensive margin in terms of increases in export volumes, the intensive margin should still show an increase in the sterling value of UK exports. As long as the depreciation is sustained, there should also be growth in exports at the extensive margin, with this effect rising over time as new exporters gain market share. However, an increase in overseas demand, more than anything, is needed to substantially boost UK exports.

7.3 Survey Results on the Effect of the Sterling Depreciation

In UKTI's 2009 Performance and Impact Monitoring Surveys, all firms (UKTI users and non-users) were asked whether the recent fall in sterling exchange rates had had any impact on their business. A quarter of firms (24 per cent) have not experienced any impact of the fluctuations in sterling exchange rates. However, when exchange rates have affected businesses, this has had both positive and negative impacts (30 per cent and 45 per cent respectively). Users were less likely to report a negative effect (30 per cent versus 44 per cent of non users). A larger proportion of users report no net impact (37 per cent versus 24 per cent).

Figure 7.3: Effect on UK Firms of Fluctuations in Sterling Exchange Rates

Non-Users (PIMS 2009)
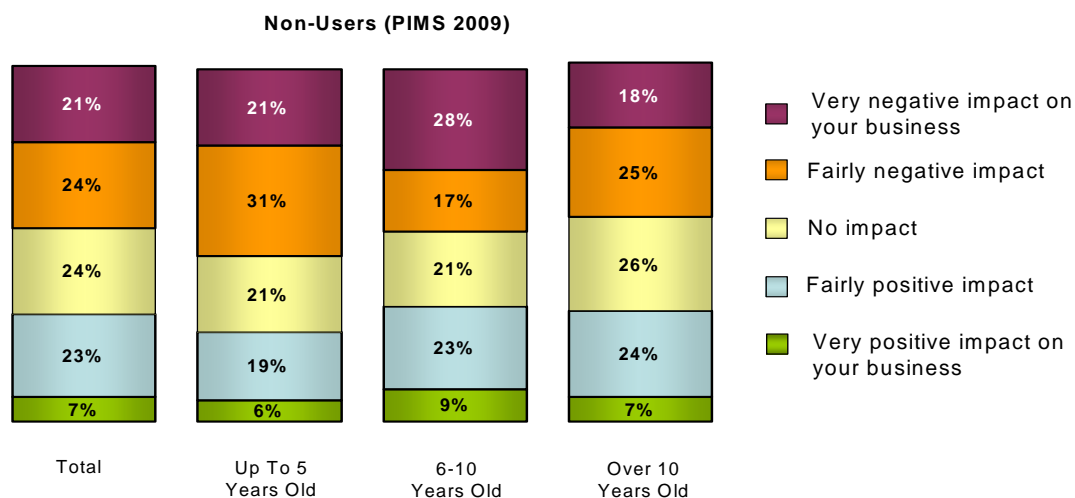
Source: OMB Research 2009

Overall, there is some evidence that younger firms are more likely to be negatively affected by the decline in sterling. However, there are no differences in this respect between production and service sector firms.

Businesses were also asked if they would be likely to try and increase the share of their business that is accounted for by overseas sales, should the sterling exchange rates stay at a similar level or fall further. Half of users and half of non-users of UKTI services claimed that they would be likely to try and increase their overseas sales (by either a little or a lot) if sterling exchange rates fell further. Within this, UKTI users were more likely to say that they would increase exports "a lot". Firms that have been established for six to ten years were slightly more inclined than other firms to foresee increases in overseas sales if the exchange rate fell further.

Figure 7.4: Expectations to Increase Overseas Sales if Sterling Exchange Rate Falls Further

Non-Users (PIMS 2009)

Source: OMB Research
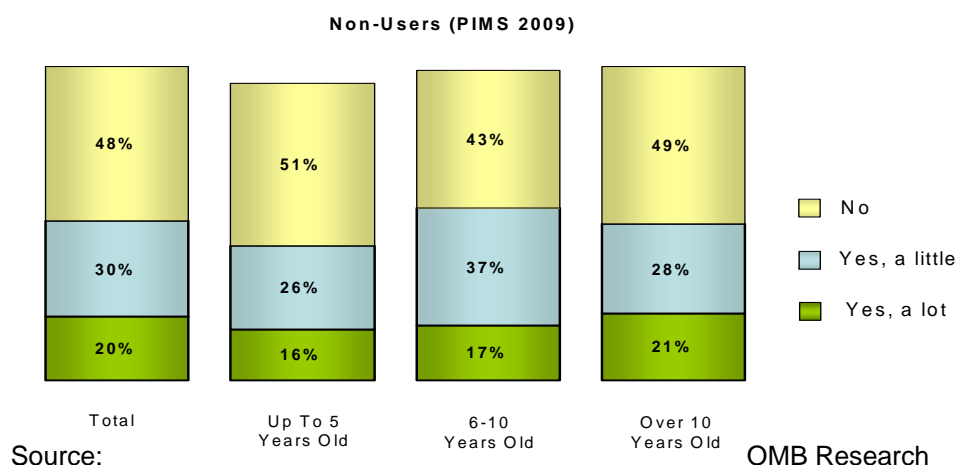
7.4   Changes in China's Exchange Rate

Because China uses imports of components to meet the demand for assembled exports, it is not clear (ex-ante) what effect a change in the exchange rate would have on exports of the assembled goods. Specifically, the effect of an exchange rate appreciation in increasing the international price of exported assembled goods could be muted by the effect of the appreciation in reducing the price of the imported components for assembly−lower priced inputs may allow the international price of the final product to remain relatively unchanged. Therefore, only goods and services produced in China without a large proportion of imported components would be likely to face a notable loss of competitiveness should the renminbi appreciate.

Marquez & Schindler's (2006) estimation results suggest that a 10 per cent real appreciation of the renminbi would lower the share of aggregate Chinese exports in world trade by 0.5 percentage points in the long run.

The response of China's share of world imports to renminbi appreciation is likely to depend on the type of product. For imports of final products, Marquez & Schlinder estimate that a 10 per cent appreciation would **lower** the share by 0.1 percentage points, due to the lower renminbi value of these imports, whereas for imports of components for assembly of exportables, the appreciation would **raise** the share by a negligible amount. Combining these two responses, therefore, suggests that a 10 per cent appreciation of the renminbi would lower China's share of aggregate imports by about 0.1 percentage points. This response is statistically significant and robust to lag length. This result, while initially seeming counterintuitive, is predicted by their model under certain conditions – firstly, that Chinese products are not good substitutes for imports, and therefore the volume of final goods imports into China does not increase significantly in response to their lower renminbi price.

Secondly, these results refer to multilateral trade and ignore the potential combinations of bilateral exchange rate realignments that could induce a 10 per cent appreciation of the real effective exchange rate. They also ignore potential differences in the exchange rate sensitivity of China's trade across trading partners.

7.5   The Exchange Rate and Inward and Outward FDI

Foreign direct investment generally involves a long-term commitment, which in theory should not be significantly affected by short-term deviations in the exchange rate, although there is a lack of consensus on this issue in theoretical economic models.

Conventional economic theory claims that exchange rate movements have a neutral effect on the rate of return for foreign investors, as a depreciation of the host country's currency reduces the amount of foreign currency needed to purchase the asset, but it also reduces the nominal return received in the foreign currency. This view is supported by several quantitative studies. Glauco De Vita and Andrew Abbott (2007), for example, examine the impact of the level and volatility of the real exchange rate on UK FDI inflows from the seven major countries of origin of the investment over the period 1975-2001[20]. After controlling for endogeneity of the regressors, they find that the level of the real exchange rate has a statistically insignificant effect on FDI.

However, it has been suggested, for example by Blonigen (2006), that exchange rates affect FDI when the assets acquired through FDI can generate returns in currencies other than that used for purchase. He refers to firm-specific assets such as patents and managerial skills, returns from which can be generated anywhere the firm operates. Host-country depreciation could, therefore, increase foreign acquisition of firms with firm-specific assets. Blonigen finds evidence confirming this hypothesis, in a panel of acquisitions of US firms by Japanese and German firms.

However, in general, the strength of UK FDI inflows is much more dependent on changes in the world economy, and therefore world FDI flows, and improvements in the outlook for the UK economy specifically. The latter tend to improve UK inward FDI and the sterling exchange rate simultaneously.

While De Vita and Abbott refute a causal effect of the real exchange rate *level* on FDI, their results do provide strong evidence that exchange rate **volatility**

---

[20] Panel manufacturing data with fixed effects and dynamic generalised methods of moments.

has a negative impact on FDI flows into the UK, irrespective of the sector of destination of the investment. Bettina Becker and Stephen G. Hall (2007) concur that exchange rate volatility affects the UK's inward FDI in R&D. They find that an increase in the covariance of the euro and sterling (ie lower euro/sterling volatility) increases foreign R&D investment into the UK. Increased volatility of the euro-dollar exchange rate tends to relocate R&D investment (a substantial amount of which originates from US firms or firms extensively working in US dollars) from the Euro area into the UK.

Whereas increased exchange rate volatility in the recipient country may reduce inward FDI, increased exchange rate variation in the home country may increase outward FDI. Goldberg and Kolstad (1995) study US FDI flows with Canada, Japan and the UK, and find that the capacity share of US multinationals abroad increases as dollar exchange rate volatility rises and becomes more correlated with US export demand shocks.

Exchange rate volatility, therefore, may have a greater impact on FDI flows than the short run level of the nominal exchange rate, as this volatility makes it more difficult to assess the longer term value of a potential investment.

Investment certainty, and therefore flows, may also be adversely affected by **long- run misalignment in real exchange rates**, especially if markets anticipate a necessary correction of this misalignment at some point. Greater inward flows may be observed following a correction in the long-run exchange rate towards its equilibrium rate, particularly if this correction is perceived as inducing a more stable investment climate, with more predictable, less volatile exchange rates. Baban Hasnat (1999) assesses the impact of persistent exchange rate misalignment on US FDI in Germany, France, the UK, Japan and Canada during 1976-95, and finds a significant negative effect of misalignment. The results indicate that a 1 per cent increase in exchange rate misalignment of a country leads to a 0.25 per cent decrease in FDI from the USA, ceteris paribus.

Previous estimates[21] have put the long-run equilibrium euro/sterling exchange rate at around 1.3€/£. While much of the change in UK FDI can be attributed to changing global FDI flows in general, the particularly rapid decrease in 2000-2003 and then increase in 2004-2005 in flows into the UK compared to the Eurozone could be partly the result of the exchange rate misalignment and the subsequent correction in the euro/sterling exchange rate.

---

[21] Including those produced as part of the 2003 revised assessment of the Five Tests for euro entry.

On the one hand, therefore, recent volatility of the sterling exchange rate could have had a detrimental effect on FDI inflows into the UK. On the other hand, to the extent that some of the depreciation of the pound in 2008 might be viewed as a correction from its previous overvaluation, particularly against the euro, this could encourage increased FDI flows into the UK. Acquisitions of firms with firm-specific assets may be particularly high while the pound is below its estimated long-run equilibrium rate.

7.6 Conclusions

- **If sustained, the recent sterling depreciation may help UK exporters improve international competitiveness in the coming years. The potential effect will be lower for sectors with import-intensive inputs. There is evidence that high productivity firms are likely to respond by increasing their sterling price (and profit) rather than export volumes.**

- **Surveys of UK exporters show that only around 30 per cent saw the depreciation as having a positive effect on their business, while 30 per cent of UKTI users and 45 per cent non-users saw an overall negative effect. Around 50 per cent of both groups expect to increase the share of exports in their turnover if the depreciation is maintained.**

- **The effect of an appreciation of the renminbi on Chinese exports would impact mainly on goods and services produced in China without a large proportion of imported inputs and less so on goods whose production is highly import-intensive, tempering the overall impact of an appreciation on Chinese export competitiveness.**

References

Bartlett, David, 2008; *"Economic Trends in the BRIC Countries"*, RSM International.

Berman, Nicolas, Martin, Philippe, & Mayer, Thierry, 2009; "How do different Exporters react to Exchange Rate Changes? Theory, empirics and aggregate implications".

Bernard, Andrew B., Jensen, J. Bradford, Redding, Stephen J., & Schott, Peter K., 2009; *"The Margins of US Trade", CEP Discussion Paper No 906*

BIS, 2009; "China and India: Opportunities and Challenges for UK Business", URN No. 09/553.

Bishop, Kate, Froth, John, & Riley, Rebecca, 2010; *"Analysis of the International Business Strategies, Barriers, and Awareness Monitoring Survey"*, NIESR, on behalf of UKTI.

Canavire, Bacarreza, Gustavo, Javier & Ehrlich, Laura, 2006; "*The Impact of Migration on Foreign Trade: A Developing Country Approach",* Latin American Journal of Economic Development No. 6, pp. 125-146.

Casson, Mark, 2007; "UK Exports and Demand in Fast-growing Markets: Study of Trade in Services and Outward Foreign Direct Investment".

Centre for International Business, Leeds University's Business School, 2010; *"Global Market Attractiveness Post 'Credit Crunch' Project"*.

Crane, Leland, Crowley, Meredith, A, & Quayyum, Saad, 2007; *"Understanding the Evolution of Trade Deficits: Trade Elasticities of Industrialised Countries"*, Economic Perspectives, Vol. 31, No.4. Available at: http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1028746

Crozet, Matthieu, & Koenig, Pamina, 2010; "Structural Gravity Equations with Intensive and Extensive Margins".

Curran, Louise & Zignago, Soledad, 2009; "Evolution of EU and its Member States' Competitiveness in International Trade".

De Benedictis, Luca & Tajoli, Lucia, 2009, preliminary draft; *"Comparing International Sectoral Trade Networks"*.

Eaton, Jonathan, Lima-Fieler, Ana Cecilia, & Santacreu, Ana Maria, 2007; *"Mapping the Match between UK Exports and Demand in Emerging Markets".*

Fagerberg, Jan, 1988; "International Competitiveness", Economic Journal, 98, 355-374.

Frenkel, Michael, Funke, Katja, & Stadtmann, Georg, 2004; *"A panel analysis of bilateral FDI flows to emerging economies"*, Economic Systems, Volume 28, Issue 3.

Gagnon, Joseph, E, 2004 (2008 update); *"Growth-Led Exports: Is Variety the Spice of Trade?"*, International Finance Discussion Paper 822, US Federal Reserve.

Gagnon, Joseph, E, 2003; *"Long-Run Supply Effects and the Elasticities Aproach to Trade"*, International Finance Discussion Paper No. 754, US Federal Reserve.

Galstyan, Vahagn, King, Michael, & Matthews, Alan, 2009, *"Analysis of UK Competitiveness in UKTI Priority Sectors",* Institute for International Integration Studies research commissioned by UKTI.

Galstyan, Vahagn & Lane, Philip R., 2008, *"External Imbalances and the Extensive Margin of Trade"*, Economic Notes, Vol. 37, Issues 3, pp. 241-257.

Greenhalgh, C, 1990; "Innovation and Trade Performance in the United Kingdom", Economic Journal, 100, 105-118.

Helpman, Elhanan, 1990; *"Monopolistic Competition in Trade Theory"*, Princeton University, Special Papers in International Finance No.16, Princeton, NJ.

Hildegunn K. Nordås, Miroudot, Sébastien and Lanz, Rainer, OECD Trade and Agriculture Directorate, 2008; "Entry barriers and the extensive margin: estimating trade restrictiveness from trade flows and lack thereof".

Hummels, David & Klenow, Peter J., 2004; "The Variety and Quality of a Nation's Exports".

Imbs, Jean & M'ejean, Isabelle, 2008; *"Elasticity Optimism"*.

Kee, H.L., Nicita, A, Olarreaga, M, 2008; *"Import demand elasticities and trade distortions"*, The Review of Economics and Statistics

Kim, Yoonbai, 1996; *"Income Effects on the Trade Balance"*, Review of Economics and Statistics, 464-469.

Kirby, David A. & Kaiser, Stefan, 2004; "Joint Ventures as an Internationalisation Strategy for SMEs".

Koenig, Pamina, 2005; "The Intensive and Extensive Margins of Trade: Evidence from French Firms"

Krugman, Paul, 1980; "Scale Economics, Product Differentiation, and the Pattern of Trade", American Economic Review, 70, 950-959.

Krugman, Paul, 1989; "Differences in Income Elasticities and Trends in Real Exchange Rates", European Economic Review, 33, 1031-1049.

London Economics, December 2009; "A review of the evidence base for UK Trade & Investment's support for firms in High Growth Markets", draft final report to UKTI.

Marquez, Jamie, 2002; *"Estimating Trade Elasticities"*, Boston: Kluwer Academic Publishers.

Marquez, Jaime and Schindler, John W., 2006; *"Exchange Rate Effects on China's Trade: An Interim Report"*. FRB International Finance Discussion Paper No. 861. Available at SSRN: http://ssrn.com/abstract=906854

OECD Trade & Agriculture Directorate, September 2009; "The Effects of Globalisation: Openness and Changing Patterns of Comparative Advantage, Interim Report on Production, Consumption and Trade Developments".

Rauch, James E, 2001; *"Business and Social Networks in International Trade"*, Journal of Economic Literature, Vol. 39, No. 4

Stollinger, Roman, Hunya, Gabor, 2009; *"Foreign Direct Investment Flows between the EU and the BRICs"*. In: The Vienna Institute for International Economic Studies, wiiw / Research Reports. *RePEc:wii:rpaper:rr:358.*

Royal Swedish Academy of Sciences, 2008; *"Trade and Geography – Economies of Scale, Differentiated Products and Transport Costs"*. Compiled by the Prize Committee of the Royal Swedish Academy of Sciences. http://nobelprize.org/nobel_prizes/economics/laureates/2008/ecoadv08.pdf

Sauvant, K.P., 2005; *"New sources of FDI: the BRICs"*, Journal of World Investment and Trade, Vol. 6, No. 5, October, pp.639–709.

Senhadji, Abdelhak, 1998; "Time-Series Estimation of Structural Import Demand Equations: A Cross-Country Analysis", IMF Staff papers, Vol. 45, No. 2

Smeets, Roger, Creusen, Harold, Lejour, Arjan & Kox, Henk, 2010; "Export Margins and Export Barriers: Uncovering market entry costs of exporters in the Netherlands", CPB Document No 208

UKTI and EIU, 2009; "*Survive and Prosper: emerging markets in the global recession*".

WTO International Trade Statistics 2009; http://www.wto.org/english/res_e/statis_e/its2009_e/its09_toc_e.htm

Wu, Yi, 2004; "Growth, Expansion of Markets and Income Elasticities in World Trade", Job Market Paper, Georgetown University

ANNEX A: RELEVANT THEORIES OF TRADE PATTERNS AND TRADE GROWTH

A rich body of trade theory helps to explain patterns of trade at the industry level, taking account of industry and country differences in knowledge and technology. Recent theory has also taken account of firm level differences, and has shed new light on changes in trade patterns at the extensive margin.

This chapter considers the latest trade theories that shed light on the patterns in world trade growth that we are focusing on in this paper.

A.1 Inter- and Intra-Industry Trade

The latest trade theory, combining old and new trade theory, suggests that inter-industry trade is driven by technology gaps and Heckscher-Ohlin differences in factor proportions, while intra-industry trade is based on increasing returns to scale and monopolistic competition (Lancaster, 1980, Dixit & Norman 1980, Krugman 1981, Helpman 1981, and Helpman & Krugman 1985). Much of intra-industry trade occurs in knowledge-intensive products between highly developed countries, often in industries dominated by multinational corporations, due to the fixed costs of R&D (Helpman 1984 and Markusen 1984). Helpman and Krugman (1985) found that one third of all industries displayed increasing returns to scale.

The integrated one-factor model of inter- and intra-industry trade (eg Krugman 1979) states that:

- The volume of trade between any two countries should increase with the difference in relative factor endowments and decrease with the difference in country size.

- The share of intra-industry trade in the total trade between two countries should depend negatively on the difference in capital-labour ratios and positively on size dispersion.

A.2 Trade Growth at the Extensive and Intensive Margins

Trade increases or decreases either on the intensive margin or the extensive margin. Changes at the extensive margin can take a number of different forms:

- Change in the number or range of goods and services traded.

- Change in the number of firms engaged in international trade.

- Change in the number or range of bilateral trading partners.

At the product level, the intensive margin refers to changes in the volume/value of goods and services that are already imported or exported, i.e. the same firm exporting more or less of the same product to the same country. In this context, the extensive margin refers to changes in the number or range of goods exported and imported, either due to exporter entry and exit, whereby a new firm enters the export market selling a new product, or due to an existing exporter altering the range of its export products.

At the firm level, the extensive margin indicates the number of new firms entering a market, versus the intensive margin, which indicates growth in the total value of exports (of any goods or services) from a firm that is already present in a given market.

At the country level, the extensive margin refers to the number of country pairs trading bilaterally with each other, versus the intensive margin, which is the amount of trade taking place within an existing trade partnership.

We will be looking at the extensive and intensive margins of trade growth at each of these three levels, but focusing on the margins of trade at the firm level, i.e. the number of firms in a market compared to the average values they export.

The Melitz (2003) model is a dynamic industry model of a firm's decision to produce for the domestic market and their decision to export to foreign markets, ie create trade at the extensive margin. In each country, the domestic market consists of firms differentiated by the varieties they produce and their productivity. Fixed production costs lead to the exit of inefficient firms whose productivities are lower than a threshold level, as they do not expect to earn positive profits in the future. There are then additional fixed costs and variable costs associated with exporting. However, the decision to export occurs after the firms observe their productivity in the domestic market. A firm enters export markets if, and only if, the net profits generated from its exports in a given country are sufficient to cover the fixed exporting costs. The zero cut-off profit conditions in domestic and exporting markets define the productivity thresholds for firms' entry into the domestic and exports markets, and in turn determines the equilibrium distribution of non-exporting firms and exporting firms, as well as their average productivities. Typically, the

combination of fixed export costs and variable export costs ensures that the exporting productivity threshold is higher than that for production for the domestic market, ie, only a small fraction of firms with high productivity engage in export markets. These exporting firms are assumed to supply both the domestic and export markets.

Helpman, Melitz and Rubinstein (2008) provide an updated probit model of the extensive margin of trade. A country will export to a given market if the most productive exporting firm has a ratio of variable export profits to fixed costs larger than one. In principle, trade costs can be inferred from information on who trades with who. Novy (2008) also models the calculation of trade costs from information on bilateral and internal trade flows.

The monopolistic competition trade model of Helpman and Krugman (1985) explains how fast-growing countries could experience rapid export growth without declining terms of trade. If they developed new varieties of products to be exported (increasing the extensive margin), rather than increasing the volume of goods already exported (the intensive margin), the price of existing products would not be lowered.

The concept of the extensive and intensive margins is explored more fully in Chapter 3, alongside evidence of their relative importance in trade growth.

A.3   Transport Costs and Gravity Models

Distance affects the extensive margin negatively, but can have positive effects on the intensive margin. Countries tend to export goods and services for which the domestic market is large.

International trade is limited by the trade barriers that exist between bilateral trading partners. As well as policy barriers, such as tariffs, these include natural barriers, such as transport costs, which tend to increase with distance and decrease with the sophistication of physical infrastructure, and can be as high as 40 per cent of production costs, for example in landlocked African nations. In Tinbergen's gravity model, bilateral trade flows depend on the market size of the country pair in question relative to the rest of the world, and the distance between them relative to the distance to all other potential trading partners (Anderson 1979, McCallum 1995). Eaton & Kortum (2000) calculate that "zero gravity", ie no geographic barriers to trade, would imply a more than fivefold increase in world trade.

Empirical results of studies using the gravity model are driven almost exclusively by the extensive margin: while the number of firms and the number of traded products decline significantly with distance, the intensive margin of average import or export value per firm or product if anything increases with distance (Bernard, Jensen, Redding & Schott, 2009). The relationship between trade barriers and the extensive and intensive margins is further investigated in Chapter 3.

The presence of sizeable transport costs, combined with increasing returns, also creates the home-market effect (Corden, 1970). Where there are possibilities for realising economies of scale, firms tend to concentrate production in one location, and transport costs are minimised if this location is within the largest market. Therefore, while some parts of production may be geographically fragmented, those operations where economies of scale are important, such as R&D, will tend to be geographically concentrated, often in the home market. Consequently, countries tend to export the goods for which they have a large domestic market.

A.4 Informal Trade Barriers and Network Effects

Social networks influence trade, especially for differentiated goods and services and new or less conventional products.

A.4.1 Business and Social Networks

There has been an increasing focus on informal trade barriers as an explanation of why trade flows are not higher. These include weak enforcement of international contracts (Anderson & Marcouiller) and inadequate information about international trading opportunities (Portes & Rey 1999). Owen, Kompas & Grafton (2004) present OLS and instrumental variable results that support the hypothesis that social barriers to communication, as measured by linguistic diversity, reduce total factor productivity. If this reduction in productivity is sufficiently high, it will not be profitable for a firm to enter a given market, as set out in the Melitz model in Section A.2 above.

Rauch (1999) models how business and social networks can affect trade. On the one hand, domestic networks can act as informal barriers themselves, with network members colluding to increase their market power by restricting foreign competition. On the other hand, transnational networks, or domestic networks that are open to foreign membership, can be used by foreign firms as a way of accessing information and contacts, thus overcoming informational and market access barriers. This highlights the importance of the extent to which networks are open to new members. If membership is relatively closed, these networks may be statically efficient, increasing trade between members, but not dynamically efficient. Members of a network may also be wary of accepting new members without sufficient knowledge of their characteristics, yet are reluctant to allocate resources to researching new members. Thus the role of a trusted intermediary, such as a foreign embassy, can be vital to act on behalf of a foreign firm in establishing a connection with domestic networks, and the repeated exchange between the embassy and the network helps build co-operation.

A.4.2 Migrant Networks

Immigration is expected to encourage trade with the country of origin, both through a transnational network effect and through immigrants' taste for goods from their country of origin. Empirical analysis attempts to separate these effects from the correlation of immigration with country characteristics that promote trade, such as proximity. Estimation results from gravity models suggest that migration flows can have a significant effect on trade flows, particularly intra-industry trade. For example, Canavire et al (2006) find that, in a panel data set for Bolivia, both immigration and emigration affected export and import volumes, specifically within intra-industry trade. As with previous studies, they find that immigration increases both export and import elasticities, and they also find a relatively similar impact of emigration on elasticities.

Some studies of immigration find larger import elasticities compared to export elasticities, although a few find the opposite. Gould (1994), for example, estimates that a 10 per cent increase in immigrants to the USA will increase US exports to the country of origin by 4.7 per cent and US imports from the country of origin by 8.3 per cent. Head & Ries (1998) consider Canadian bilateral trade and conclude that a 10 per cent increase in immigrants to Canada will increase Canadian exports to the country of origin by 1.3 per cent and Canadian imports from the country of origin by 3.3 per cent. This could suggest that the migrant network effects increase trade in both directions, and that migrant preferences further increase imports from the country of origin. It could also be that imports into the destination country respond more to migrant networks than exports to the country of origin, if the destination country has higher income levels, and a generally higher elasticity of demand for imports (a concept discussed in Section A.5 and Chapter 5).

Head and Ries suggest that the response of Canadian trade to migration is lower than that estimated for the USA due to the nature of Canadian versus US trade. "Canada's main export categories; natural resources and US-bound automotive goods, do not seem likely candidates for transaction cost reductions by immigrants". Therefore, the extent of migration network effects may be reliant on the nature of the industries migrants participate in.

Rauch & Trindade (2001) find that the increase in bilateral trade attributable to the overseas Chinese network is larger for differentiated than for homogenous products, supporting the hypothesis that networks can most increase trade when that trade requires a greater exchange of information and trust over the value, quality and reliability of new or less conventional products.

A.5 Income Elasticities of Trade Flows

Income elasticities affect trade patterns and are linked to country growth rates.

Houthakker and Magee (1969) documented large differences in the income elasticities of trade flows across countries. They noted that some countries, particularly Japan, had been experiencing a favourable combination of high income elasticity for their exports and low income elasticity of import demand. Other countries, such as the UK and the USA, had been facing the reverse. If these elasticities are structural, the Houthakker-Magee effect dictates that the latter countries must either grow at a slower rate than their trading partners, or experience a trend worsening of the current account and/or depreciation of the real exchange rate. Lawrence (1990) subsequently attributed the deterioration of the US current account over the 1980s to the Houthakker-Magee effect. In 1989, Krugman proposed the "45-degree rule", whereby relative (export versus import) income elasticities are systematically linked to relative (domestic versus foreign) growth rates. Recent models, such as that of Yi Wu (2005), imply that income elasticities are not structural, but rather change with trend growth rates. Whichever way causation runs, from growth to elasticities or vice versa, the empirical evidence supports the relationship between the two. As growth rates start to slow in newly industrialised economies such as Korea and Malaysia, and also in the medium term in China, we would expect to see a simultaneous increase in the relative income elasticity of import demand. These concepts are further explored when we look at future demand in Chapter 5.

A.6 The Relationship between Trade and Exchange Rates

Exchange rate effects on trade are not straightforward, and can be weak. Recent theory suggests that depreciation is more likely to increase trade at the extensive margin than at the intensive margin. Higher import intensity in production reduces the potential competitiveness effect of depreciation.

The conventional view is that exchange rate depreciation will increase the competitiveness of a country's exports, since they will be cheaper in foreign exchange terms, while still maintaining the same domestic currency revenue for the producer. Hence the argument that China is maintaining an unfair advantage in the price of its exports by not allowing the renminbi to appreciate against the US dollar.

A stable exchange rate is also viewed as beneficial for trade, due to the reduction in transaction uncertainty. Many countries and regimes since the Second World War have made maintaining a particular exchange rate a policy target, even at the expense of a loss of control over monetary policy and despite Balassa-Samuelson effects that suggest a real appreciation in converging economies.

The empirical evidence, however, suggests there are many caveats to these conclusions. Most studies do find a correlation between fixed currencies and trade, but the effect of a fixed exchange rate is often found to be smaller than expected, unless the exchange rate is viewed as permanently fixed, such as is the case with a common currency. Currency unions and pegs are briefly considered in the context of increasing trade along the extensive and intensive margins in Box 1.

In terms of the effects of exchange rate depreciation, the picture is even less clear. Berman, Martin & Mayer (2009) present a model where, in the presence of distribution costs in the export market, high and low productivity firms react differently to exchange rate depreciation. Whereas high productivity firms optimally raise their mark-up rather than the volume they export, low productivity firms choose the opposite strategy. Hence, pricing to market is both endogenous and heterogeneous among firms. This heterogeneity has important consequences for the aggregate impact of exchange rate movements. The presence of fixed costs to export means that only high productivity firms can export, firms which precisely react to exchange rate depreciation by increasing their export price rather than their sales. They show that this selection effect can explain the weak impact of exchange rate movements on aggregate export volumes. Therefore, export growth along the intensive margin in response to exchange rate depreciation may be limited. However, to the extent that exchange rate depreciation increases the international competitiveness of less productive firms, it could suffice to make exportation profitable for firms who previously could not justify the fixed costs of exporting. Thus, more firms may enter the export market, increasing trade along the extensive margin.

Another factor to consider is the import-intensity of exports – if a large proportion of production inputs are imported, the exchange rate depreciation will raise the cost of these inputs, and therefore exporters may be forced to increase the price of exports or face lower profits. Thus, the competitiveness effect of exchange rate depreciation may in the end be fairly neutral for these firms. The effect of the exchange rate on trade and investment is discussed in greater detail in Chapter 7.

A.7   Conclusions

- **Trade theory helps to explain patterns of trade at the industry level, taking account of differences in knowledge and technology. Recent theory has also taken account of firm level differences and helps explain changes in trade patterns at the extensive margin.**

- **Trade can increase or decrease either on the intensive margin or the extensive margin. Changes at the extensive margin include changes in the number or range of products exported, or in the number of exporters, as well as changes in bilateral trading partners.**

- **Social networks influence trade, especially for differentiated goods and services and new or less conventional products.**

- **Income elasticities affect trade patterns and are linked to growth rates. Differences can affect bilateral trade balances.**

- **Exchange rate effects on trade are not straightforward, and can be weak. Theory suggests that depreciation is more likely to increase trade at the extensive margin than at the intensive margin. Higher import intensity in production reduces the potential competitiveness effect of depreciation.**

ANNEX B: A BREAKDOWN OF SHIFTS IN GOODS MARKET SHARE

The table below sets out IIIS' analysis of shifts in UK and competitors' share of priority goods exports to key destination markets, as referred to in Chapter 2.

Table B.1: Analysis of Shift in Market Share by Competitor Exporter & Destination Market

	Change in share in destination markets (%)	Change in commodity Structure	Change in competitiveness
United Kingdom			
Brazil	-1.32	0.02	-1.34
China	-0.33	-0.07	-0.27
Germany	-1.61	0.12	-1.73
India	-0.81	-0.32	-0.49
Japan	-0.43	0.05	-0.48
Mexico	0.11	0.04	0.08
Russia	0.21	0.16	0.05
Saudi Arabia	-3.00	-0.23	-2.77
South Africa	-4.05	0.11	-4.16
UAE	NA	NA	NA
USA	-0.43	0.12	-0.55
Germany			
Brazil	-1.46	0.02	-1.48
China	0.02	-0.43	0.45
India	2.83	-1.52	4.35
Japan	-0.29	0.15	-0.44
Mexico	0.73	0.00	0.73
Russia	-2.85	-0.16	-2.68
Saudi Arabia	0.34	-0.24	0.58
South Africa	-2.03	0.32	-2.35
UAE	NA	NA	NA
United Kingdom	1.91	-0.20	2.10
USA	0.17	0.06	0.11

	Change in share in destination markets (%)	Change in commodity Structure	Change in competitiveness
Japan			
Brazil	-1.27	-0.10	-1.17
China	-2.96	-0.26	-2.71
Germany	-0.66	-0.08	-0.57
India	0.52	-0.50	1.02
Mexico	0.06	-0.33	0.39
Russia	4.46	1.66	2.81
Saudi Arabia	-2.53	-0.40	-2.13
South Africa	0.87	0.46	0.42
UAE	NA	NA	NA
United Kingdom	-1.49	-0.09	-1.40
USA	-3.00	-0.43	-2.57
USA			
Brazil	-6.84	-0.45	-6.39
China	-1.99	-0.31	-1.68
Germany	-1.21	0.15	-1.36
India	0.92	-1.72	2.64
Japan	-5.32	0.36	-5.69
Mexico	-12.28	-.0.59	-12.87
Russia	-3.34	-0.18	-3.15
Saudi Arabia	-4.70	-0.17	-4.52
South Africa	-5.38	0.00	-5.39
UAE	NA	NA	NA
United Kingdom	-2.64	0.01	-2.65
Rest of World			
Brazil	10.89	0.51	10.38
China	5.27	1.06	4.22
Germany	3.47	-0.19	3.66
India	-3.46	4.07	-7.52
Japan	6.04	-0.57	6.61
Mexico	11.38	-0.29	11.67
Russia	1.50	-1.48	2.98
Saudi Arabia	9.89	1.04	8.85
South Africa	10.59	-0.89	11.48
UAE	NA	NA	NA
United Kingdom	2.48	0.30	2.18
USA	3.26	0.25	3.01

Source: IIIS 2009

BIS Economics Papers

BIS places analysis at the heart of policy-making. As part of this process the Department has decided to make its analysis and evidence base more publicly available through the publication of a series of BIS Economics Papers that set out the thinking underpinning policy development. The BIS Economics series is a continuation of the series of Economics papers, produced by the former Department for Business, Enterprise and Regulatory Reform (BERR) which analysed issues central to business and industry.

The main series is complemented by a series of shorter Occasional papers including literature reviews, appraisal and evaluation guidance, technical papers, economic essays and think pieces. These are listed below:

Main BIS Series

7.   **Understanding local growth**, October 2010

6.   **Learning from some of Britain's successful sectors: An historical analysis of the role of government,** March 2010

5.   **Learning from Britain's successful sectors,** March 2010

4.   **Supporting analysis for "Skills for Growth: The national skills strategy",** March 2010

3.   **The space economy in the UK: An economic analysis of the sector and the role of policy,** February 2010

2.   **Life Sciences in the UK - Economic analysis and evidence for 'life sciences 2010: Delivering the Blueprint',** January 2010

1.   **Towards a low carbon economy – economic analysis and evidence for a low carbon industrial strategy,** July 2009

Main BERR Series

6.   **The globalization of value chains and industrial transformation in the UK,** February 2009

5.   **China and India: Opportunities and Challenges for UK Business,** February 2009

4.   **Regulation and Innovation: Evidence and Policy Implications,** December 2008

3.   **High Growth Firms in the UK: Lessons from an analysis of comparative UK Performance,** November 2008

2.   **Five Dynamics of change in Global Manufacturing**, September 2008

1.   **BERR's Role in Raising Productivity: New Evidence**, February 2008

BIS Occasional Papers

2.   **The economic rationale for a national design policy**, August 2010

1.   **Research to improve the assessment of additionality,** October 2009

BERR Occasional Papers

3.   **Impact of Regulation on Productivity,** September 2008

2.   **Evaluation of Regional Selective Assistance (RSA) and its successor, Selective Finance for Investment in England,** March 2008

1.   **Cross-Country Productivity Performance at Sector level: the UK compared with the US, France and Germany,** February 2008

Copies of these papers can be obtained from the BIS publications orderline at http://www.bis.gov.uk/publications or telephone **0845 015 0010**.

These papers are also available electronically on the BIS Economics website at http://www.berr.gov.uk/Policies/economics-statistics/economics.

Further information on economic research in BIS can be found at http://www.bis.gov.uk/policies/economics-statistics/economics/bis-research . This site includes links to the various specialist research areas within the Department.

Evaluation reports are available on the BIS evaluation website at http://www.berr.gov.uk/Policies/economics-statistics/economics/evaluation.

The views expressed within BIS Economics Papers are those of the authors and should not be treated as Government policy. We welcome feedback on the issues raised by the BIS Economics Papers, and comments should be sent to bis.economics@bis.gsi.gov.uk.