

Moving Up the Value Chain: Staying Competitive in the Global Economy

MAIN FINDINGS



Foreword

Globalisation raises many important challenges and is high on the policy agenda in many OECD countries. At the 2004 Ministerial Council Meeting, Ministers asked the OECD to shed light on issues related to the increased outsourcing and offshoring of production, since solid evidence to underpin policy discussion and formulation was scarce.

To help implement this mandate, the OECD Council decided at the end of 2004 on an allocation of the OECD's Central Priority Fund for a study including a systematic empirical overview of trends and developments on the globalisation of value chains. The Committee on Industry, Innovation and Entrepreneurship (CIIE) provided guidance on the scope of this study.

This document, presented to the OECD's 2007 Ministerial Council meeting, brings together some of the evidence on the globalisation of value chains and identifies the most relevant policy issues in order to address concerns related to globalisation. A compendium of the individual studies underlying this summary will be finalised later this year.

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Global Value Chains and Globalisation

Globalisation is not new...

The rapid pace of the globalisation process has attracted much attention in recent years, but globalisation is not new. The process of international economic integration has been underway for decades, facilitated by more open economic policies and trade liberalisation in a growing number of countries. Technical advances, notably in transport and communication, have lowered costs and also fostered globalisation. Trade and foreign direct investment (FDI) are still the key channels for international economic integration, with migration playing a more limited role. Technology transfer, through multinational enterprises and other channels, has also become an increasingly important factor.

...but has some distinctive features today.

The pace and scale of today's globalisation is without precedent and is associated with the rapid emergence of global value chains as production processes become increasingly fragmented geographically. Information and communication technology (ICT) has made it possible to slice up the value chain and perform activities in any location that can help reduce costs. The globalisation of value chains results in the physical fragmentation of production, where the various stages are optimally located across different sites as firms find it advantageous to source more of their inputs globally. This phenomenon has also been referred to in the literature as international production sharing and vertical integration of production and is closely linked to the growth of global production networks.

Globalisation also increasingly involves foreign direct investment and trade in services, with many service activities becoming internationalised, especially since ICT has enabled the production of many services independent of a specific location. Another distinctive feature of current economic integration is that it is no longer restricted to OECD countries, but also involves large emerging global players like Brazil, China, India and Russia.

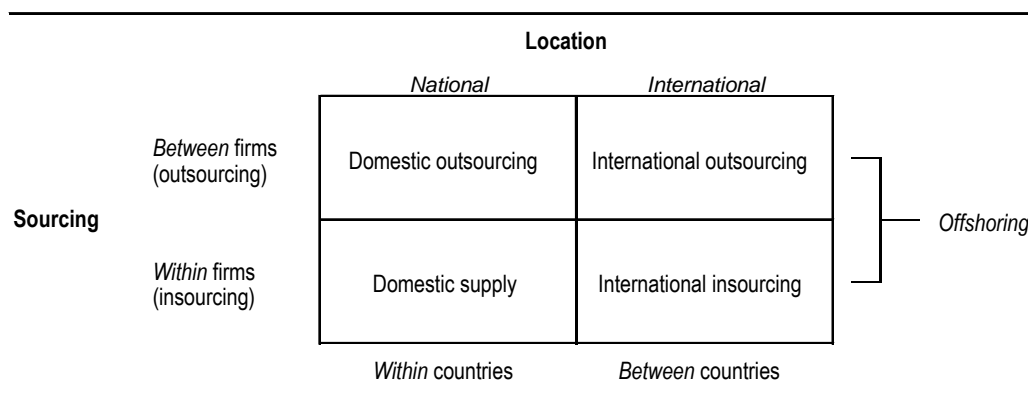
Global value chains...

The globalisation of value chains is motivated by a number of factors. One is the desire to increase efficiency, as growing competition in domestic and international markets forces firms to become more efficient and lower costs. One way of achieving that goal is to source inputs from more efficient producers, either domestically or internationally, and either within or outside the boundaries of the firm. Other important motivations are entry into new emerging markets and access to strategic assets that can help tap into foreign knowledge. Notwithstanding these anticipated benefits, engaging in global value chains also involves costs and risks for firms.

...imply outsourcing and offshoring...

The fragmentation of the production process across various countries has given rise to considerable restructuring in firms including the outsourcing and offshoring of certain functions. Outsourcing typically involves the purchase of intermediate goods and services from outside specialist providers, while offshoring refers to purchases by firms of intermediate goods and services from foreign providers, or to the transfer of particular tasks within the firm to a foreign location (Figure 1). Offshoring thus includes both international outsourcing (where activities are contracted out to independent third parties abroad) and international in-sourcing (to foreign affiliates).

Figure 1. Outsourcing and offshoring



Sources: OECD (2005g, 2006f).

...of which some are relocations of existing activities.

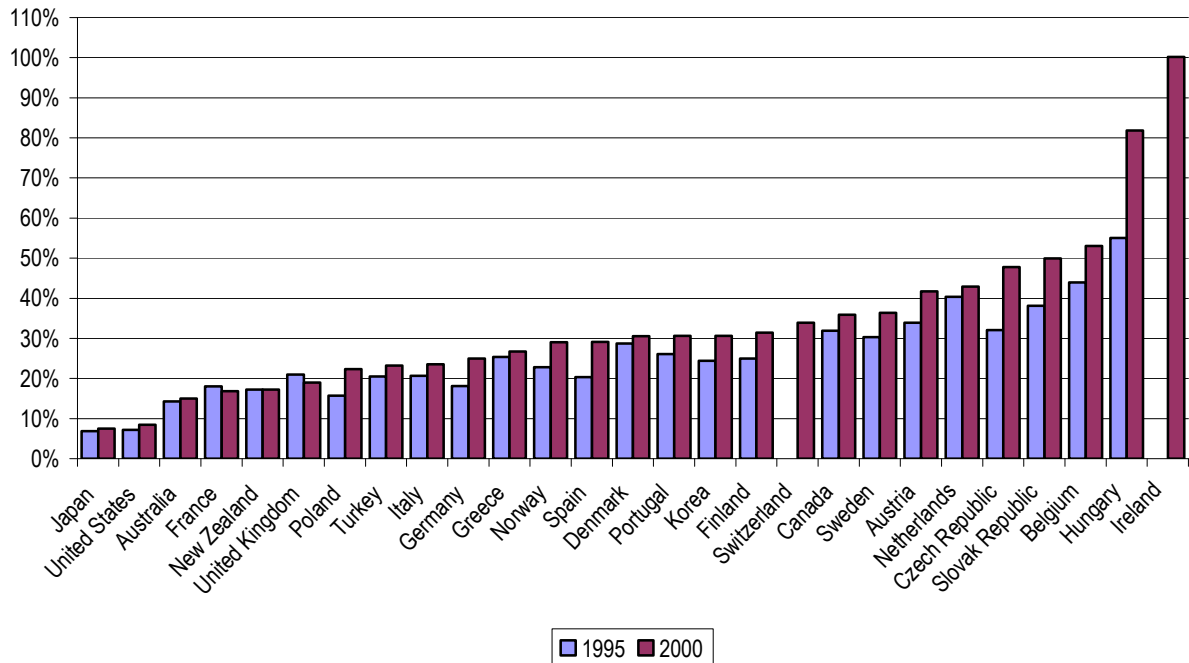
The growth of international sourcing has also resulted in the relocation of activities overseas, sometimes implying the total or partial closure of the production in the home country while at the same time creating or expanding affiliates abroad producing the same goods and services as in the host country. More often, it is about the substitution of domestic stages of production by activities performed in foreign locations, with goods and services being exported from the host country to the home country. Relocation is not always interpreted in such a strict sense, and often encompasses different forms of internationalisation such as the opening of a new affiliate abroad to enhance market presence. While the different concepts may be easily defined, their measurement is more complex. Firms are sometimes reluctant to offer details on outsourcing and offshoring decisions, in particular on relocation. The lack of hard data has contributed to the great diversity in views on the size and effects of internationalisation.

Trade in intermediates is growing...

Global value chains allow intermediate and final production to be outsourced abroad, leading to increased trade through exports and imports, and to a rapidly growing volume of intermediate inputs being exchanged between different countries. In 2003, 54% of world manufactured imports were classified as intermediate goods (which includes primary goods, parts and components and semi-finished goods).

Detailed information from input-output tables shows that the ratio of imported to domestic intermediate inputs has increased in almost all OECD countries (Figure 2).

Figure 2. The ratio of imported intermediates to domestic intermediates, 1995 and 2000



Notes:

Australia: 1995 and 1999; Canada: 1997 and 2000; Greece: 1995 and 1999; Hungary: 1998 and 2000; Norway: 1995 and 2001; Portugal: 1995 and 1999.

Source: OECD (2007).

...and domestic production increasingly relies on foreign inputs.

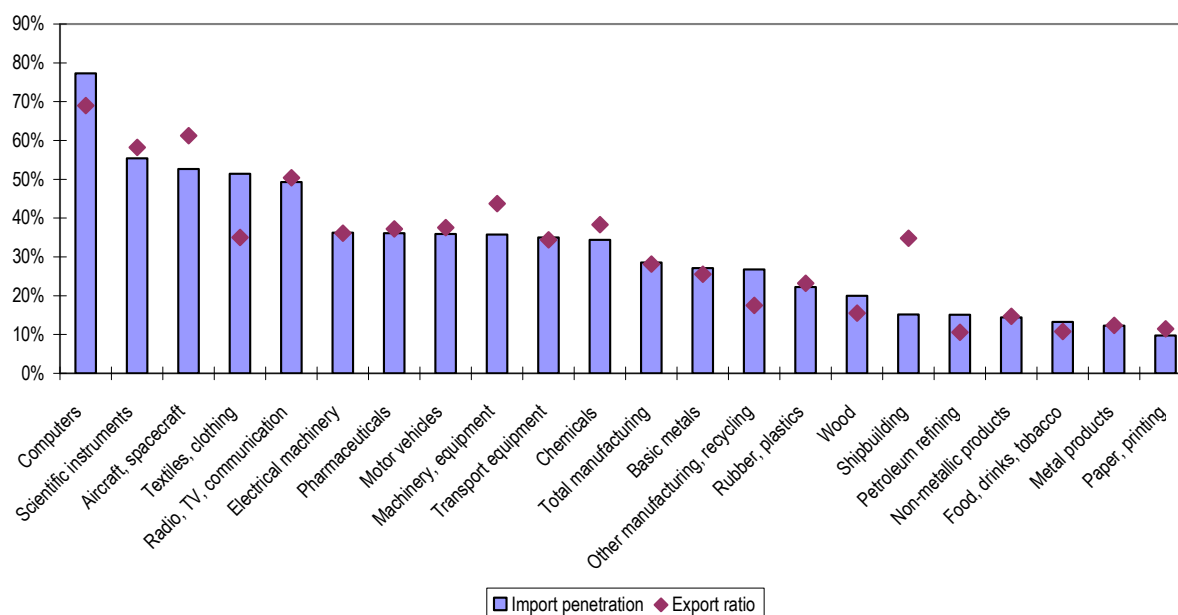
As a result of the growing global linkages between countries, a decreasing share of production is created within national boundaries. A decline in the ‘production depth’ (value added over production) and a growing importance of intermediates can be observed in the OECD area. The growing international sourcing of intermediates within global value chains has resulted in manufacturing exports and imports of individual countries increasingly moving together and growing faster than production, indicating that international transactions between OECD countries are growing very rapidly. The globalisation of value chains has also resulted in increasing intra-industry trade (*i.e.* trade within the same industry, including the trade in intermediate goods at various stages of production). While these evolutions are observed in almost all countries, they become particularly clear in smaller OECD countries with large FDI inflows.

The Economic Effects of Globalisation

Not all manufacturing industries are equally affected...

Economic globalisation has resulted in a growing openness of the manufacturing sector, as reflected in increasing export ratios and import penetration in all manufacturing industries (Figure 3). But not all manufacturing industries are affected to the same extent. High and medium-high technology industries are on average generally more internationalised than less technology intensive industries. This difference results partly from the growing complexity of many high technology products; firms no longer have all the required knowledge in-house and increasingly have to look outside. At the same time, traditional industries, such as textiles, are also characterised by a high degree of international openness.

Figure 3. Import propensity and export ratio¹ in selected OECD countries², 2003



Notes:

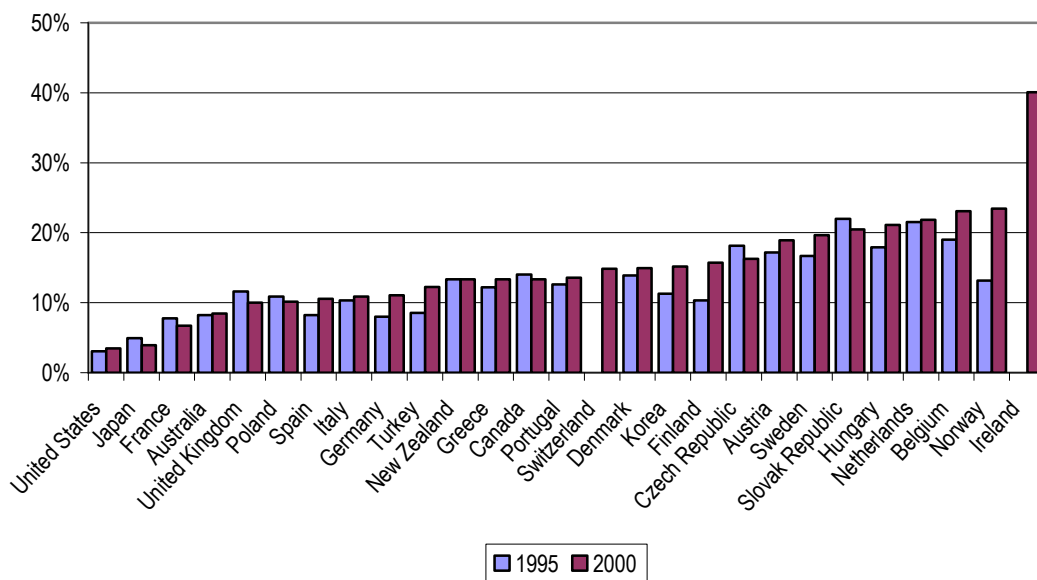
1. The export ratio measures the share of production that is exported (*i.e.* X/Y); the import propensity shows to what degree domestic demand is satisfied by imports M (*i.e.* $M/(Y-X+M)$).
2. OECD includes Austria, Canada, Denmark, Finland, France, Germany, Italy, Japan, Korea, Netherlands, Norway, Portugal, Spain, Sweden, United Kingdom, and the United States.

Source: OECD (2005a).

...and globalisation is now also increasingly affecting the services sector.

While manufactured goods still account for the largest share of international trade, globalisation increasingly extends to FDI and trade in services. The offshoring of services has been significantly increasing in all OECD countries, driven by the liberalisation in services sectors and technological advances (Figure 4). Improvements in technology, standardisation, infrastructure growth and decreasing data transmission costs have all facilitated the sourcing of services from abroad. Rapid advances in ICT have also increased the tradability of many service activities and created new kinds of tradable services. In particular, ‘knowledge work’ such as data entry and information processing services and research and consultancy services can easily be carried out via the Internet and e-mail, and through tele- and video-conferencing.

Figure 4. Offshoring/outsourcing¹ abroad in market services, 1995 and 2000



Notes:

1. Offshoring/outsourcing is calculated as the share (in %) of imported intermediates in the total of non-energy inputs.
2. Australia: 1995 and 1999; Canada: 1997 and 2000; Greece: 1995 and 1999; Hungary: 1998 and 2000; Norway: 1995 and 2001; Portugal: 1995 and 1999.

Source: OECD (2007).

The Key Role of Multinationals

The flexibility of multinational enterprises (MNEs)

The growth of international outsourcing involves the sourcing of inputs internationally through arm's-length relationships as well as within firms. Within this global value chain, multinational firms play a prominent role as they have a global reach that allows them to co-ordinate production and distribution across many countries and shift their activities depending on changing demand and cost conditions. Corresponding to the strong increase of FDI, foreign affiliates have become increasingly important in host countries where they account for a growing part of turnover, value added, employment and R&D (Figure 5). The importance of MNEs in today's global economy is linked to their strengths in a range of knowledge-based assets, such as management and intellectual property, that allow them to take advantage of profitable opportunities in foreign markets by setting up subsidiaries and affiliates abroad.

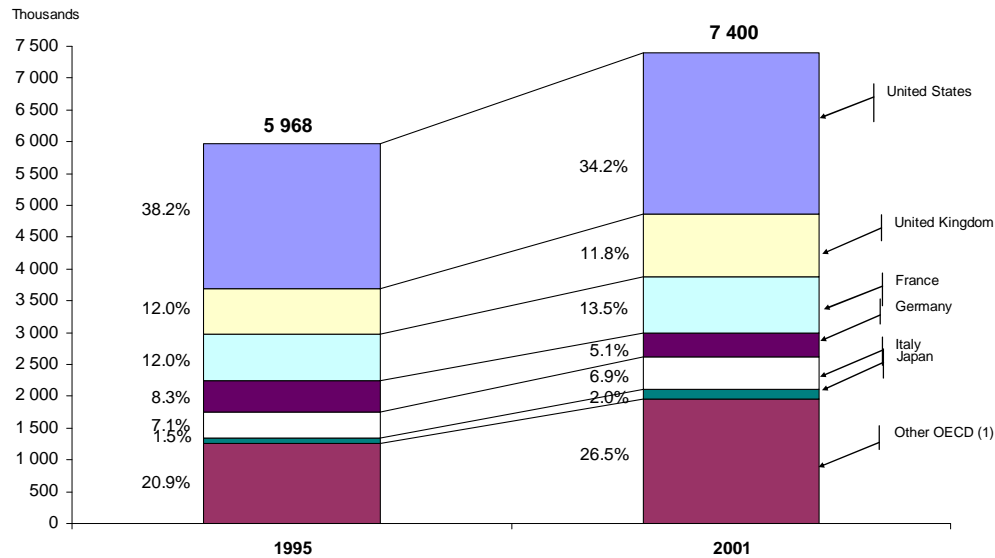
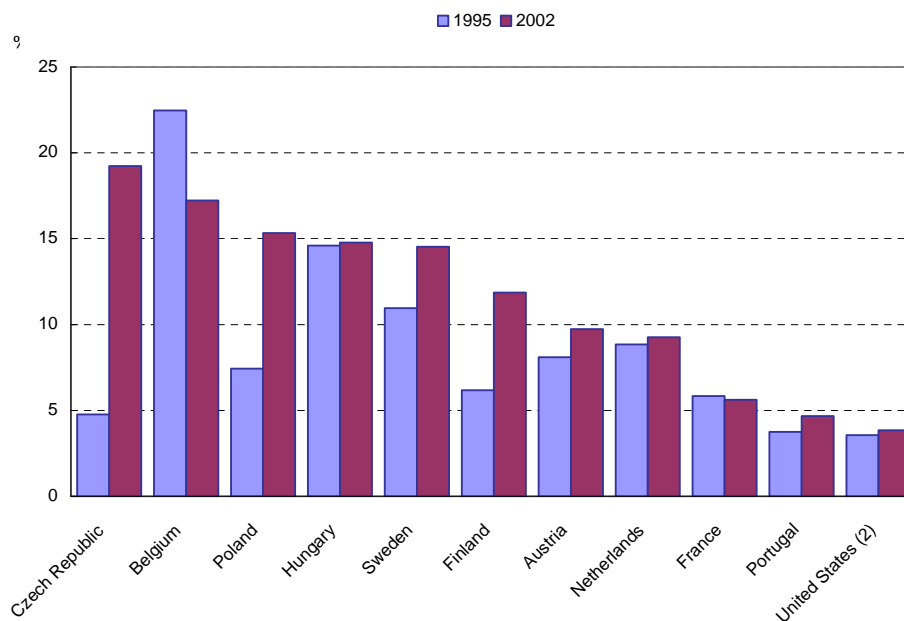
Affiliates under foreign control are not only engaged in serving local markets in the host country, but have become essential links in global value chains as they serve other (neighbouring) markets and produce inputs for other affiliates in the multinational's network. Cross-border trade between multinational firms and their affiliates, often referred to as intra-firm trade, accounts for a large share of international trade in goods. A growing part of such intra-firm trade concerns the exports and imports by foreign affiliates that manufacture (part of) products destined for other markets. These intra-firm trade flows increasingly affect the interpretation of trade deficits: part of the US trade deficit in ICT products with China relates to intra-firm imports from subsidiaries of US firms.

Small and medium-sized enterprises (SMEs) face new challenges and opportunities

The development of global value chains also offers new opportunities to SMEs by enabling them to expand their business opportunities across borders, although reaching international markets is often a difficult step for SMEs. The increased opportunities for SMEs come along with important challenges in terms of management, finance and the ability to upgrade and protect in-house technology. Suppliers are often given more responsibilities in the value chain to undertake more and more complex tasks than in the past. SMEs increasingly feel pressures to merge, in order to achieve the critical mass to support R&D, training of personnel, control over firms in lower levels of the chain, and to fulfil requirements in terms of standards and quality.

Figure 5. Trends in employment of foreign affiliates in selected OECD member countries

a) Manufacturing, in thousand persons, 1995-2001

b) Services, in % of total employment, 1995-2002³*Notes:*

1. Covers the Czech Republic, Hungary, Finland, Ireland, Luxembourg, the Netherlands, Norway, Poland, Portugal, Sweden and Turkey.
2. The US data for foreign affiliates are broken down by industry of sales to be comparable with the national totals.
3. 1995-2001 for Austria, Finland and France; 1996-2002 for Belgium and Portugal; 1997-2002 for the United States; 1998-2002 for Hungary and Poland; 1997-2001 for the Netherlands; 1997-2000 for Sweden.

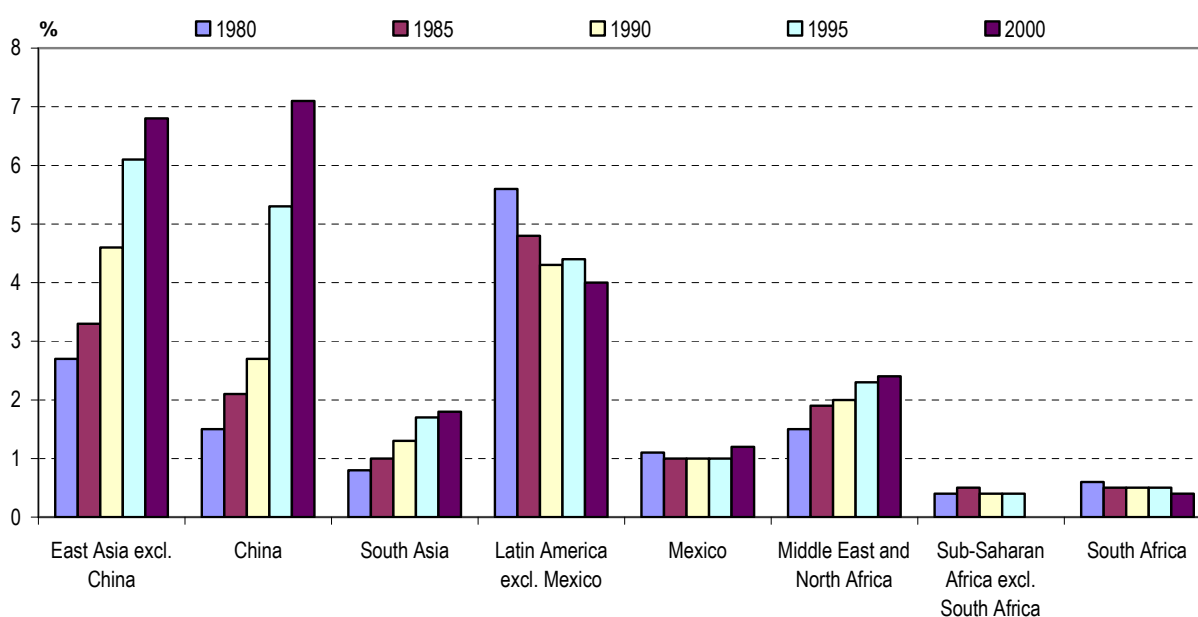
Source: OECD (2005a).

New Centres of Economic Growth

Some non-OECD countries have emerged as major players

The development of global value chains in recent years is also associated with the growing integration of developing countries in the global economy. Although OECD countries still dominate global manufacturing, accounting for just below 80% of global value added (at market prices) in 2002, manufacturing production in certain non-OECD economies has increased significantly and is expected to grow further in the near future (Figure 6). China, in particular, has recorded very high growth rates of manufactured exports and recently surpassed Japan to become the third-largest trading economy in the world, after the United States and Germany. China has become a major trading partner for most OECD countries and its market share in OECD export markets has risen significantly (Table 1).

Figure 6. Share of major developing regions in global manufacturing value added



Source: UNIDO (2004) in OECD (2006a).

The emergence of China is also observed in recent data on FDI, with inflows estimated at USD 72 billion in 2005, making it the largest recipient of FDI flows among developing economies, even if some FDI is linked to intra-China investment occurring through Hong Kong (China). China still ranks lower than all OECD countries save one in terms of FDI inflows per capita, suggesting that the size of FDI inflows still has room to increase.

Table 1. China's share in major markets (% of total imports)

Partner	1990	2000	2001	2002	2003	2004
Japan	5.2	14.5	16.6	18.3	19.7	20.8
United States	3.1	8.6	9.3	11.1	12.5	13.8
Korea	2.1	8.1	9.5	11.6	12.4	13.4
Australia	2.7	7.9	9.0	10.3	11.3	13.0
EU-15	2.5	6.2	6.8	7.7	9.1	10.7
New Zealand	1.2	6.3	7.0	8.0	9.0	10.2
Canada	1.0	3.2	3.7	4.6	5.5	6.8
Russia*	1.6	2.1	3.9	5.7	5.7	6.3
Mexico	0.8	1.7	2.4	3.7	5.5	na
Turkey	1.1	2.4	2.3	2.7	3.9	4.8

Note: *For Russia, 1990 refers to 1996.

Source: UN Commodity Trade Statistics Database (COMTRADE); EU data derived from OECD International Trade Statistics in OECD (2006b).

Global value chains: not a pure North-South phenomenon but a two-way process

Although emerging countries are of growing importance, trade and FDI of OECD countries are still largely concentrated within the group of developed countries, suggesting that the globalisation of value chains is not primarily a North-South issue. In 2004, almost 78% of all OECD exports of manufactures went to other OECD countries, while 75% of the manufacturing imports in OECD countries came from within the OECD area. At the same time, globalisation is a two-way process with trade and FDI between OECD and non-OECD countries giving rise to flows in both directions. While manufactured exports of emerging countries have risen rapidly, so have the corresponding imports in these countries, as their domestic markets expand and demand for intermediate products increases. FDI data show that developing countries are starting to invest abroad, although the level of outward investment remains small.

The Employment Effects of Globalisation

A complex discussion

Concerns about the employment impacts of globalisation abound in many OECD countries and have almost exclusively focused on the possible consequences of outsourcing and offshoring. In the public mind, offshoring and especially relocation is often perceived as the ‘exporting of jobs’ abroad, directly resulting in a loss to the country and its workers. The globalisation of value chains has, however, several impacts on economic performance, affecting employment, productivity growth, prices and wages, and these impacts may vary across activities, regions and different social groups. In general, the process of globalisation has a variety of effects with different directions: positive (*i.e.* benefits) as well as negative (*i.e.* costs), dispersed as well as concentrated, short term as well as long term. But the visible, short term costs often gain most attention, as these are more easily measured, while the long term direct and indirect benefits may be much harder to calculate.

Sizeable short-term impacts on jobs in absolute terms, but modest in relative terms

The concerns about employment losses go beyond manufacturing, as the offshoring of services may also affect jobs in the services sector, which has thus far often been relatively sheltered from international competition. India, in particular, is specialising in ICT- and ICT-enabled services. Moreover, the offshoring of services implies that not only typical low-skilled manufacturing jobs are affected, but also high-skilled service jobs. Several studies have provided estimates of the jobs (potentially) lost due to offshoring and international production sharing. Several of these studies find a large absolute number of jobs lost due to offshoring, but a relatively small impact when compared with overall churning in the labour market.

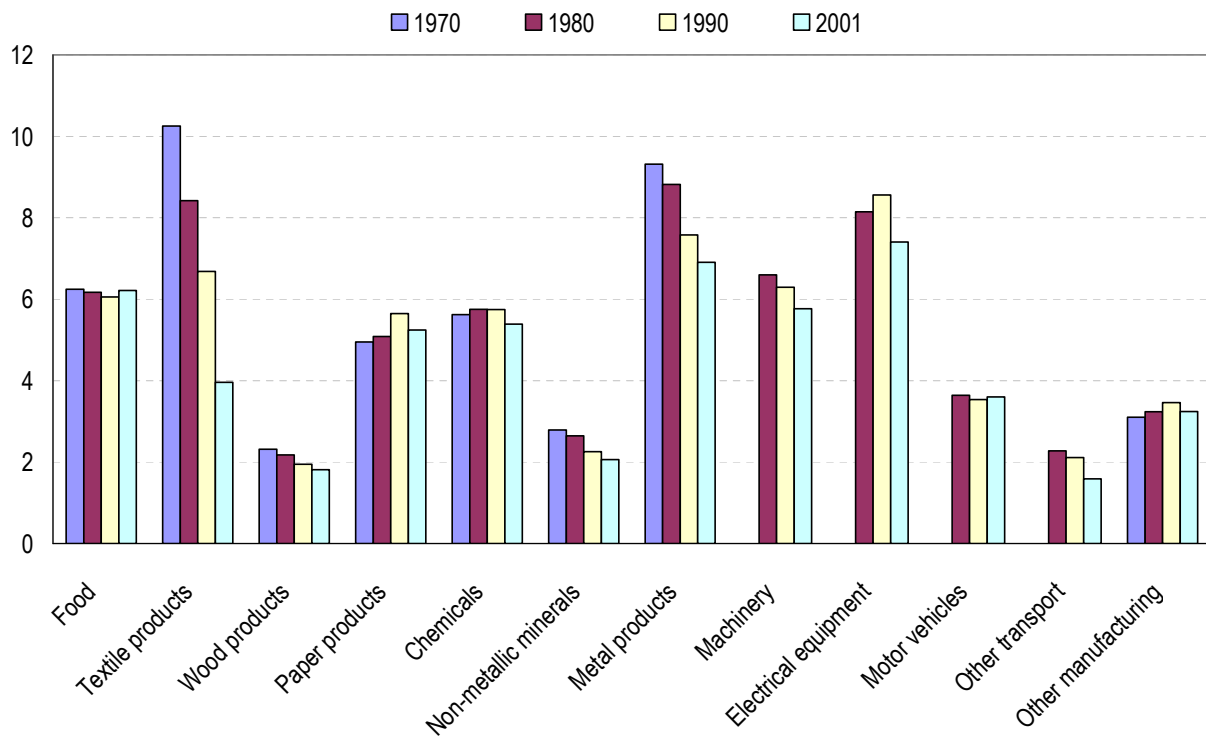
Furthermore, some of jobs might have been lost due to productivity enhancements and technological change, which are not necessarily linked to offshoring. Offshoring may actually help preserve jobs, as it allows firms to focus on their core activities. By transferring the more labour intensive part of the production process abroad, some firms are able to expand higher value-added activities and skill-intensive employment at home.

Globalisation mainly affects certain groups of workers

Recent empirical work shows that aggregate employment performance in the long term is not any worse in OECD countries that are the most open to trade or where trade openness has increased most rapidly than in the countries that are less open. The long-term effect of globalisation primarily seems to affect the composition of employment, rather than its level. Trade integration leads to changes in the international division of labour, causing employment losses in certain industries (*e.g.* manufacturing) through the exit and downsizing of less efficient firms and sectors.

Certain regions, sectors and groups of workers may lose out in this process, *e.g.* those working in industries heavily exposed to international competition that have not been able to adjust to the competition (Figure 7). Globalisation is found to have a disproportionate impact on certain types of workers, notably low-skilled workers that may be concentrated in certain regions. Increased specialisation gives rise to higher imports of low-skilled intensive products from lower-wage countries, resulting in pressure on wages and/or jobs for lower-skilled groups in higher-wage countries. Indeed, many of the workers most affected by trade tend to be older, with lower qualifications and characterised by long job tenures. These workers are often more difficult to re-integrate into the labour market than other workers experiencing job loss, also since they may be highly specialised. The policy challenge in many countries is thus not so much how to support overall employment, as this is typically not affected by globalisation, but how to reintegrate specific groups of workers into the labour market.

Figure 7. Manufacturing employment by key activity, G7 countries, 1970-2001, million workers



Source: OECD STAN Indicators Database in OECD (2006a).

The Productivity Benefits of Globalisation

Globalisation has positive impacts on productivity

While globalisation has certain negative consequences for particular groups, especially in the short term, it also has important positive effects. The impact on productivity is important, as openness is found to raise productivity and hence average incomes and wages. A number of studies have shown that more open countries typically grow faster than less open countries and have higher income levels. At the economy-wide level, the OECD Growth Study estimated that an increase in openness by 10 percentage points translates over time into an increase of 4% in per capita income in the OECD area.

Gains from trade typically arise from the exploitation of comparative advantages and economies of scale. Instead of producing a particular good or service, a country can obtain more of it, indirectly, by exporting goods and services in which it has a comparative advantage. Trade opens foreign markets for goods and services that can be most efficiently produced in the home country. Furthermore, larger markets due to international trade may enable firms to take advantage of economies of scale not available when sales are limited to the domestic market, helping to lower costs. At the same time, trade generally results in lower prices for imported goods and services (final and intermediate) and increases product variety and quality in the home country. Larger markets through trade also allow a deeper division of labour across borders and can accommodate a greater variety of specialised firms. Access to better, cheaper and a wider variety of inputs helps improve the productivity of firms that incorporate these inputs into their products and services.

Static and dynamic gains

Apart from these standard static gains, globalisation may also lead to dynamic gains, *i.e.* not only in the level but also on the long-term growth of productivity. These dynamic gains typically materialise over a longer time period and are hard to measure. Nevertheless, recent analysis shows that they may be far more important than the static gains of trade. For example, the outsourcing and offshoring of less efficient activities to other, more efficient producers can increase firms' productivity. Furthermore, operating in a globally competitive market may force firms to become more engaged in innovative activities. Such pressure may arise from engaging in exporting, by operating in a market exposed to imports, or by being exposed to foreign affiliates of multinational firms. Moreover, globalisation offers an important channel for flows of foreign technology that embody significant innovations. Indeed, foreign technology accounts for the bulk of productivity growth in most countries, in particular in small countries.

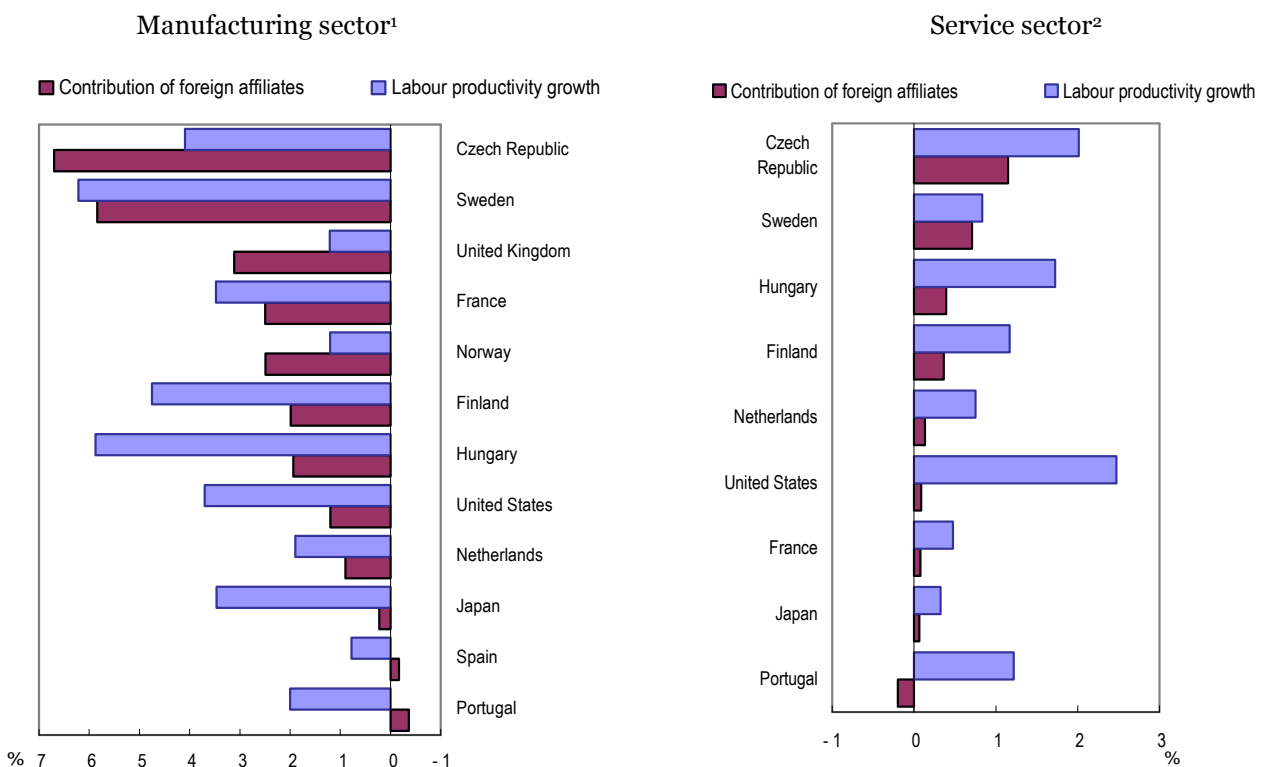
These gains also depend on the speed and extent to which resources are re-allocated to industries and activities in which countries have a comparative advantage. As firms reallocate resources towards higher value-added activities and move out of lower value-added activities (or move them abroad), a country will increase productivity growth. The resulting productivity effects will not only increase real incomes and wealth, but may also contribute to job creation in other parts of the

economy as they help businesses to remain profitable and preserve or expand jobs in the home country. Firms may also use the efficiency gains from offshoring to lower prices, to offer better products and services and/or to invest in new technologies.

Multinational firms' contribution to productivity

The key role of multinational firms in the current globalisation process may generate additional positive effects on host countries' economies because of their typically superior performance. Their strong performance is linked to their use of more advanced production methods, their network of international suppliers, customers and contracting firms and their intangible assets that are the source of value creation. Since foreign affiliates are on average more labour productive than the average domestic firm, productivity in host countries is positively influenced by the presence of subsidiaries of foreign MNEs. Foreign affiliates also seem to be more successful than domestic firms in increasing their level of productivity (Figure 8). Moreover, they generally possess a higher level of technology than domestic firms and thus have the potential to generate technology spillovers.

Figure 8. Average contribution of foreign affiliates to annual productivity growth, 1995-2001



Notes:

1. Or nearest available year: Czech Republic 1997-2002; United Kingdom 1995-1999; Finland 1995-2002; Hungary 1996-2002; Spain 1999-2001 and Portugal 1996-2002.

2. Or nearest available year: Czech Republic 1995-2002; Sweden 1997-2000; Hungary 1998-2002; Netherlands 1997-2001; Japan 1997-2000 and Portugal 1996-2002.

Source: OECD (2005b).

The presence of multinational firms also affects the productivity of host countries in indirect ways. The inflow of FDI may spur domestic competition resulting eventually in higher productivity, lower prices and a more efficient resource allocation in host countries. Technology transfers are perhaps the most important channel through which foreign corporate presence may produce positive externalities on aggregate productivity in host countries. Technology and knowledge may also spill over from foreign affiliates to domestic firms in host countries through the many interactions between them. Also MNEs may positively affect productivity in host countries to the extent that they are more likely to offer training and on-the-job learning.

The productivity effects of globalisation go beyond multinational firms

Multinational firms are not the only firms to benefit from internationalisation. Numerous studies have documented that any internationally engaged firms, *e.g.* through exporting or importing and/or having affiliates abroad, tend to have higher productivity. Exports and direct investment abroad may provide useful feedback to firms which can help them to improve productivity. Offshoring is one specific form of global engagement and is also found to have positive effects on firm productivity.

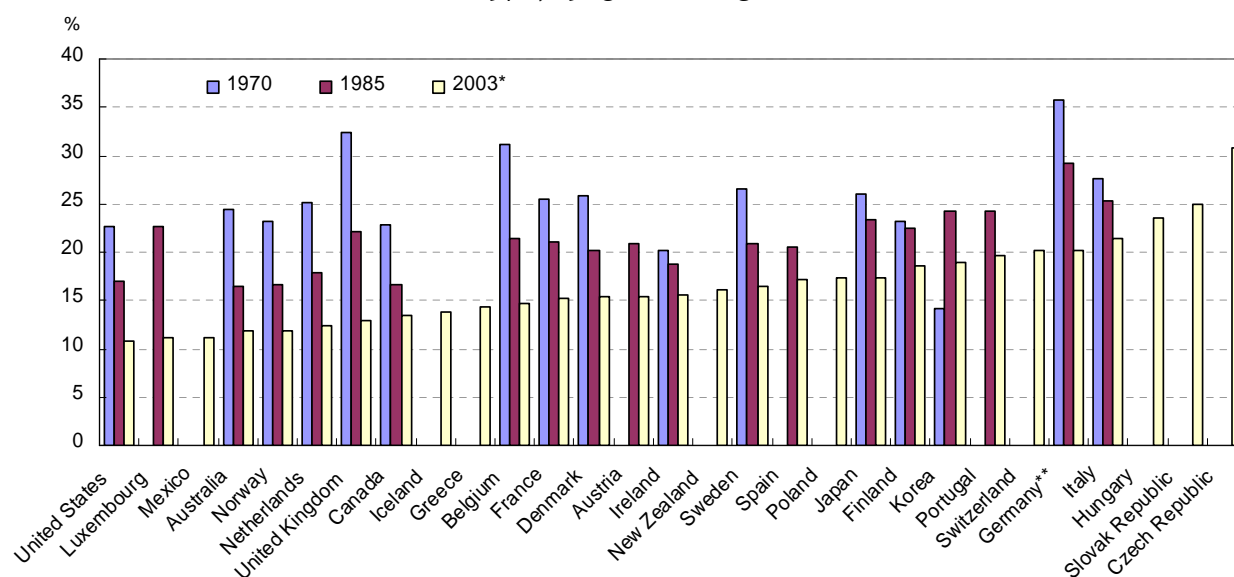
Structural Change Towards a Knowledge Economy

Globalisation, de-industrialisation and the knowledge economy

Globalisation has important impacts on the industrial structure and dynamics of countries as it results in a changing allocation of production over a growing number of countries. The integration of new players in the global economy challenges existing comparative advantages and the competitiveness of countries, forcing them to search for new activities in which they can excel and confront the competition. The main drive is for countries to move up the value chain and become more specialised in knowledge-intensive, high value-added activities. Specialisation in more traditional cost-based industries and activities is no longer a viable option for most developed countries.

This process affects the manufacturing sector most strongly and has been accompanied by de-industrialisation in most OECD countries (Figure 9). The de-industrialisation process is driven by rapid productivity change in the manufacturing sector and a shift in demand to services. Globalisation has only played a limited role for some countries and some industries, as it has increased competition and thus stimulated technological improvements and productivity growth, while at the same time rendering certain (labour intensive) activities unprofitable in higher-wage countries. Evidence shows that only about a quarter of the recent de-industrialisation in the United States and the EU can be explained by increasing openness.

Figure 9. Share of manufacturing in total employment, 1970, 1985 and 2003*



Notes:

*Data refer to 2001 for Australia, 2002 for France, Poland and Switzerland.

**Germany before 1991 refers to West Germany.

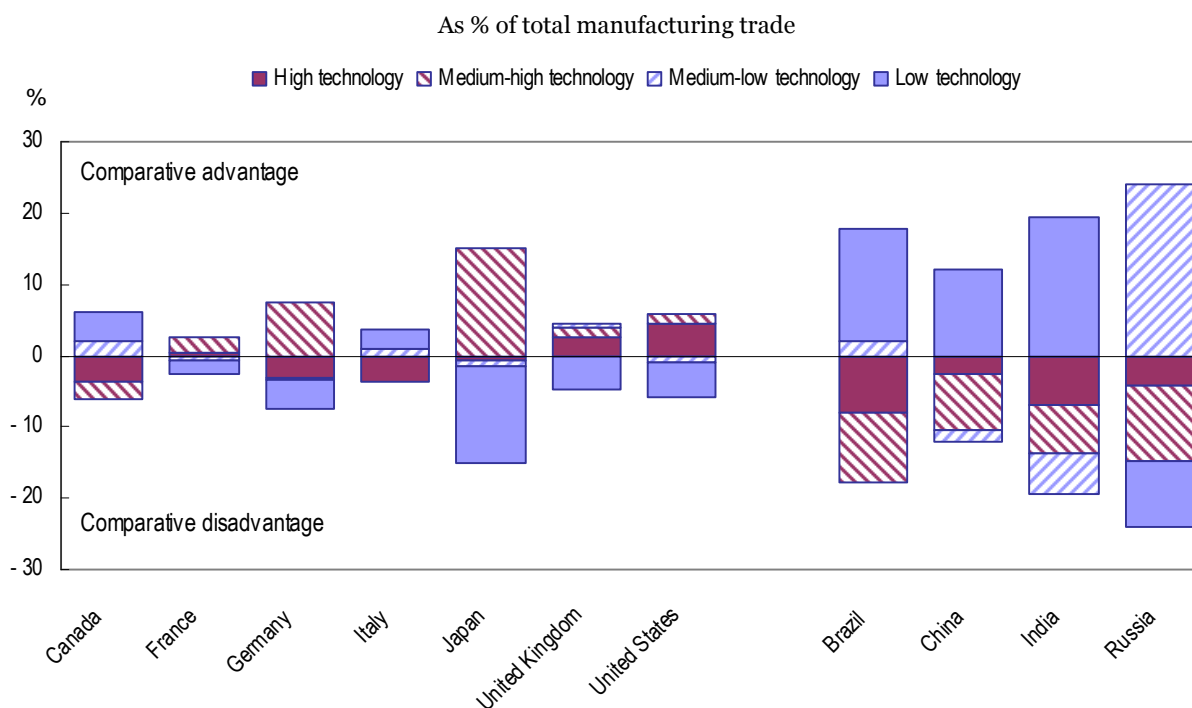
Source: OECD STAN Indicators Database in OECD (2006a).

The current de-industrialisation process is also accompanied by a blurring of the distinction between manufacturing and services, as the interaction between the two sectors is growing and services are becoming increasingly tradable. For instance, a growing share of manufacturing firms' revenues comes from the provision of services.

Moving up the value chain by OECD countries: the response to globalisation?

If developed countries are to remain competitive in the global economy, they will have to rely more on knowledge, technology and intangible assets. Investment in knowledge is therefore a crucial factor for sustained economic growth, job creation and improved living standards. Indeed, investment in knowledge has increased in all OECD countries in recent years. At the same time, most OECD countries are shifting into higher technology-intensive manufacturing industries and into knowledge-intensive market services. This shift is also observed within lower technology industries, as shown in the high rates of productivity growth and the increasing R&D intensity within these industries.

Figure 10. Contribution to the manufacturing trade balance, G7 and BRICs, 2003



Note: The “contribution to the trade balance” is the difference between:

$$(X_i - M_i) - (X - M) \frac{(X_i + M_i)}{(X + M)}$$

where $(X_i - M_i)$ = observed industry trade balance,

and $(X - M) \frac{(X_i + M_i)}{(X + M)}$ = theoretical trade balance.

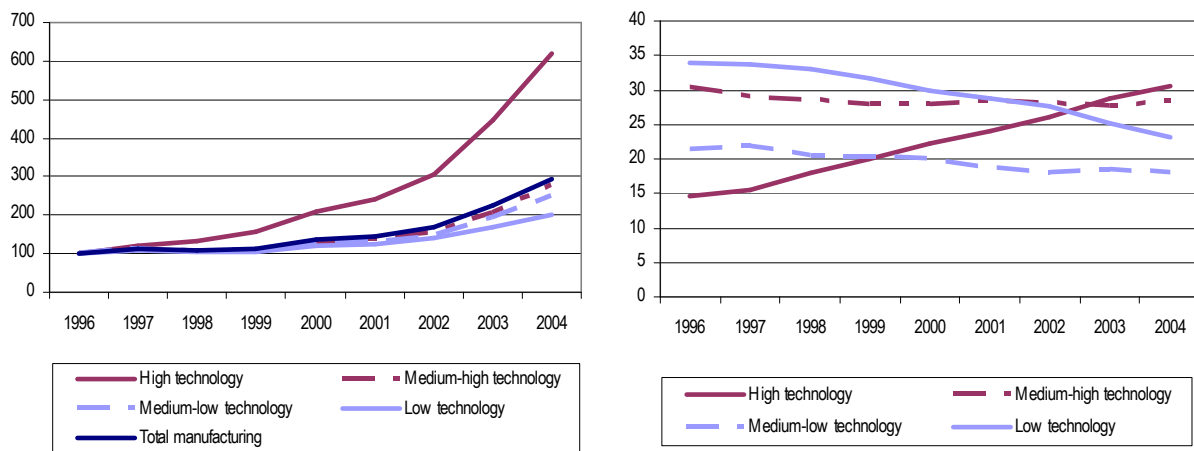
If there were no comparative advantage or disadvantage for any industry i , a country's total trade balance (surplus or deficit) should be distributed across industries according to their share in total trade. A positive value for an industry indicates a structural surplus and a negative one a structural deficit. Source: OECD (2007).

The evolution towards a more knowledge intensive economy is also reflected in trade flows; trade in high- and medium-high technology industries has grown faster than total manufacturing trade in the OECD area. High-technology industries are the most dynamic manufacturing industries, representing about one-quarter of total OECD trade. Indicators on the contribution of different industries to countries' trade balances show, however, that only a few OECD countries are specialised in high-technology manufacturing industries. A considerable number of OECD countries still have a strong comparative advantage in medium-low-technology and low-technology industries (Figure 10).

Moving up the value chain by non-OECD economies: the challenge of China

The increased activity of non-OECD economies in high-technology industries poses additional challenges for OECD countries (Figure 11). China in particular is moving up the value chain and thus seems to compete directly with OECD countries. The imported technology embodied in FDI has changed China's trade over the past decade as the commodity composition has been diversified from traditional industries into higher technology-intensive industries. China's trade surplus, however, is not due to high-technology exports, but still to lower-technology industries such as toys, textiles and footwear. The strong growth of Chinese exports in more sophisticated electronics, furniture and transport goods is closely linked to the growing imports of parts and components by China.

Figure 11. Growth and structure of BRICs manufacturing trade by technological intensity, 1996-2004

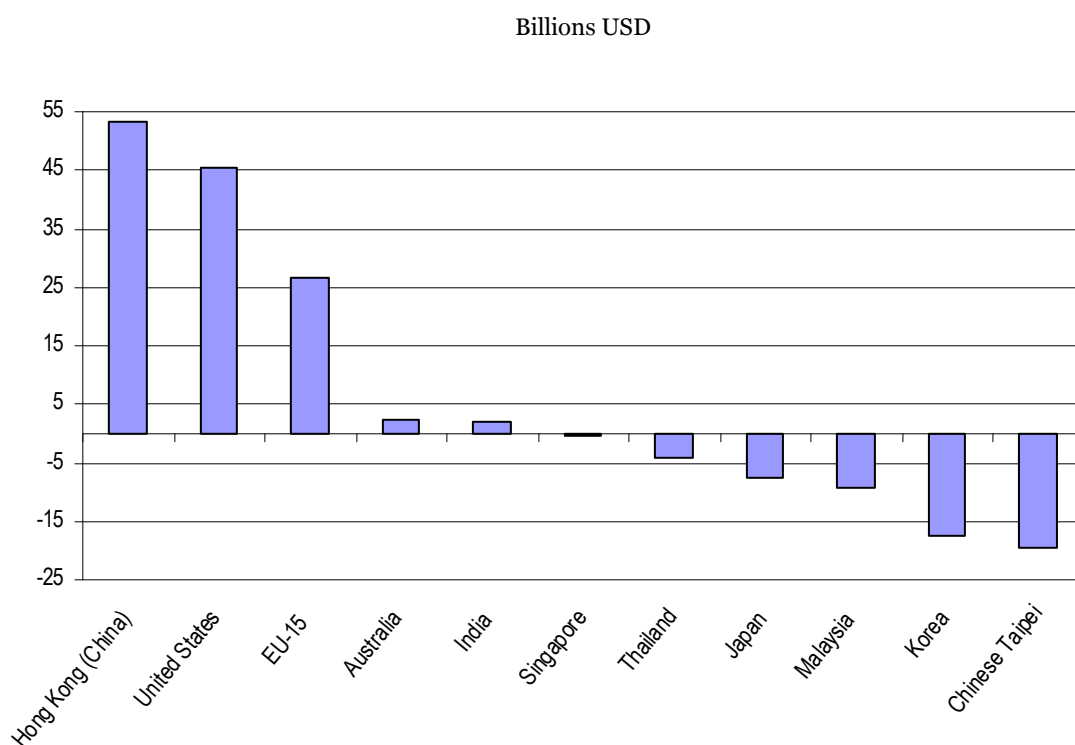


Source: OECD (2007).

Trade liberalisation has facilitated greater participation of China in international production networks and deeper integration with its trading partners, especially in Asia. Firms from Hong Kong (China), Chinese Taipei, Japan, South Korea and other Asian economies have relocated their labour-intensive industries to the mainland, while firms from the United States and Europe operating in Asian Newly Industrialised Economies have moved operations to China. Consequently, a triangular trade pattern has emerged with Japan and other NIEs exporting capital and sophisticated intermediate goods such as parts and components to less developed countries like China, which then process them for exports destined to the United States, Europe and back to Asian NIEs. This process has facilitated these more developed Asian economies to

move further up the value chain and specialise in higher value added activities. Trade balances of China in ICT illustrate this triangular pattern very well: China reports trade surpluses with the United States and the EU-15 and trade deficits with most ASEAN countries (Figure 12). An important question then is whether China is merely assembling component parts or whether there are indications that the country has added increased value in industries like ICT.

Figure 12. China's trade balance in ICT goods, 2005*



Note:

*Data for EU-15 and Chinese Taipei are for 2004.

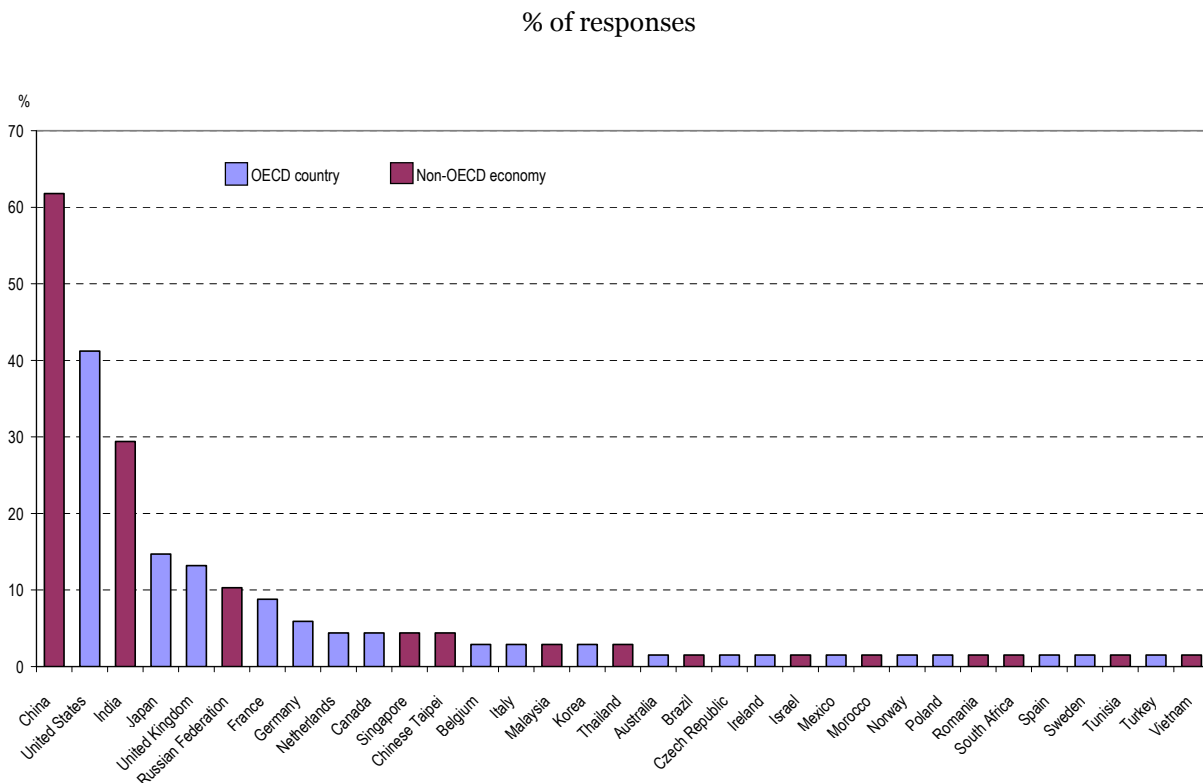
Source: OECD ITS Database.

Another important question is how long this specialisation in labour-intensive activities will last and whether China will develop its own technological capabilities. Until the end of the 1990s, China relied heavily on the support of foreign capital and foreign technology embodied in high-tech imports, which seems to have resulted in only limited knowledge spillovers and benefits to the local Chinese economy. Furthermore, given the remaining large number (over 100 million) of low-skilled agricultural workers that could move into the manufacturing sector over the coming decades, it is likely that China's comparative advantage may remain in labour intensive activities and products for years to come. However, China has recently implemented a new policy which emphasises the development of domestic innovative capability. This has led to increased spending on R&D and a growing researcher base, but is not yet translating into stronger performance in many technological indicators.

The internationalisation of R&D is creating new competitive pressures for OECD countries

Following the offshoring of manufacturing and services, high-skilled business functions like R&D also seem no longer immune to being outsourced and off-shored. This has contributed to concerns about the future of the domestic knowledge base and resulting impacts on competitiveness, notwithstanding the fact that increased international R&D links can promote faster technological change and broader diffusion of technological advances worldwide. R&D investment abroad by multinational firms has grown strongly as MNEs' strategies focus on global technology sourcing. This involves building networks of distributed R&D globally in order to tap into local knowledge and develop sources for new technology development. While most R&D internationalisation still takes place within the OECD area, developing countries are increasingly attracting R&D centres, although these remain relatively small in a global perspective (Figure 13). Large increases in foreign R&D investment in Asia, in particular in China and India, have attracted much attention in recent years. It can be expected that this shift will continue to some extent as these countries offer a combination of relatively low wages with a good education system, resulting in a large pool of well-trained researchers.

Figure 13. Most attractive foreign R&D locations: UNCTAD survey



Source: UNCTAD (2005) in OECD (2006d).

Policy Implications

Moving up the value chain: developing a strategy for innovation

The globalisation of value chains raises major policy challenges for OECD countries, as globalisation confronts OECD economies with new opportunities and challenges. One challenge for OECD countries is how to continue moving economic activity further up the value chain to ensure that OECD economies can continue to compete and prosper in the global environment. It is evident that certain areas of activity, *e.g.* low-technology manufacturing, will decline in importance in OECD countries, as lower-income economies such as China and India consolidate their position as effective competitors. Some of these activities are also characterised by rapid productivity growth and slow growth in demand, reducing the prospects for employment growth worldwide. Openness to trade and investment and well-functioning markets are key to the upgrading process, as this will help move resources from firms and industries that are no longer able to compete in the global market to firms that are successful.

Moving up the value chain implies a continuous process of change, innovation and productivity growth. Products and services that are currently regarded as among the most innovative and experimental ultimately end up as commodities that can be produced anywhere and by many producers. Developed economies can only grow by inventing new technology, by innovating products and processes and by designing new management methods. To foster and support the innovation process, several policy areas could be considered:

- ***Innovation policies*** can help increase the level of knowledge and technology embodied in production and exports, which would make competition from lower-income (lower-cost and lower-productivity) countries less likely in the relevant markets. Policies aimed at strengthening creativity in business, or at developing intangible assets as sources of value creation are closely related to these policies.
- ***Policies to upgrade the human resource base of the economy.*** A more innovative and productive economy sector may require more highly skilled workers or a different mix of skills. Standard production tasks can increasingly be carried out outside the OECD area where labour costs are often considerably lower. Upgrading the workforce can support a shift of economic activity towards more high value-added areas that might remain in OECD countries. Addressing this through education and training policy requires a growing focus on life-long learning.
- ***Policies to foster entrepreneurship and new areas of economic activity.*** Policies might also aim at creating new areas of economic activity, in stimulating new firm creation and entrepreneurship, or in stimulating innovation and technology in new areas, *e.g.* through public procurement. New firms are of great importance to innovation, particularly in areas where radical changes to existing markets and production processes are feasible.
- ***Cluster policies and efforts at the local/regional level.*** Local and regional strengths are also an important asset for economic policy. International and local firms may be attracted to very specific activities and skills that only exist in some

regions and locations. These may be linked to scientific or educational institutions, historical heritages, natural resources, geographical location and so on. Policies aimed at the development of clusters, poles of excellence as well as regional policies may help capitalise on these strengths.

- **Policies to enhance attractiveness.** Making a country an attractive location for economic activities can help attract foreign direct investment and foster new areas of economic activities. Understanding what determines national attractiveness, building on national strengths and addressing weaknesses to the extent possible can help in drawing greater benefits from the globalisation process.
- **IPR-related policies.** In view of the changing environment for innovation, it is important to consider whether the current system of IPR rules and practices continues to stimulate innovation and provide access to knowledge, or if in certain cases the abuse of control with which IPR owners are sometimes endowed could hamper competition, fair use and the diffusion of technology. Complementing the IPR rules with practices, tools and networks that provide increased access to knowledge and enable more open forms of innovation may offer a way forward. Striking an appropriate balance between diffusion of technology and providing incentives to innovation remains an important consideration in this context. Moreover, more can be done to generate value from IPR, *e.g.* through licensing.
- **New approaches to moving up the value chain?** In recent years a discussion has emerged about the need and desirability of more government action, based on the success of some countries in strengthening comparative advantages in certain areas. Policies improving the functioning of labour, products and financial markets are necessary but may be no longer sufficient for successfully moving up the value chain, since market failures and externalities exist especially in new activities that are risky and require large-scale investments. However, experience in several countries with old-style industrial (support) policies has not been positive. The current policy debate in several OECD countries is seeking to move beyond these types of policies, underscoring the need for well-functioning and competitive markets, but looking for actions that the government can undertake to strengthen the capacity of firms to compete in the global market. Such actions include innovation and entrepreneurship policy that have become the core of industrial policy in the 21st century.

Helping people adjust

Globalisation and technical change are both factors instigating structural change that requires countries to address adjustment costs, while benefiting from innovation, productivity growth and the creation of new jobs. One challenge is then the pressure on OECD countries to adjust. If countries are to realise the potential gains from openness, productive factors (including labour) must shift from economic activities where they are relatively less efficiently used towards activities where the economy enjoys a comparative advantage. The extent and speed of this structural change directly determines how much countries benefit from globalisation. However, it can be hard for individuals to move between jobs, industries and regions, and workers losing jobs in firms in import-competing industries sometimes bear large adjustment costs. Hence the need for complementary structural policies aimed at helping workers reallocate from lagging to more advanced industries and of policies aimed at compensating potential short-term losers from globalisation.

As globalisation increases the need for mobility, employment regulations should be reformed in cases when they inhibit change, wages should adapt to the new economic patterns, and geographic mobility should be stimulated in order to avoid adjustment difficulties concentrating in particular areas. In order to adequately compensate those who lose their jobs, some countries have succeeded in providing generous welfare benefits while at the same time promoting a more rapid return to employment through strong job-search obligations. Ensuring that all workers have adequate skills is also key to reducing adjustment costs.

A balanced perspective of the costs and benefits of globalisation

Public perceptions as regards globalisation are not always positive, which may be due to the short-term job losses that may occur in specific regions and industries, and that often particularly affect low-skilled workers. The challenge is that although globalisation benefits economies as a whole, the gains are unevenly distributed and the costs in terms of employment loss and wage decline are often more visible than the wider benefits to consumers generally. Providing a balanced perspective on the benefits and costs of globalisation can help. However, the real problem is that globalisation may generate highly visible costs for a clearly identifiable group of people, while some benefits may only come later and are widely diffused across society. A promising avenue may be to address more directly the costs of globalisation, by compensating those who may suffer a short-term decline in income.

Spreading the benefits of globalisation

Spreading the benefits of globalisation is necessary not only within OECD countries but also on a worldwide level between (developed and developing) countries. Concerns have risen that some world regions, notably Africa, seem in particular danger of being left behind in the globalisation process. Other concerns related to globalisation are linked to the potential environmental impacts of continued globalisation in developing countries. Further trade liberalisation in sectors where poorer countries have a comparative advantage (especially agriculture), complemented by capacity-building and development policies, may help to spread the benefits of globalisation to a wider range of countries, including those that are most at risk of being excluded. Addressing other global concerns, notably global environmental challenges such as climate change, is also needed to make globalisation be regarded as an opportunity, rather than a threat.

Avoiding policies that distort the process of structural change

The short-term employment losses that have emerged in some countries, and their possible link to globalisation, have led to demands for protection from competition in some OECD countries. These demands are varied and have resulted in a wide range of policy proposals. Some proposals are primarily aimed at insulating countries from the impacts of globalisation through import barriers, some seek to penalise firms that engage in offshoring, and some seem primarily aimed at slowing the exposure to international competition. Such protectionist measures are likely to raise costs for firms and reduce their efficiency. This will have detrimental impacts on the consumers buying products from these firms and will possibly also make the countries undertaking such policies a less attractive place to do business. Protectionist measures also have detrimental effects on other, often poorer, countries, denying them the chance to trade and increase living standards.

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