THE “OLD ECONOMY” IN THE NEW GLOBALIZATION PHASE

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Summary and main conclusions

The dynamic sectors of world trade have changed between the 1990s and the early twenty-first century. Some sectors of the new economy, which had driven world exports in the 1990s, have grown more slowly than total trade since 2000: they include computers, electronic components, and transmission equipment for the radio, television, and communication industries. By contrast, two high-technology sectors remain very dynamic: pharmaceuticals and, to a lesser extent, radio, television, and communication components. At the start of this new century, several major medium-technology sectors are posting a dynamic export performance: metalworking, chemicals, automobiles, machinery, household appliances, and shipbuilding. In other words, the main equipment and chemical sectors are presently driving world trade growth.

Beyond the cyclical behavior of certain industries, we interpret this trend reversal in favor of “old economy” sectors as the result of two momentous developments in the global economy: the bursting of the Internet bubble and the rapid integration of certain emerging countries into world trade. The latter phenomenon will, no doubt, have longer-term effects, for it reflects two fundamental changes in the structure and geographic distribution of world industrial production. First, investments by multinational firms in the emerging countries are fueling a rapid shift in their specialization toward the assembly of certain medium- or high-tech products—whose prices are rising weakly or even falling as a result. This is happening not only in China, but also in the new member States of the European Union, whose specialization has shifted in the past decade toward the automotive industry and certain products in the information and communication technologies sector. Second, the massive capital-goods requirements of emerging countries are stimulating exports of machines, chemical products, and automobiles.

In the 1990s, the United States fueled global exports, particularly thanks to its vibrant performance in the new economy. Since 2000, world exports have been driven by Germany and China. In 2003, Germany pulled ahead of the U.S. to become the number-one exporter; in 2004, China captured third place from Japan.

These performances owe little to the favorable sectoral composition of German and Chinese exports. The key explanation is competitiveness. That of Chinese exports, of course, rests on low labor costs and an advantageous exchange rate, but also on the multinationals’ contributions with regard to distribution networks and skills transfers in high-tech sectors. China remains specialized in labor-intensive operations, which reflects its comparative advantage. The question is whether, in R&D-intensive sectors, the transfers of technology and managerial capabilities by locally-based foreign firms will enable China to rapidly take control of the value chain beyond the assembly stages.
The resurgent competitiveness of German exports is also due to a combination of factors: pressure on labor costs, relocation of certain segments of the value chain, and investment in innovation—including in medium-tech sectors.

The year 2000 was marked by the bursting of the Internet bubble but also, paradoxically, by the start of a new globalization phase.

World trade dynamics underscore the fact that, beyond factor endowment, the capacity for technological and organizational innovation has become a determinant of export performance. The new feature of the current period is the greater scope for value-chain fragmentation. Today, countries are specializing not only by product-range level in each sector, but also by value-chain stage within a single product. As a consequence, intra-industry trade, generated by horizontal product differentiation, is complemented by intra-product trade, resulting from the vertical division of labor.

In this new phase of globalization, the integration of new emerging countries into the world economy is both a source of opportunities and a challenge to existing positions. The changes in production geography concern not only the most advanced countries, but also certain emerging countries. Taiwanese firms have already reorganized their production operations and rely on labor in China. Meanwhile, countries such as Mexico and Hungary need to review their position in the global value chains for certain products.

The analysis of exports and specialization profiles underscores the fact that countries do not have an equal capacity to adapt to current industrial changes and to exploit the new configuration of global production networks.

Apart from Germany and China, which come across as the main winners in the of recent period, Ireland and Finland maintain strong positions in dynamic markets. Ireland, whose exports largely depend on multinational firms, has successfully moved into “new sectors such as pharmaceuticals. By contrast, some rich countries have not adapted their offering to take advantage of the most dynamic world markets. Since 2000, Japan, the United States, the United Kingdom, Switzerland, and France have been generating most of their exports in high-growth sectors—but with a loss of market share.

This situation is particularly worrying for the countries with the greatest openness to trade and sluggish domestic markets—a situation experienced by France in the early 2000s. Our analysis shows that France’s poor export performance in recent years is due not only to its specialization profile, but also to a loss of competitiveness in a number of markets. The French production system seems to be insufficiently responsive to opportunities and threats in the global economy.

The lack of export dynamism thus raises the question of how the French production system can evolve. Should it be via competitiveness gains in medium-tech sectors, as in the “German model”? Or through a more radical shift toward high-tech activities and services, closer to the
“American model”? Whatever the chosen approach, it will require efforts in innovation and product differentiation by France’s large corporations as well as its small and medium-sized enterprises. Moreover, both German firms and U.S. firms, despite their different sectoral specializations, appear to have extensively reorganized their value chains to enhance their competitiveness and their innovation capability. The French production system’s weaker responsiveness could lead to further job losses in industries where it has traditionally specialized—without an offsetting, sustained job creation in higher-skilled positions or new sectors. In these circumstances, the competitiveness and financial health of France’s largest firms cannot be the sole key to solving its growth and employment problem.
Introduction

Since the second half of the 1980s, the global economy has been integrating ever more closely through multiform exchanges and the participation of a greater number of countries in these exchanges. The concept of globalization was specifically introduced to signify the fact that—beyond international trade—national economies are integrating more directly, in several ways: not only commercially, but also financially and in terms of their production systems and human resources (Sachwald 1993). Economic integration exacerbates competition in world markets, and globalization has powerfully stimulated the process of creative destruction, which reallocates productive capacity between enterprises, sectors, and countries. At the outset, the trend primarily concerned the developed countries, followed by the emerging countries, which quickened their integration into the global economy. In recent years, the rapid integration of the major emerging countries into international trade has altered the dynamics of world trade and its impact on national production systems.

Since the 1980s, the dynamics of globalization can be explained by two broad, interacting movements. Both have two dimensions: one internal to the economies, the other external. Since 2000, the arrival of new players has amplified the trends at work and caused them to converge—defining a new phase of globalization.

The accelerating pace of innovation has been a major driver of globalization. The long-term trend toward faster, cheaper transportation has persisted and even accelerated in the past twenty years or so. It has been powerfully amplified by the wave of innovations in information technology and telecommunications, which have lowered the cost of many national and international transactions. These changes have dramatically enhanced opportunities for manufacturing in remote locations and segmenting value chains in manufacturing and certain service industries. Since 2000 and the bursting of the Internet bubble, the fall in prices of digital goods and services has further accelerated the international fragmentation of value chains and the geographic redistribution of production facilities.¹

The second major force behind globalization has been institutional change. A series of changes in different countries and sectors has fostered deregulation and opening to local and foreign competition. Deregulation and the lifting of barriers in financial markets have stimulated a wave of financial innovations, which, in turn, have made it easier to finance innovative enterprises and international transactions. Deregulation has also occurred in sectors where economies of scale and technical constraints had historically led to the emergence of highly concentrated and/or regulated structures. Examples include air transportation, telecommunications, and electrical distribution. The opening has gone beyond trade, with the liberalization of foreign direct investment (FDI) and, indeed, all capital flows. The process has been particularly striking in the developing countries, long closed to FDI. These institutional changes have proceeded gradually in some countries, such as China and India, but more brutally in others, for example, the countries of Eastern Europe. The arrival of multinational firms has helped to open the emerging countries to foreign products. It has also quickened the vertical division of labor, which allows emerging countries to specialize in assembly and other labor-intensive activities, besides traditional sectors such as textiles-apparel. This explains the growth in industrial-product trade between advanced countries and emerging countries at different stages of the value chain.²

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¹ A point emphasized by Friedman (2005) in connection with outsourcing of services to India.
Our study explores the new globalization phase using a detailed analysis of world trade and the geographic distribution of production since 1990. The first part emphasizes two developments: (1) the reversal of international-trade dynamics in favor of “old economy” sectors and (2) the change in the ranking of top exporters since 2000. The second part explains this new pattern by the conjunction of changes in emerging-country supply and demand. It stresses the crucial role of multinationals in redirecting emerging-country specialization toward more sophisticated manufactured goods such as electronics (in Asia) and the automotive industry (in the new Member States of the European Union). The third part studies the sector profile of exports by the leading countries and their capacity to exploit the dynamism of world trade. The conclusion draws on our analysis of the role of value-chain fragmentation in the evolution of firms’ competitiveness and uses it to discuss the outlook for change in the production systems of advanced countries, particularly France.
The “old economy” is driving world trade

Between the 1990s and the early twenty-first century, world-trade dynamics have changed radically. Trade growth has remained vibrant, but the drivers are different. In the 1990s, the robust growth of the “new economy” and high-technology sectors in general powered world exports (figure 1a). Since 2000, by contrast, information and communication technology (ICT) exports have been less buoyant than total world trade (figure 1b). At the start of this new century, the most vibrant sectors of world trade are neither the new economy sectors nor the labor-intensive sectors hardest hit by relocations such as the apparel industry. Figure 1 shows that despite relocations and the transfer of production to low-wage countries, exports by labor-intensive sectors have been sluggish for the past fifteen years or so. As a result, their share of world trade is falling. In contrast, exports of pharmaceuticals and radio, television and communication (RTC) components have displayed growing dynamism since the 1990s. The measuring instruments industry—equivalent in size to the pharmaceutical sector—has registered weaker but steady dynamics in both periods.

Figure 1b also shows very clearly that the “old economy” sectors have become the engines of world trade since 2000: machinery, automobiles (assembly, components), chemicals, foodstuffs, and metals. Their growth rates do not match those of the new economy in the 1990s, but they account for a substantial share of global trade and thus exercise a major overall effect. We have disaggregated some sectors such as chemicals to highlight the different dynamics of individual sub-sectors. Basic chemicals have been among the sectors with the most dynamic export performance since 2000 (figure 1b).

The profile of the aerospace industry, marked by slack exports between 2000 and 2004, is partly due to its cyclical character. Its exports grew sharply in the late 1990s, but remained virtually stable between 1998 and 2003. The stronger growth in 2004-2005 was fueled, in particular, by orders from emerging countries.5

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3 Exports posted a mean annual growth rate by value of 6.9% in 1992-2000 and 9.1% in 2000-2004. For manufactured goods, the rates were 7.3% and 8.8% respectively.
4 Our analysis focuses on manufactured goods and does not examine the service trade in significant detail.
5 Aircraft orders hit a record level in 2005 and manufacturers are expecting either stable orders or a mild downturn in 2006 (Les Échos, February 23, 2006).
Figure 1. Export dynamics by sector, % divergence from growth of world manufactured exports

Note: Bubble size is proportional to value of sector's world exports. Color code indicates relative growth rate of sector exports: red = below-average growth in both periods; purple = strong growth in both periods; orange = stronger growth in period 1, weaker in 2; mauve = weaker growth in 1, stronger in 2.

Source: Computations from SYSPROD-IFRI base. See appendix 1, including for complete list of sectors.
Figure 2 illustrates the contrast between the 1990s and the 2000s. ICT products were by far the leading contributors to world growth export in the 1990s; since 2000, they have been replaced by basic materials and capital goods.

**Figure 2. Industry contributions to world trade growth by value, %**

<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>Machinery</td>
<td>12</td>
<td>16</td>
</tr>
<tr>
<td>Chemical products</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>Fuels</td>
<td>7</td>
<td>9</td>
</tr>
<tr>
<td>Transport Equipment</td>
<td>7</td>
<td>10</td>
</tr>
<tr>
<td>Food products</td>
<td>3</td>
<td>7</td>
</tr>
<tr>
<td>Information and telecommunication</td>
<td>20</td>
<td>22</td>
</tr>
<tr>
<td>Iron and steel</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Clothing</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Textile</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

Source: Computations from WTO data.

**Figure 3. Country contributions to growth in world manufactured exports by value, %**

<table>
<thead>
<tr>
<th></th>
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<th></th>
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</thead>
<tbody>
<tr>
<td>USA</td>
<td>18</td>
<td>16</td>
</tr>
<tr>
<td>China</td>
<td>14</td>
<td>18</td>
</tr>
<tr>
<td>Germany</td>
<td>10</td>
<td>14</td>
</tr>
<tr>
<td>Belgium-Lux.</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>France</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Italy</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>South Korea</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Japan</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Netherlands</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Spain</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>UK</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

Source: Computations from WTO data.
Interestingly, the iron and steel industry is the one whose contribution to exports growth has increased most steeply between the two periods. The steel market has enjoyed strong demand. The industry’s prospects and rising iron prices have played an important role in the incipient trend toward the consolidation of the iron and steel industry. The emerging countries’ expanding needs have stimulated major investments, notably in China. The expansion of its productive capacity will reduce its steel imports and may dampen the world market’s dynamism.

Given the international specializations of individual economies and their shares of world exports, it is not surprising to observe the dominance of the U.S. economy in the 1990s, as its dynamism was stimulated by the production and rapid dissemination of ICTs. The U.S. contributed over 12% to export growth between 1992 and 2000 (figure 3). In 2000-2004, the largest contributors were China (12.9%) and Germany (13.6%). As a result, the two countries’ share of world exports has risen since 2000.

In the past decade, Chinese exports surged and, in 2004, China replaced Japan as the world’s number-three exporter (figure 4). China’s spectacular advance continued in 2005, fueled, in particular, by better access to rich-country markets for certain textile products. By contrast, as figure 4 shows, rich countries have tended to lose export market share in the past fifteen years. The U.S. resisted the trend in the 1990s, but its world-export share began falling swiftly in 2001. Germany has moved in the opposite direction, with an increase in market share since 2000. Japan’s downtrend has not reversed, except for a brief respite in the late 1990s. However, it slowed with the acceleration of Japanese exports to China in 2002.

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6 Witness Arcelor’s takeover of Dofasco in 2005 and Mittal Steel’s bid for Arcelor in January 2006.
The year 2000 saw a break in the pattern of change in the geographic and sectoral profile of world exports. Capital goods and chemicals are now driving world exports. Countries specialized in new-economy sectors are losing market share, while countries specialized in medium-tech sectors, and even in labor-intensive activities, are the big winners at the start of this new century. Does the forceful comeback of the “old economy” explain the new direction of world trade? Does the reversal indicate a short cycle or the start of a long-term trend? These shifts are due to a combination of price effects and volume effects. In particular, ICT product prices have fallen swiftly, whereas in recent years the prices of commodities and some intermediate goods had been rising. In the following section, we revisit the dynamics of international trade in the past twenty years to analyze the factors behind the current changes.
Globalization is redrawing the map of world industrial production

Foreign direct investment (FDI) has been a powerful engine of globalization since the 1990s, but since 2000 its dynamics have been more conducive to the expansion of productive activities in low-wage countries. During the new-economy bubble, the wave of mergers and acquisitions attracted investment in the advanced countries. Since the bubble burst, the emerging countries have become steadily more attractive thanks to the expansion of local markets and their integration into global production networks, including in some high-tech sectors.

The analysis of world-export distribution at a detailed level underscores the emerging countries’ growing role in different sectors. Their integration into global production networks is reshaping the geography of manufacturing.

**Global networks and new production geography**

Figure 5 highlights the leading role of FDI in the growth of internationalization since the 1990s. The FDI boom in the late 1990s was largely due to the Internet bubble, which triggered a wave of cross-border mergers and acquisitions. After a drop in the early 2000s, the FDI share of the world economy returned to its pre-bubble level in 2004 and is forecast to rise in 2005-2006. Meanwhile, trade opening continued to spread. This globalization momentum at the start of the twenty-first century is chiefly due to the greater involvement of developing and emerging countries in international trade and investment.

FDI in low-wage countries has suffered far less than investment in the advanced countries from the collapse of the Internet bubble (figure 6). Since 2003, the FDI upturn has been powered by investment in emerging countries—in China, of course, but not exclusively. For example, after a dip in the early 2000s, foreign investment in the new member States of the European Union (NMSs) has resumed. These inflows are stimulated by the evolution of local economies and their integration into global trade.

The string of financial crises in the emerging countries during the 1990s shook their production systems. In the aftermath, their investment requirements have grown because of the economic recovery and the trade opportunities created by their exchange-rate advantage and other factors (see box 1). In other countries such as China and the NMSs, direct investment has been attracted by growth prospects in their domestic markets and by their export potential.

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8 The emerging countries’ share of world GDP in 2005 reached 25% on a current-dollar basis and over 50% in PPP dollars (Artus 2006).
Figure 5. Growing internationalization, as % of world GDP

Sources: UNCTAD and WTO.

Figure 6. Change in FDI by development level, USD billion

Source: Computations from UNCTAD data. The categories used do not reflect the recent classification change (UNCTAD 2005). Developing and emerging countries include new EU member States (except Malta and Cyprus) and CIS countries.
Box 1. Financial crises and depreciation of emerging-country currencies

The 1990s were marked by a string of financial crises in Mexico (1995), Asia and Russia (1997-98), Brazil (1999), Turkey (2001), and Argentina (2001-2002). These episodes drove down exchange rates and disrupted capital inflows and local demand in the countries involved. At the cost of major adjustments—corporate restructuring, investment cutbacks, tighter bank lending criteria—most of the countries have restored better macro-financial conditions and enjoy competitive production capacity.

The exchange-rate adjustments performed in the mid-1990s caused a real depreciation of emerging currencies. Figure E1 plots the index of their real exchange rates: it shows a sharp decline against the dollar after the Asian and Russian crises, and a very steep drop against the euro after 2001.

**Figure E1. Real depreciation of emerging currencies, 1993 = 100**

<table>
<thead>
<tr>
<th>Year</th>
<th>Against dollar</th>
<th>Against euro</th>
</tr>
</thead>
<tbody>
<tr>
<td>1992</td>
<td>95</td>
<td>95</td>
</tr>
<tr>
<td>1994</td>
<td>100</td>
<td>100</td>
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<tr>
<td>1996</td>
<td>105</td>
<td>105</td>
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<tr>
<td>1998</td>
<td>110</td>
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<tr>
<td>2000</td>
<td>120</td>
<td>120</td>
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<tr>
<td>2002</td>
<td>130</td>
<td>130</td>
</tr>
<tr>
<td>2004</td>
<td>135</td>
<td>135</td>
</tr>
</tbody>
</table>

Note: The composite rate is the sum of real exchange rates weighted by each country’s share of world exports (real exchange rates are obtained by multiplying the nominal rate by the ratio of the benchmark-area price index to the national price index). The following countries are included: Argentina, Brazil, China, Costa Rica, Czech Republic, Hungary, Indonesia, Malaysia, Mexico, Philippines, Poland, Singapore, Slovakia, South Africa, South Korea, Thailand, and Turkey.

Source: Computations from International Financial Statistics (IMF).

The emerging countries’ exchange-rate advantage has contributed to their trade successes (OECD 1998). It has played a role in export growth and in attracting foreign investment. The latter, in turn, has helped certain countries achieve productivity gains and adapt their supply, boosting their positions in international markets (see text).

In sum, the crises of the 1990s have had only a temporary impact on the growth in the emerging countries’ share of world manufactured exports (figure 7). This trend continued in 2005, particularly for China, whose exports grew almost three times as fast as world trade (Artus 2006b). In recent years, import growth has matched export growth exactly, suggesting that exports are at least partly correlated with the multinationals’ relocation of their assembly operations. Several studies have shown an increase at the global level in the share of vertical FDI, lured by low production costs. These investments, combined with value-chain fragmentation, translate into increased flows of components and finished products in global production networks. We can measure the expansion of these networks via the growth of vertical intra-industry trade (Fontagné et al. 2005). China and the NMSs provide good illustrations of this trend in the location choices for new production capacity at the global level.

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9 For reviews of recent statistical studies, see Barba Navaretti and Venables (2004) and Sachwald (2005a).
Figure 7. Emerging countries’* share of world trade** in manufactured goods, %

* 36 countries: Argentina, Bolivia, Brazil, Chile, China, Colombia, Costa Rica, Czech Republic, Dominican Republic, Ecuador, Egypt, Hong Kong, Hungary, India, Indonesia, Lithuania, Malaysia, Mexico, Morocco, Pakistan, Paraguay, Peru, Philippines, Poland, Russia, Singapore, Slovakia, Slovenia, South Africa, South Korea, Taiwan, Thailand, Tunisia, Turkey, Uruguay, Venezuela.

** “World” = 36 countries above + developed countries.

Source: COMTRADE.

Figure 8 shows that China has won a significant share of world exports, not only in labor-intensive sectors such as apparel and toys, but also in more R&D-intensive sectors such as consumer electronics and computers. Information technology and the radio, television, and communication (RTC) sector account for a major share of world trade and have been driving the increase in China’s share of world exports. The growth and structure of Chinese trade in these sectors depends closely on assembly operations by multinational firms in China. For example, in the ICT sector, China’s trade with OECD countries basically consists of components on the import side and IT equipment on the export side (OECD 2005b). The share of total exports generated by assembly work, which stands at only 30% in textiles and apparel, jumps to 96% for computers (Gaulier et al. 2005a). Indeed, even for simple products such as toys and sports shoes, China’s value added is often modest. Foreign firms control design and distribution channels, and some key components are imported from neighboring countries.10

Multinationals therefore play a crucial role in China’s evolving specialization by setting up labor-intensive assembly facilities there. This makes it harder to establish a direct link between China’s factor endowment and its comparative advantages, traditionally defined on the basis of finished-product exports. China’s comparative advantages remain concentrated in labor-intensive activities, but the multinationals’ detailed fragmentation of value chains gives the impression that China specializes in high-tech products. More accurately, it has become specialized in the assembly of certain high-tech products. Figure 8 shows that China’s market share is larger for relatively simple products such as computers and cellphones (RTC reception) than for ICT capital goods or complex components (RTC components and transmission).

10 For example, if a Barbie doll costs about USD20, China receives only 35 cents (Dong Tao, economist at UBS, quoted in The New York Times, February 26, 2006).
Figure 8. China’s sectors of industrial specialization in 2004, %

* Sectors selected, on the basis of China’s specialization in 2004, account for 75% of manufacturing exports. Bubble size is proportional to each sector share’s in world manufactured exports (% in chart).

Source: SYSPROD-IFRI base. See appendix 1, including for complete sector designations.

Figure 9. NMS* sectors of industrial specialization in 2004, %

* Sectors selected, on the basis of the NMSs’ specialization in 2004, account for two-third of manufacturing exports. Bubble size is proportional to each sector share’s in world manufactured exports (% in chart).

Source: SYSPROD-IFRI base. See appendix 1, including for complete sector designations.
NMSs, as well, have experienced a rapid shift in international specialization thanks to the establishment of facilities by multinational firms, particularly in the automotive, electronic, and telecommunication-equipment industries (Kaminski and Smarzynska 2001, Sachwald 2005c). Multinationals, for example, generate nearly 100% of Hungary's computer exports, and local value added is weak (Radosevic and Sachwald 2005). As in China, the NMSs' entry into major sectors of world trade has had a significant impact on their export structure. Furniture—a traditional sector of specialization—now accounts for a substantially smaller share of exports than automobiles and electrical appliances (figure 9). Specialization in apparel has regressed since the 1990s (Radosevic and Sachwald 2005) and the sector does not appear in figure 9.

**Redistribution of market share in ICTs**

The relocation of productive capacity has shifted the distribution of ICT exports. Between the 1990s and the 2000s, the ranking of the most dynamic exporters has changed substantially. The U.S. was the main engine of world export growth in the 1990s; since 2000, China is by far the top contributor (figure 10). In the period 1996-2004, Chinese ICT exports grew by an average 38% a year. Since 2000, South Korea and Germany have also expanded their contributions to export growth, while the U.S. and Japan have made negative contributions. Figure 10 also shows that Hungary significantly increased its contribution to world ICT export growth, whereas Ireland saw its contribution turn negative. This trend reflects a transfer of electronic and computer assembly operations from Ireland to Hungary (Barry and Curran 2004).

These dynamics have yielded significant changes in market share: Japan abandoned its rank as number-one exporter to the U.S. in the 1990s, then China conquered the top spot in the early 2000s (table 1). In a single decade, Japan's market share was more than halved, while that of China rose fivefold. Meanwhile, South Korea, Thailand, and Singapore have preserved their world market share. Germany has maintained its rank as Europe's leading ICT exporter and has been recapturing market share since 2000.

Ireland and Mexico—which benefited, among other things, from the opening of production units by U.S. firms in the 1990s—registered a mild decline in market share. Hungary has displayed the opposite trend thanks to the arrival of multinationals since the 1990s; its share of world exports has moved from near zero in 1992 to 1.3%, a thirteenfold increase. In 2004, it overtook Finland.

These changes reflect a maturing of ICTs and a shift in the center of gravity of production toward low-wage areas. For the most labor-intensive products, China benefits from the transfer of activities previously situated in emerging countries, such as Mexico (Lall and Weiss 2004, Lora 2005) and Hungary (Radosevic and Sachwald 2005). It is also profiting from value-chain reorganization at the regional level, with relocations of facilities from South Korea and Taiwan (Adams et al. 2004, Gaujler et al. 2005a).

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11 By value (OECD 2005b).
Figure 10. ICT contributions to world export growth, 1992-2004

Note: ICTs include office equipment and computers, telecommunication equipment, electronic components, and integrated circuits. The countries shown accounted, on average, for 99.7% of world ICT exports between 1992 and 2004.

Source: Computations from WTO data.
Table 1. Change in export-market share of ICT-based products, %

<table>
<thead>
<tr>
<th>Countries</th>
<th>Share of world ICT exports</th>
<th>Change in world-export share</th>
</tr>
</thead>
<tbody>
<tr>
<td>China and Hong Kong</td>
<td>3.0</td>
<td>4.9</td>
</tr>
<tr>
<td>United States</td>
<td>17.1</td>
<td>16.0</td>
</tr>
<tr>
<td>Japan</td>
<td>22.5</td>
<td>11.3</td>
</tr>
<tr>
<td>Singapore</td>
<td>7.3</td>
<td>7.7</td>
</tr>
<tr>
<td>South Korea</td>
<td>5.0</td>
<td>6.1</td>
</tr>
<tr>
<td>Germany</td>
<td>6.2</td>
<td>5.0</td>
</tr>
<tr>
<td>Taiwan</td>
<td>5.1</td>
<td>6.0</td>
</tr>
<tr>
<td>Malaysia</td>
<td>3.8</td>
<td>5.4</td>
</tr>
<tr>
<td>Netherlands</td>
<td>3.2</td>
<td>4.8</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>5.8</td>
<td>5.2</td>
</tr>
<tr>
<td>Mexico</td>
<td>1.6</td>
<td>3.5</td>
</tr>
<tr>
<td>France</td>
<td>3.9</td>
<td>3.4</td>
</tr>
<tr>
<td>Philippines</td>
<td>0.8</td>
<td>2.6</td>
</tr>
<tr>
<td>Ireland</td>
<td>1.5</td>
<td>2.6</td>
</tr>
<tr>
<td>Thailand</td>
<td>1.6</td>
<td>1.9</td>
</tr>
<tr>
<td>Hungary</td>
<td>0.1</td>
<td>0.7</td>
</tr>
<tr>
<td>Sweden</td>
<td>1.2</td>
<td>1.6</td>
</tr>
<tr>
<td>Belgium-Lux.</td>
<td>1.0</td>
<td>1.4</td>
</tr>
<tr>
<td>Canada</td>
<td>2.1</td>
<td>2.1</td>
</tr>
<tr>
<td>Italy</td>
<td>2.2</td>
<td>1.1</td>
</tr>
<tr>
<td>Finland</td>
<td>0.4</td>
<td>1.1</td>
</tr>
<tr>
<td>Austria</td>
<td>0.8</td>
<td>0.6</td>
</tr>
</tbody>
</table>

Note: ICTs include office equipment and computers, telecommunication equipment, electronic components, and integrated circuits. Countries shown accounted for over 95% of world ICT exports at dates listed.

Source: Computations from WTO data.

The analysis would deserve to be broken down by sector. Figure 1 showed, for example, different world-export dynamics within the ICT industries. In the RTC sector, components have been scoring robust gains since the 1990s, whereas the growth of transmission-equipment exports has weakened since 2000. Reception equipment, such as cellphones and TV sets, has followed the opposite path. The vibrancy of exports of components and RTC reception equipment since 2000 can be explained by the conjunction of strong demand for terminals and a vertical division of labor, which generates component trade and helps to lower terminal costs. Figure 8 shows that China’s market share in RTC terminals is particularly high, at almost 22% of world exports. China runs a large trade surplus in these products, albeit a smaller one than its surplus in computers. By contrast, it posts a deficit in ICT product components, such as integrated circuits, semi-conductors, and television tubes (OECD 2005b). This analysis of the ICT sector provides a further reminder of the fact that, while China’s exports are “moving up the value chain” (Artus 2006b), the country still lacks a comprehensive production capability and is concentrating on the assembly of high-tech products.
**Emerging countries stimulate the capital-goods market**

The emerging countries’ growing market share in ICTs and, more generally, in manufactured goods is increasing their investment requirements, particularly for capital goods. In the aggregate, the emerging countries’ brisk economic growth is enlarging their share of world investment. This trend is thus fueling an increase in demand for capital goods, whose market has been revitalized (figure 1b).

Figure 11 illustrates this trend by showing that the most dynamic capital-goods importers are no longer the advanced countries but the developing countries. Their contribution to the growth of capital-goods imports has expanded from one-third in the 1990s to two-thirds in the 2000s. The contribution of NMSs has risen more than threefold and that of China almost fivefold in the same interval.

![Figure 11. Geographic contribution to expansion of world imports of capital goods, %](image)

The emerging countries’ integration into the world economy is thus spurring a dual shift in international trade. Their growing share of manufactured exports reflects a transfer of the production of labor-intensive goods and of the assembly phases for certain R&D-intensive goods toward these countries. At the same time, the advanced countries are concentrating on more capital-intensive and research-intensive products. One of the aims is to tie the offering of these products to services, which can represent a substantial portion of value added. Some advanced countries have consequently managed to grow their market share in capital goods. Since 2000, the structure of world trade by value has been shifting toward capital goods. The phenomenon is amplified by the fact that prices of certain electronic products are falling as their production matures and becomes more internationalized.

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12 The advanced economies are service economies, but our analysis concentrates on manufactured-goods trade.
Export performances and industrial structure

The analysis of export patterns at a fine level of detail underscores the diversity of specialization profiles among the main exporting countries. Some countries have registered sharp gains in market share in dynamic sectors and seem favored by the sectoral shifts in world trade. The good performance of other countries rests, however, on advances in undynamic sectors. In this third part, we present a systematic review of market gains and losses for about fifteen countries in order to assess the extent to which they are each benefiting from the evolution of world markets. From our analysis, we conclude that the sectoral structure of exports offers only a partial explanation of performance; the main determinants are the changes in competitiveness in different markets.

Different sector profiles

The two front-runners in export markets since 2000, Germany and China, obtain their results with very different sector profiles.

While China has gained market share in nearly all sectors, it performs best in undynamic world-trade sectors (figure 12). From 2000 to 2004, its market share in computers rose 15%, but the computer trade grew more slowly than average industrial exports. China also won market share in textile/apparel, a trend that has gained momentum since the scrapping of quotas in 2005. EU clothing imports from China, for example, jumped 50% by value in 2005. China has, however, performed very well in certain dynamic sectors such as components and radio, television, and communication reception equipment. As we have seen, China’s performances in this type of sector are due to its integration into world production networks. China also scores well in dynamic sectors where its firms’ competitiveness has increased, such as household appliances and “other transportation equipment.” In the latter sector, the country specializes in motorcycles and bicycles, whose exports doubled between 2000 and 2004. By contrast, China’s presence and performance remain modest in other dynamic sectors such as automobiles and pharmaceuticals.

Germany, as well, has grown its market share in almost all sectors (figure 13). While less spectacular, its gains are more concentrated in dynamic sectors. The country scores particularly well in its leading specializations, marked by robust growth: automobiles, machinery, instruments, and pharmaceuticals. The performance in “other transportation equipment” is due to exports of railroad rolling stock, which grew 239% between 2000 and 2004. In the same interval, Germany boosted its world market share from 13% to 27%.

13 As we have already pointed out, the data are in value terms, and falling prices play a role.
15 Manufacturing of motorcycles, bicycles, and railroad rolling stock; shipbuilding and repair.
Figure 12. Export dynamics of China, 2000-2004

Note: Bubble size is proportional to sector’s share of Chinese exports.
Source: SYSPROD-IFRI base.

Figure 13. Export dynamics of Germany, 2000-2004

Note: Bubble size is proportional to sector’s share of German exports.
Source: SYSPROD-IFRI base.
France’s distribution of strengths and weaknesses is comparable to Germany’s, but France underperforms Germany in most sectors (figure 14). The only major industries where France has expanded market share between 2000 and 2004 are automobiles and aerospace. These are its export drivers, hence the heavy impact of the 2005 downturn in automotive exports. In contrast, France has lost market share in several dynamic sectors that are important to its foreign trade such as pharmaceuticals, radio, television, and communication products, and machinery. Unlike Germany, its performance in “other transportation equipment” is disappointing. France’s world market share in shipbuilding and the manufacture of railroad rolling stock is small and shrinking.

The food industry—a traditional French specialization—accounts for over 9% of its manufactured exports. It has been a dynamic sector of world trade since 2000 (figure 1), but France is losing market share (figure 14). To take the emblematic and widely discussed example of wine, French producers have been insufficiently responsive to the emergence of new competitors who have influenced consumer tastes.

Italy’s sectoral structure differs from those of both Germany and France (figure 15). It continues to specialize in traditional industries such as apparel and leather. By contrast, high-tech sectors represent a small proportion of its exports. Machinery makes up an even larger

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16 “The aeronautics industry accounts for 68% of France’s exports of high-tech and high-end products” (Report by French Council for Economic Analysis [CAE], forthcoming, quoted in Les Échos, February 13, 2006).
17 France’s trade deficit reached EUR26.5 billion in 2005 (Les Échos, February 13, 2006).
18 In figure 13, the food-industry bubble is largely concealed by those of other sectors, particularly machinery and basic chemicals.
19 The world market share of French wines, which stood at 70% in the early 1990s, fell to 40% in 2005 (Les Échos, February 13, 2006). In the same period, world consumption rose.
export share than in Germany (figure 13). Italy has won market share in this sector, like Germany and unlike France. Similarly, it has expanded its market share in metalworking and food products. Italy has thus preserved an atypical profile for a high-wage country. While it has lost market share in some labor-intensive sectors, it has scored (modest) gains in some of its clusters’ emblematic sectors.²⁰

**Figure 15. Export dynamics of Italy, 2000-2004**

Note: Bubble size is proportional to sector's share of Italian exports.

*Source: SYSPROD-IFRI base.*

Figures 16 and 17 show the very poor performance of the U.S. and Japan in recent years. Both countries have lost market share in most sectors. Their losses are particularly significant in the dynamic sectors where Germany performs well, such as machinery and instruments. Interestingly, the U.S. is losing market share in pharmaceuticals, despite the fact that the country attracts foreign investment and displays research leadership in the sector. This result is partly due to U.S. pharmaceutical firms’ production of active substances in Ireland (see below). Japan, by contrast, has never won strong positions in pharmaceuticals, and its exports in the sector remain modest (figure 17).

²⁰ This nuanced finding corroborates the analysis of Italian comparative advantages by De Benedictis (2005).
Note: Bubble size is proportional to sector’s share of U.S. exports.

Source: SYSPROD-IFRI base.

Bubble size is proportional to sector’s share of Japanese exports.

Source: SYSPROD-IFRI base.
Both the U.S. and Japan have lost market share in ICT sectors, except radio, television, and communication components for Japan. This is chiefly the result of their exports for assembly to China and other Asian countries. The losses of export market share in the automotive sector are also partly due to organizational changes by Japanese automakers, who now generate a large proportion of their U.S. and European sales from local production facilities.\(^{21}\) Automotive components post a relatively less slack performance than automotive exports (figure 16).

Despite the fact that they both run large trade surpluses, Germany and Japan offer a striking contrast. Japan, which began to suffer from competition by Asian emerging countries in the late 1980s (Durand \textit{et al.} 1998, Adams \textit{et al.} 2004), continues to lose market share. In recent years, its exports to China have been dynamic,\(^{22}\) but that is also true of other countries, and Japan’s overall performance at the start of the twenty-first century has been poor.

\textit{Unequal capacities to exploit world market dynamism}

Beyond the chief exporting countries, the sectoral analysis of export performances shows widely differing national capacities to exploit world market dynamism. Many countries’ performances were reversed between the 1990s and the 2000s, but table 2 also underscores the fact that certain countries have come out ahead or fallen behind in the two periods.

China and the NMSs have won market share in nearly all their export sectors since 1990. Since 2000, however, the NMSs hold stronger positions in dynamic sectors. Ireland won market share in sectors accounting for 85\% of its exports in the 1990s, but has retreated in most of them since 2000. The same is true of Finland, which also benefited from the rise of the new economy in the 1990s. Admittedly, the reversal for both countries was less spectacular than for Mexico: starting from a position comparable to China’s in the 1990s, Mexican market share has declined in almost 95\% of its export sectors since 2000.

Table 2 shows the opposite phenomenon, i.e., a positive export-performance reversal for a number of countries since 2000. In addition to Germany, discussed in detail above, Sweden and Italy have significantly improved their performances. So has Brazil: since 2000, a majority of its exports are in dynamic sectors where it is winning market share. Some advanced countries display the most unfavorable configuration, losing market share in most of their export sectors continuously since the 1990s. France, Switzerland, the U.S., and Japan have actually registered worse market losses in dynamic world-trade sectors since 2000.

\(^{21}\) More generally, the initially positive effect of Japanese firms’ overseas investment on exports seems to have weakened sharply in the 1990 (Durand \textit{et al.} 1998).

\(^{22}\) Which has become its main export partner, ahead of the U.S.
Table 2. Change in market share by sector dynamics, as % of manufactured exports

<table>
<thead>
<tr>
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<th></th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Dynamic sectors</td>
<td>Low growth sectors</td>
<td>Dynamic sectors</td>
<td>Low growth sectors</td>
</tr>
<tr>
<td>China</td>
<td>35.4</td>
<td>64.6</td>
<td>0.0</td>
<td>0.1</td>
</tr>
<tr>
<td>NMSs</td>
<td>32.6</td>
<td>65.9</td>
<td>1.5</td>
<td>0.0</td>
</tr>
<tr>
<td>Germany</td>
<td>1.4</td>
<td>30.7</td>
<td>32.8</td>
<td>35.1</td>
</tr>
<tr>
<td>Finland</td>
<td>37.2</td>
<td>53.2</td>
<td>4.2</td>
<td>5.5</td>
</tr>
<tr>
<td>Malaysia</td>
<td>40.0</td>
<td>10.4</td>
<td>28.9</td>
<td>20.7</td>
</tr>
<tr>
<td>Sweden</td>
<td>22.3</td>
<td>10.8</td>
<td>21.4</td>
<td>45.4</td>
</tr>
<tr>
<td>Brazil</td>
<td>3.8</td>
<td>24.2</td>
<td>14.9</td>
<td>57.1</td>
</tr>
<tr>
<td>Italy</td>
<td>4.5</td>
<td>18.7</td>
<td>22.4</td>
<td>54.4</td>
</tr>
<tr>
<td>Ireland</td>
<td>71.5</td>
<td>15.8</td>
<td>1.8</td>
<td>10.9</td>
</tr>
<tr>
<td>S. Korea</td>
<td>46.1</td>
<td>22.6</td>
<td>8.0</td>
<td>23.4</td>
</tr>
<tr>
<td>France</td>
<td>10.4</td>
<td>27.6</td>
<td>25.3</td>
<td>36.7</td>
</tr>
<tr>
<td>Mexico</td>
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<td>56.4</td>
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<td>0.0</td>
</tr>
<tr>
<td>Switzerland</td>
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<td>10.4</td>
<td>49.8</td>
<td>39.5</td>
</tr>
<tr>
<td>U.K.</td>
<td>5.5</td>
<td>24.9</td>
<td>40.0</td>
<td>29.6</td>
</tr>
<tr>
<td>U.S.</td>
<td>12.5</td>
<td>25.6</td>
<td>32.4</td>
<td>29.6</td>
</tr>
<tr>
<td>Japan</td>
<td>1.1</td>
<td>5.6</td>
<td>42.0</td>
<td>51.2</td>
</tr>
</tbody>
</table>

Note: Figures in rows add up to 100% of the country’s exports for each period. Countries are classified in decreasing order of total market-share gains in 2000-2004 (column 4). Boldface figures highlight values exceeding 50% – green for gains, red for losses.


Source: SYSPROD-IFRI base.

A country’s performance depends on three characteristics of its exports: sectoral composition, geographic distribution, and competitiveness. The first two factors explain a large share of the reversal in Mexico’s performance since 2000. The country suffered the combined effects of the U.S. recession at the start of the period and competition from China for hosting assembly operations. South Korea, in contrast, was able to offset its sluggishness in some markets by a robust increase in exports to China. This trend is gaining momentum: in 2005, South Korean exports to its neighbor rose 23% to nearly USD77 billion. Japan, as well, is growing its exports to China despite losing overall market share.

Table 3 shows the impact of the sectoral composition of exports on country performances. The method consists in breaking down a country’s export growth into an industry structural effect and a residual effect that consolidates the other determinants. We perform the analysis at a fine level of disaggregation. Appendix 2 explains the method used to distinguish the industry effect from other export-growth determinants.

In the 1990s as in the period since 2000, sectoral distribution explains a minority share—but, in some cases, a not insignificant share—of relative export growth. Table 3, by contrast, shows that the countries that enjoyed a positive structural effect in the 1990s have experienced a reversal or sharp reduction since 2000. Malaysia registered the most favorable structural effect in the 1990s, notably thanks to its substantial ICT exports, but suffered the strongest negative effect in 2000-2004. The positive structural effect for Japan, South Korea, and Sweden

24 Appendix 2 gives an additional presentation chart, which underlines this contrast between the two periods.
25 See figure 10 and table 1 above.
has strongly diminished. Ireland stands out as an exception given the positive effect of its exports’ sectoral structure in both periods. This exception may be linked to the considerable changes in Ireland’s ICT and high-tech industries since the 1990s. Computer assembly operations have been partly transferred abroad, replaced by logistics centers and component-manufacturing facilities (Barry and Curran 2004). Ireland has also attracted sizable investments in pharmaceuticals, now one of its major export sectors.26

Table 3. Contribution of sectoral structure to export growth gap with world total, average annual %

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Structural effect</td>
<td>Other determinants</td>
</tr>
<tr>
<td>China</td>
<td>-1.03</td>
<td>10.20</td>
</tr>
<tr>
<td>Brazil</td>
<td>-2.77</td>
<td>1.31</td>
</tr>
<tr>
<td>Germany</td>
<td>-0.35</td>
<td>-4.34</td>
</tr>
<tr>
<td>Sweden</td>
<td>0.68</td>
<td>-4.37</td>
</tr>
<tr>
<td>Switzerland</td>
<td>-0.28</td>
<td>-3.95</td>
</tr>
<tr>
<td>Italy</td>
<td>-1.04</td>
<td>-2.09</td>
</tr>
<tr>
<td>Ireland</td>
<td>1.51</td>
<td>6.15</td>
</tr>
<tr>
<td>France</td>
<td>-0.62</td>
<td>-2.89</td>
</tr>
<tr>
<td>S. Korea</td>
<td>1.18</td>
<td>1.40</td>
</tr>
<tr>
<td>Malaysia</td>
<td>2.62</td>
<td>3.22</td>
</tr>
<tr>
<td>Mexico</td>
<td>0.37</td>
<td>12.29</td>
</tr>
<tr>
<td>Finland</td>
<td>0.32</td>
<td>1.63</td>
</tr>
<tr>
<td>Japan</td>
<td>1.49</td>
<td>-4.12</td>
</tr>
<tr>
<td>U.K.</td>
<td>0.39</td>
<td>-1.52</td>
</tr>
<tr>
<td>U.S.</td>
<td>0.14</td>
<td>-0.72</td>
</tr>
</tbody>
</table>

Note: Countries are ranked by decreasing order of total gap with world export growth in 2000-2004. 
Source: SYSPROD-IFRI base.

The strongest structural effect in the period 2000-2004 was in Switzerland, particularly thanks to the most dynamic sector of world manufacturing exports: pharmaceuticals.27 Unlike Ireland, however, Switzerland lost market share in this sector between 2000 and 2004. The fact that Swiss export growth exceeds the world average is therefore due to a favorable structure. Like Germany, Switzerland is traditionally positioned in medium- and high-tech sectors and in high-end products (Foray and Lhuillery 2005). But it does not leverage this position to gain market share in dynamic sectors. In Germany, as well, the effect of the structural composition of exports turned positive in 2000-2004. Unlike in Switzerland, however, this structural effect merely strengthened the other determinants—particularly German competitiveness gains28—hence the contrast between the two periods and the reversal in German performance.

France too benefited from a more favorable sectoral composition of exports in the recent period, but this structural effect was more than offset by the other determinants. The European-oriented pattern of French exports plays a negative role, but weak competitiveness and market losses explain a large share of France’s poor performance. This diagnosis, which relies on data from figure 13 and table 2, converges toward that of other studies emphasizing the tangible but

26 Pharmaceuticals accounted for 22.4% of Ireland’s manufactured exports in 2000-2004, versus 17% for computer manufacturing (SYSPROD-IFRI). For examples of production facilities, see Weinmann (2005).
27 See figure 1b.
28 Figure 13 highlights Germany’s market-share gains in the vast majority of its export sectors.
lesser role of the sectoral and geographic structure of French exports. Moreover, we should note that the geographic distribution of French exports and—most important—their shift toward new markets depend on the adjustment and competitiveness of French products.

Japan, as well, has a favorable sectoral composition, but this did not prevent its export growth from running below the world average (table 3). Yet in recent years, Japan has redirected its exports toward China, away from the U.S. in particular. As noted earlier, Japan’s performance is largely due to its loss of share in many sectors (figure 15). Lastly, the sectoral composition effect is virtually zero for the U.K. and the U.S. The poor performance by both countries reflects their losses of market share.

In the past fifteen years, the sectoral structure effect has been consistently negative for China. We have observed that a large of Chinese exports is concentrated in the textile, clothing, and ICT sectors, where trade was relatively undynamic in 2000-2004 (figure 11 and table 2). China’s remarkable performances are due to the strong competitiveness of its exports. Mexico’s export growth in the 1990s was even more vigorous, but the situation has been spectacularly reversed. Mexico has practically lost the positive effect of the sectoral composition of its exports, and the other determinants now have a negative impact. The weight of the U.S. market played a very positive role in the 1990s after the enactment of the North American Free Trade Agreement (NAFTA); now, it is far less favorable. Unlike Ireland, Mexico has not significantly altered its export structure in response to competition from lower-cost countries, particularly China. Mexico is therefore suffering more from relocations in industries such as textiles and ICTs. Its contribution to world ICT exports has declined heavily since the 1990s (figure 9).

This analysis underscores the fact that both the advanced and emerging countries have displayed a very variable capability to exploit recent trends in world trade. Among the European countries, we have emphasized the substantially different performances of Germany, Switzerland, Italy, and France, which nevertheless all benefit from a favorable industry structure. We could also contrast Finland with Ireland, which was more successful in adapting its industry structure after the bursting of the new-economy bubble.

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Conclusion

The year 2000 was marked by the collapse of the Internet bubble, but our study shows that it also corresponded, paradoxically, to the start of a new phase of globalization. The bursting of the bubble challenged the notion of a “new economy,” i.e., the claim that market operating rules, and hence the principles of regulation, had changed in a world now dominated by services and intangible trade. At the same time, the notion of a “knowledge economy” gained strength, and the international dissemination of ICTs stimulated globalization. The restrictions on circulation and the problems faced by the air transportation sector after 9/11 have not had lasting consequences in this respect.

In conclusion, we revisit the interactions between globalization, diffusion of the knowledge economy, and revival of the “old economy” to evaluate the sustainability of recent changes. From this overall assessment, we move on to France’s position and the prospects for change in its production system.

A new globalization phase since 2000

The new globalization phase deepens the previous trend toward integration of world markets, but in unexpected industries and geographic areas. The contrast between the late twentieth century and the start of the twenty-first is, from this standpoint, fairly clear.

ICTs have continued to expand. In particular, this has involved spectacular price drops for certain products, but also for telecommunication services—promoting their dissemination in the emerging countries. Lower telecommunication costs have thus contributed to the explosion of service outsourcing to India and have made it easier to organize global production networks. In exchange, the growth and modernization of the emerging countries’ productive capacity have stimulated exports of capital goods by their leading producers, the advanced countries. A good illustration of this trend is Germany, described in detail earlier. The champion of the old economy has become the world’s number-one exporter, ahead of the U.S., cradle of the new economy in the late twentieth century.

On balance, since 2000, the accelerated diffusion of ICT-based products and services has helped to integrate emerging countries into global trade and revitalized key emblematic sectors of the “old economy,” from chemicals to metalworking to machinery. The strong growth of emerging countries on different continents underscores the fact that they effectively represent markets for advanced-country firms.

Multinationals have played a key role in this new globalization phase. We have seen how the integration of China and the NMSs into the multinationals’ production networks has impacted the shifts in their industrial specialization. However, it would be wrong to conclude from the industry structure of China’s exports that the country is now capable of producing all products and capturing major market share in all sectors. Chinese exports of high-tech products closely depend on the local presence of multinationals in the corresponding sectors. China remains
specialized in labor-intensive operations, which reflect its comparative advantage. The country’s export structure has changed rapidly in recent years, making it the number-one exporter of ICT products. The question is whether the transfers of technology and management capacity due to the presence of foreign businesses in these sectors will enable China to quickly control the value chain—and not only the assembly stages.\textsuperscript{30} The same question applies to other countries, such as the NMSs for the automotive industry. The opening of many R&D centers in the emerging countries may quicken the process. But one would need to verify the effective role of these units and the type of activities they perform: product localization, development work, or contribution to their firms’ global research programs.\textsuperscript{31}

Nevertheless, globalization intensifies competition in most markets, whether via the entry of new countries, the dissemination of innovation, or simply the exploitation of new ideas and methods. The upheavals in the wine market and in certain service sectors illustrate this phenomenon. France’s competitors in the wine market are not low-wage countries but Australia, Argentina, and California. They owe their success to a global marketing approach and a capacity to adapt to demand. In this context, the revival of strong growth in the “old economy” sectors will not benefit traditional producers unless they combine marketing efforts and innovation efforts. The emerging countries harbor the legitimate ambition of catching up with the advanced countries, particularly in those sectors. The speed at which they do so will largely depend on the advanced countries’ efforts to increase the sophistication of their supply.

Overall, even if the dynamism of “old economy” industries persists for a while,\textsuperscript{32} offerings by high-wage advanced countries will not be competitive unless they are differentiated. Even in medium-tech sectors, differentiation rests on a combination of attentiveness to evolving demand and a capacity to incorporate new characteristics and services into products. Germany’s success in capital-goods sectors illustrate this point. Differentiation and integration of services can even ensure some success in low-tech sectors such as apparel. This point is well illustrated by the success of Italian firms as well as of other companies that focus on responsiveness and creativity such as Zara of Spain or American Apparel of the U.S. (Berger 2005). Yet the competitive positions achieved through differentiation, whether based on technological innovation or not, seem ever less secure.\textsuperscript{33} Firms will need to review their production positioning and organization on a regular basis. They will thus need to reconsider periodically their decisions to outsource and relocate some links of the value chain, depending on competitive pressures from new entrants and the fresh opportunities offered by the latter in related activities. Firms in advanced countries can score great successes in mature sectors by inventing a new type of enterprise—Dell, for example—but they cannot expect to retain leadership for many years.

\textsuperscript{30} The acquisition of certain firms in advanced countries, such as Lenovo’s purchase of IBM’s PC business, offers an additional path for accessing skills, but it too is difficult and risky.

\textsuperscript{31} On these issues, see UNCTAD (2005), Kalotay (2005), and Sachwald (2005b).

\textsuperscript{32} In trend terms and looking beyond the cyclical behavior of some of these sectors.

\textsuperscript{33} The Italian model based on small businesses organized into specialized clusters is in jeopardy, and surviving firms are adopting new strategies (The Economist, February 25, 2006). Figure 17 above shows a decline in Italy’s share of footwear and textile exports in 2000-2004.
The future of the French production system

We have stressed the importance that capacities for technological and organizational innovation are now assuming—beyond factor endowment—as determinants of countries’ export performances. Earlier studies had already identified the role of differentiation potential in the field of intra-industry trade. In Europe, for example, some countries have specialized in high-tech products while others, in the same sector, tended to export low-end products instead (Fontagné et al. 2004). The novelty in the present period concerns the increased capacity for value-chain fragmentation. Countries are no longer specializing exclusively by product-range level in individual sectors, but also by value-chain stage in individual products. Intra-industry trade is now flanked by intra-product trade—which may be between firms or between a principal and a subcontractor.

These developments have loosened the link between a country’s factor endowments and its specialization sectors. The Chinese example gave us a very clear illustration of the phenomenon: China is specialized in labor-intensive operations, including in the production of high-tech goods. The message for the advanced countries is symmetrical: they can produce low-tech goods if they concentrate on stages where they enjoy comparative advantage. That is what some “factory-less” companies have done in labor-intensive sectors such as sports gear. But beyond these borderline examples in sectors where high-wage countries operate—by definition—at a heavy disadvantage, there is a wide range of possible solutions.

The recent export successes of German enterprises are sustained by a combination of cost-cutting and further efforts to differentiate. Cost-cutting, in turn, has involved reorganizing production, including through relocations. More generally, the example of the European automotive industry shows that partial relocation—by product-range level or by labor intensity of operations—can enhance product-range diversity while lowering costs (Radosevic and Sachwald 2005). Thanks to reorganizations, value-chain fragmentation enables firms to manufacture new products, particularly at the entry level. Extensive outsourcing of components can also allow faster innovation, as in the case of Apple’s iPod (Berger 2005). By relocating selected operations, service companies can make their new offerings competitive and so increase their global competitiveness (Friedman 2005). A final example: by transferring some of their production work abroad, some Italian apparel and footwear firms have remained competitive and even penetrated the Chinese market.

In these conditions, responsiveness becomes a key factor in competitiveness. At the country scale, this should translate into a greater capacity to mobilize new resources and reallocate existing ones, making it easier for firms to adjust their strategies and adapt to the changing competitive environment. France has not properly integrated itself into these dynamics, a failure that partly explains the widening of its trade deficit in the past several years.34 Our analysis shows that France has neither increased its competitiveness in dynamic sectors as Germany has, nor shown the same capacity as Ireland to make its production system evolve.

Beyond the issue of exports, an assessment of the future of the French production system should take account of the various possible scenarios, including a radical shift toward high tech and services. To put it briefly, France should be able to set a “German” strategy of boosting competitiveness in the sectors of traditional specialization against an “American” strategy of stimulating business creation in new sectors. The relevance of each approach depends, first of

34 The previous years’ trends persisted in 2005, with France deriving little benefit from world market buoyancy.
all, on the persistence of the “old economy” comeback described here, which favors the German model and its incremental innovation capacities over the American model. The choice also depends on France’s ability to adopt one of these strategies successfully. Taking the view that the radical-innovation strategy could not be acclimatized in France, the Beffa report (2005) recommended strengthening the innovation capacities of French firms in their sectors of specialization.35 Yet a German strategy, too, would involve reinforcing the innovation and export capacity of France’s small and medium-sized businesses. Since the early 1990s, France’s R&D effort has been declining relative to its trade partners, which was not the case of Germany (Felettigh et al. 2006).

Moreover, both the German and American strategies partly rely on the relocation of labor-intensive operations, which French companies have practiced less extensively than their foreign counterparts until the early 2000s. In Germany, the fall in local value added by manufacturing output due to relocations has been denounced as a loss of substance for the local economy.36 Lastly, in a number of countries including France, the growing internationalization of large corporations has disconnected their competitiveness from their capacity to power the economies of their countries of origin.

A forward-looking analysis of the evolution of France’s production system should therefore rely on a better knowledge of the determinants of competitiveness in different sectors, including via the reorganization of value chains at the regional and global scales. By combining industry analyses with corporate case studies, one could assess the overall dynamics and the growth potential of niches. One could then evaluate France’s potential and requirements, particularly with regard to research, training, and mobility. The stakes are, of course, crucial: in this new globalization phase, competition will continue to harden, including in France’s flagship industries such as the automotive industry.

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35 The report actually used the Japanese experience as an implicit reference.
36 On this debate, see especially Wurzel (2005).
References


Gaulier, G., F. Lemoine et D. Unal-Kesenci (2005a), China’s Integration in East Asia: Production Sharing, FDI and High-Tech Trade, Document de travail, Paris, CEPII.


Appendix 1. IFRI’s SYSPROD database

IFRI developed the SYSPROD database as a tool for linking trade data with production data. It cross-tabulates trade classifications (by product) against production classifications (by industry). The trade data are taken from the United Nations COMTRADE database\textsuperscript{37} for the period 1990-2004.

To analyze the trade performance of countries in our sample, we need to define a benchmark area. We specified the “world” area on the basis of COMTRADE data availability. COMTRADE comprises 95 economic spaces\textsuperscript{38} (table below) and accounts for 92.2% of the world covered by the WTO base (84% for the UNCTAD base).

\begin{table}[h]
\centering
\begin{tabular}{llllll}
\hline
\hline
Algeria & 12 & Germany & 276 & Peru & 604 \\
Argentina & 32 & Greece & 300 & Philippines & 608 \\
Armenia & 51 & Hungary & 348 & Poland & 616 \\
Australia & 36 & Iceland & 352 & Portugal & 620 \\
Austria & 40 & India & 699 & Qatar & 634 \\
Azerbaijan & 31 & Indonesia & 360 & South Korea & 410 \\
Bangladesh & 50 & Ireland & 372 & Moldova & 498 \\
Barbados & 52 & Israel & 376 & Russia & 643 \\
Belarus & 112 & Italy & 381 & Saudi Arabia & 682 \\
Belgium & 56 & Jamaica & 388 & Senegal & 686 \\
Belgium-Luxembourg & 58 & Japan & 392 & Singapore & 702 \\
Bolivia & 68 & Jordan & 400 & Slovakia & 703 \\
Brazil & 76 & Kazakhstan & 398 & South African Customs Union & 711 \\
Canada & 124 & Kenya & 404 & South Africa & 710 \\
Chile & 152 & Kyrgyzstan & 417 & Spain & 724 \\
China & 156 & Latvia & 428 & Sri Lanka & 144 \\
China, Hong Kong & 344 & Lithuania & 440 & Sweden & 752 \\
China, Macao & 446 & Luxembourg & 442 & Switzerland & 757 \\
Colombia & 170 & Madagascar & 450 & Syria & 760 \\
Cyprus & 196 & Malawi & 454 & Tajikistan & 762 \\
Czech Republic & 203 & Malaysia & 458 & Thailand & 764 \\
Former Czechoslovakia & 200 & Mauritius & 480 & Togo & 766 \\
Denmark & 208 & Mexico & 484 & Trinidad and Tobago & 780 \\
Ecuador & 218 & Morocco & 504 & Tunisia & 788 \\
Egypt & 818 & Namibia & 516 & Turkmenistan & 795 \\
Estonia & 233 & Nepal & 524 & Ukraine & 804 \\
Finland & 246 & Netherlands & 528 & United Kingdom & 826 \\
Former East Germany & 278 & New Zealand & 554 & Uruguay & 858 \\
Former West Germany & 280 & Norway & 579 & United States & 842 \\
Former USSR & 810 & Oman & 512 & Uzbekistan & 860 \\
France & 251 & Pakistan & 586 & Venezuela & 862 \\
Georgia & 268 & Paraguay & 600 & \\
\hline
\end{tabular}
\end{table}

\textsuperscript{37} Online database and digital medium.
We analyze trade performance using a breakdown by industrial sector. For this, we take the available trade data, classified under SITC Revision 3, and reorganize it by converting to the ISIC Revision 3 industrial classification. We use the official UN conversion table, with complements.  

The figures in our text use a summary classification into 36 production sectors, whose names have been shortened as shown in the table below.

<table>
<thead>
<tr>
<th>ISIC Revision 3 headings</th>
<th>Aggregated name</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 — Manufacture of food products and beverages</td>
<td>Food products</td>
</tr>
<tr>
<td>17 — Manufacture of textiles</td>
<td>Textile</td>
</tr>
<tr>
<td>18 — Manufacture of wearing apparel; dressing and dyeing of fur</td>
<td>Clothing</td>
</tr>
<tr>
<td>19 — Tanning and dressing of leather; manufacture of luggage, handbags, saddlery, harness and footwear</td>
<td>Leather</td>
</tr>
<tr>
<td>20+21 — Manufacture of wood products, paper and paper products</td>
<td>Wood Paper</td>
</tr>
<tr>
<td>22 — Publishing, printing and reproduction of recorded media</td>
<td>Printing</td>
</tr>
<tr>
<td>241 — Manufacture of basic chemicals</td>
<td>Basic chemicals</td>
</tr>
<tr>
<td>2421 — Manufacture of pesticides and other agrochemical products</td>
<td>Agrochemicals</td>
</tr>
<tr>
<td>2423 — Manufacture of pharmaceuticals, medicinal chemicals and botanical products</td>
<td>Pharmaceuticals</td>
</tr>
<tr>
<td>2424 — Manufacture of soap and detergents, cleaning and polishing preparations, perfumes and toilet preparations</td>
<td>Detergents and perfumes</td>
</tr>
<tr>
<td>243 — Manufacture of man-made fibres</td>
<td>Fibres</td>
</tr>
<tr>
<td>25 — Manufacture of rubber and plastics products</td>
<td>Plastic</td>
</tr>
<tr>
<td>26 — Manufacture of other non-metallic mineral products</td>
<td>Mineral products</td>
</tr>
<tr>
<td>27 — Manufacture of basic metals</td>
<td>Basic metal</td>
</tr>
<tr>
<td>28 — Manufacture of fabricated metal products, except machinery and equipment</td>
<td>Metal products</td>
</tr>
<tr>
<td>291+292 — Manufacture of machines</td>
<td>Machines</td>
</tr>
<tr>
<td>293 — Manufacture of domestic appliances n.e.c.</td>
<td>Domestic app.</td>
</tr>
<tr>
<td>300 — Manufacture of office, accounting and computing machinery</td>
<td>Computers</td>
</tr>
<tr>
<td>31 — Manufacture of electrical machinery and apparatus n.e.c.</td>
<td>Electrical app.</td>
</tr>
<tr>
<td>320 — Manufacture of radio, TV and communication components</td>
<td>RTC components</td>
</tr>
<tr>
<td>321 — Manufacture of electronic valves and tubes and other electronic components</td>
<td>Electronic comp.</td>
</tr>
<tr>
<td>322 — Manufacture of television and radio transmitters and apparatus for line telephony and line telegraphy</td>
<td>RTC transmitters</td>
</tr>
<tr>
<td>323 — Manufacture of television and radio receivers, sound or video recording or reproducing apparatus, and associated goods</td>
<td>RTC receivers</td>
</tr>
<tr>
<td>33 — Manufacture of medical, precision and optical instruments, watches and clocks</td>
<td>Instruments</td>
</tr>
<tr>
<td>341 — Manufacture of motor vehicles</td>
<td>Automobile</td>
</tr>
<tr>
<td>342 — Manufacture of bodies (coachwork) for motor vehicles; manufacture of trailers and semi-trailers</td>
<td>Vehicles bodies</td>
</tr>
<tr>
<td>343 — Manufacture of parts and accessories for motor vehicles and their engines</td>
<td>Auto. Comp.</td>
</tr>
<tr>
<td>351+352+359 — Other transport</td>
<td>Other transport</td>
</tr>
<tr>
<td>353 — Manufacture of aircraft and spacecraft</td>
<td>Aircraft</td>
</tr>
<tr>
<td>361 — Manufacture of furniture</td>
<td>Furniture</td>
</tr>
<tr>
<td>3693 — Manufacture of sports goods</td>
<td>Sport</td>
</tr>
<tr>
<td>3694 — Manufacture of games and toys</td>
<td>Toys</td>
</tr>
</tbody>
</table>

n.e.c.: not elsewhere classified.

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38 The number of countries in our sample varies according to political definitions, but the number of economic spaces is constant.
39 The UN equivalence system does not classify 53 codes in the SITC Revision 3, representing about 1% of world trade.
Appendix 2. Impact of sectoral distribution on export performance

The growth gap between a country’s exports and the world market can be decomposed according to two types of determinants: an industry-structure effect and a set of other determinants (geographic structure, price competitiveness, and non-price competitiveness).

The growth rate of country \( j \)'s exports can be written:

\[
X^j_t = \sum_{i=1}^{n} s^j_i X^i_t
\]

where \( s^j_i \) is industry \( i \)'s weight in country \( j \)'s total exports.

Similarly, the growth rate of world exports can be written:

\[
X^w_t = \sum_{i=1}^{n} s^w_i X^i_t
\]

With the two equations, we can compute the potential growth of economy \( j \)'s exports as the sum of the growth rates of world exports by industry weighted by their share for country \( j \):

\[
X^{jp}_t = \sum_{i=1}^{n} s^j_i X^{w}_t
\]

The growth gap between country \( j \)'s exports and world exports is therefore determined by two effects:

\[
X^j_t - X^w_t = (X^j_t - X^{jp}_t) + (X^{jp}_t - X^w_t)
\]

where \( X^j_t - X^w_t \) is the growth gap between country \( j \)'s exports and world exports; \( (X^{jp}_t - X^w_t) \) the industry-structure effect, and \( (X^j_t - X^{jp}_t) \) the growth gap due to the other determinants.

We have performed the calculations using 139 industries under the ISIC Revision 3 classification of activities (which consolidate more than 3,000 products listed in the UN’s ISTC Revision 3 classification of products).
Figure A2.1. Relative growth of exports compared with world growth:
industry-structure effect, 1992-2000
(average annual growth)

Source: SYSPROD-IFRI base.

Figure A2.2. Relative growth of exports compared with world growth:
industry-structure effect, 2000-2004
(average annual growth)

Source: SYSPROD-IFRI base.