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Chapter III
EXPORT DYNAMISM AND INDUSTRIALIZATION IN DEVELOPING COUNTRIES

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Chapter III

EXPORT DYNAMISM AND INDUSTRIALIZATION IN DEVELOPING COUNTRIES

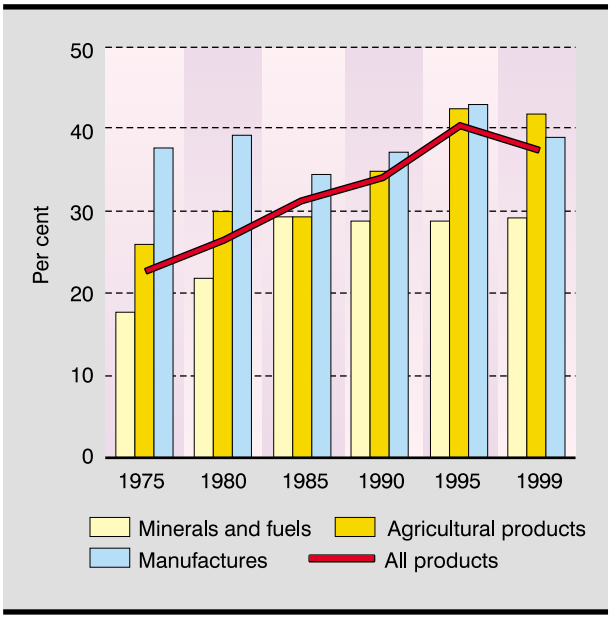
A. Introduction

An important feature of world trade over the past three decades has been the growing participation of developing countries. Between 1970 and 1999 their merchandise exports grew at an average annual rate of 12 per cent, compared to 10 per cent for the world as a whole, resulting in their share in world merchandise trade increasing from less than one fourth to almost one third. During this period, developing countries also became important markets for each other's products: the share of trade among them reached 40 per cent of their total exports at the end of the last decade (chart 3.1). More importantly, these trends have been accompanied by a rapid transformation in the composition of their exports from primary commodities to manufactures, particularly since the early 1980s (chart 3.2). Manufactures accounted for 70 per cent of developing country exports at the end of the 1990s, after hovering at around 20 per cent during much of the 1970s and early 1980s, while the share of agricultural commodities fell from about 20 per cent to 10 per cent during the same period. Earnings from mineral and oil exports fluctuated considerably due to sharp changes in prices, but their overall trend was in a downward direction.

The belief that closer integration into the world trading system would create more favourable conditions for growth in developing countries and allow them to close the income gap with industrial countries has dominated commercial policy in most developing countries in recent years. Rapid liberalization of trade and foreign direct investment (FDI) has been the chosen policy approach, and in many cases this has indeed been accompanied by increased participation of developing countries in world trade, including a rapid expansion of their exports. However, as discussed in some detail in *TDR 1999*, for almost all developing countries imports expanded faster than exports, resulting in a deterioration of their trade balance. More importantly, their trade expansion has not necessarily been accompanied by faster growth in their gross domestic product (GDP) and by greater income convergence with industrial countries. The share of developed countries in world income (in current dollars) increased from less than 73 per cent in 1980 to 77 per cent in 1999, while that of developing countries stagnated at around 20 per cent. And although the share of developed countries in world manufactured exports fell from more than 80 per cent to about 70 per

Chart 3.1

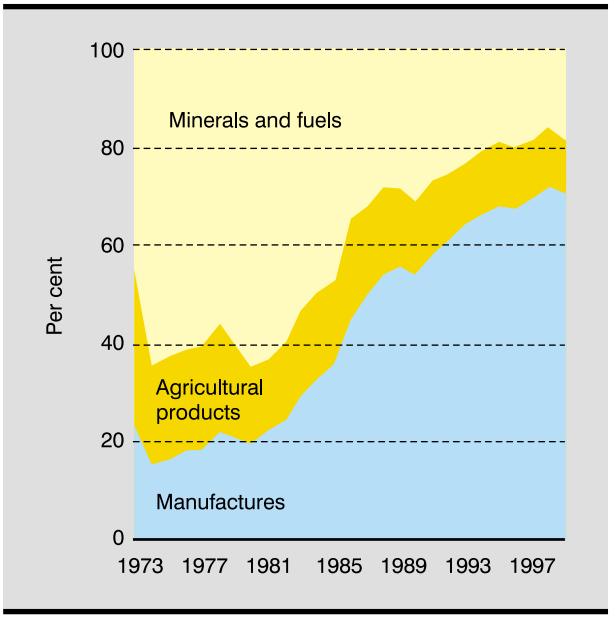
SHARE OF TRADE AMONG DEVELOPING COUNTRIES IN THEIR TOTAL EXPORTS, BY MAJOR PRODUCT GROUP, 1975–1999



Source: *United Nations Monthly Bulletin of Statistics* database.

Chart 3.2

COMPOSITION OF MERCHANDISE EXPORTS FROM DEVELOPING COUNTRIES, BY MAJOR PRODUCT GROUP, 1973–1999



Source: See chart 3.1.

cent during this period, their share in world manufacturing income (value added) rose. Among the developing countries, it was mainly the East Asian economies that improved their share in world manufacturing income. Their success in combining expansion of trade with growth in income enabled them to continue to close the gap with richer industrial countries. Elsewhere, rapid liberalization has failed to increase exports of manufactures; or where growth in such exports has occurred, it has not been accompanied by concomitant increases in domestic manufacturing value added, but, rather, by rapid expansion in manufacturing imports. The gap between growth in manufacturing exports and income is also visible in most East Asian economies, except the major ones in the first-tier newly industrializing economies (NIEs).

These varying experiences suggest a complex relation between commercial policies and trade performance, and, more generally, between trade and growth, and they rule out an unequivocal causal link from the former to the latter.[1] Indeed, the relationship between trade, industrialization and growth depends, *inter alia*, on the pattern of integration and the location of countries in the international division of labour. Success in entering lines of production with significant potential for global demand expansion, high value added and rapid productivity growth widens the scope for the exploitation of increasing returns from larger markets, and enhances the role of trade in economic growth. By contrast, concentrating on the export of goods with sluggish global demand and/or persistent excess supply endangers the growth process by leading to terms-of-trade losses and draining investible resources. Similarly, focusing on activities with limited potential for productivity growth can constrain growth once underutilized labour and natural resources are exhausted; productivity growth then becomes the single most important source of increase in per capita income. Thus, to the extent that it is feasible for a developing country to concentrate its production and exports on what can be called "dynamic" products with respect to their global demand potential (market-dynamic products) and productivity potential (supply-dynamic products), the country will be able to reduce the risk of its export markets becoming rapidly saturated as a result of more and more countries concentrating

their export drives on the same sectors; it will also be able to exploit the potential for long-term productivity growth in the context of export expansion.

This chapter examines the evolution of world trade over the past two decades by focusing on various categories of products and the pattern of participation of developing countries in their production. In particular, it analyses the extent to which these countries have been successful in increasing their exports in market-dynamic, high value-added or supply-dynamic products. It is shown that while world trade has, on average, expanded faster than world income, due to the increased integration of markets, there are considerable differences in the rates of expansion of trade in different products. Generally, trade in skill- and technology-intensive manufactures has been increasing much faster than that in labour-intensive and resource-based manufactures and primary commodities, although certain products in the latter categories have also shown considerable dynamism. These differences cannot be explained in terms of differences in income elasticities or shifts in comparative advantage alone. Policies governing market access also appear to have played a major role, favouring skill- and technology-intensive sectors in which industrial countries have a competitive edge over agricultural commodities and middle-range manufactures, which are more important for less advanced countries. Another factor in the varying rates of expansion of trade in different products is the increased mobility of capital. This, together with continued restrictions on labour mobility, has extended the reach of international production networks in a number of products in which the production process can be partitioned into different segments that can be located in different countries according to their factor endowments and costs. Such arrangements have rapidly expanded trade in a number of products such as computers and office equipment; telecommunications, video and audio equipment and semiconductors; as well as clothing. They have also led to a greater involvement of developing countries in world trade in manufactured products. Policies in both developing and industrial countries have contributed to this process. Developing countries facilitated the operation of transnational corporations (TNCs) in their territories, while industrial countries facilitated market access for imports of goods containing inputs that originated in their own economies and were produced either in the foreign assembly plants of these TNCs or under contractual or outsourcing arrangements.

The evidence on the modalities of participation of developing countries demonstrates that with the exception of the first-tier NIEs – which had already become closely integrated with the global trading system and established a significant industrial base – the exports of developing countries are still concentrated on the exploitation of natural resources or unskilled labour; these products generally lack dynamism in world markets. Statistics showing a considerable expansion of technology- and skill-intensive exports from developing countries are misleading. Much of the skills in these exports are embodied in components produced in the technologically more advanced countries, while developing countries are engaged mainly in the low-skill, low-value-added assembly stages of global production chains generally organized by TNCs. Thus expansion of such exports has not been accompanied by concomitant increases in value added and income earned in developing countries. Much of the value added contained in these products still accrues to foreign owners of capital, know-how and management. While involvement in these activities may yield considerable benefits for countries at earlier stages of industrialization by allowing fuller utilization of their surplus labour, it may lead to problems relating to fallacy of composition when too many countries simultaneously attempt to enter these markets, a topic taken up in the next chapter. For the more advanced developing countries, where further progress in industrialization and development depends on rapid technological upgrading and productivity and wage

Developing country exports still rely mainly on natural resources or unskilled labour. Most countries will need to rapidly upgrade to more dynamic products, and larger economies may need to develop their domestic markets.

growth, participation in the low-wage, labour-intensive segments of international production networks may not be an effective way to achieve their objectives.

Since markets do not automatically generate the incentives needed to alter the pace and pattern of integration into the global economy or overcome the impediments to a more dynamic interaction between trade and growth, there is a considerable role for policy. The evidence and the analysis presented here can thus help identify options available to policy makers in developing countries in their strategic approaches towards the integration of their economies into the international trading system, as well as the risks associated with misguided and excessive reliance on foreign markets and capital. Most developing countries will need to rapidly upgrade production to more market- and supply-dynamic products, instead of extending the existing patterns of production and trade. In most cases, upgrading of exports should involve replacing imported skill- and technology-intensive parts and components with domestically produced ones thus raising the domestic value-added content of output and exports. Larger economies, heavily dependent on exports, may also need to increase their reliance on domestic markets in order to sustain growth and accelerate job creation, rather than concentrating on labour-intensive exports in the low-value-added segments of international production networks.

B. Dynamic products in world trade

During the past two decades, the value of world merchandise exports has grown at an average rate of more than 8 per cent per annum. However, there have been considerable differences in the growth rates of trade in individual products. Among the 225 products covered by this analysis, some grew at rates twice as fast as the average growth in world trade, whereas for others export values declined in absolute terms, with declines exceeding 3 per cent per annum for some primary products (see annex 1). Mainly primary commodities, but also some manufactures (notably machinery falling in the SITC 71 and 72 product divisions) registered sluggish or negative growth rates. Varying growth rates for different products have also meant considerable changes in the composition of international trade. These changes, however, have not occurred smoothly. There has been considerable year-to-year volatility in growth rates around the trend, and sharp structural breaks in the long-term trend. Such variations have differed significantly for different products, with some showing greater stability and predictability over time than others.

Both longer-term trends and short-term variations in growth rates of exports show the combined effects of changes in prices and volumes. These are not unrelated; given the factors determining the aggregate world demand for a product, excessive supply to world markets tends to depress prices, resulting in stagnant or even declining export revenues. This phenomenon is known to be particularly important for primary commodities, since for most manufactures shortage of demand often, though not always, leads to a relatively quick adjustment in the volumes supplied rather than to a sharp drop in prices. This issue will be addressed in the next chapter in the context of fallacy of composition and terms of

Table 3.1

EXPORT VALUE GROWTH AND SHARE IN TOTAL EXPORTS[a] OF THE 20 MOST MARKET-DYNAMIC PRODUCTS, 1980–1998

(Per cent)

SITC code	Product group	Average annual export value growth 1980–1998	Share in total world exports 1980	Share in total world exports 1998	Share in total exports from developing countries 1980	Share in total exports from developing countries 1998
776	Transistors and semiconductors	16.3	1.0	4.0	1.9	7.7
752	Computers	15.0	0.9	3.4	0.2	5.0
759	Parts of computers and office machines	14.6	0.7	2.3	0.3	3.6
871	Optical instruments	14.1	0.1	0.3	0.0	0.3
553	Perfumery and cosmetics	13.3	0.2	0.5	0.1	0.2
261	Silk	13.2	0.0	0.0	0.0	0.0
846	Knitted undergarments	13.1	0.3	0.6	0.8	1.4
893	Plastic articles	13.1	0.6	1.2	0.6	1.1
771	Electric power machinery	12.9	0.3	0.6	0.2	0.8
898	Musical instruments and records	12.6	0.3	0.7	0.2	0.5
612	Leather manufactures	12.4	0.1	0.1	0.1	0.2
111	Non-alcoholic beverages	12.2	0.1	0.1	0.1	0.1
872	Medical instruments	12.1	0.2	0.4	0.1	0.2
773	Electricity distribution equipment	12.0	0.4	0.7	0.3	1.0
764	Telecommunications equipment, and parts	11.9	1.5	3.0	1.7	2.9
844	Textile undergarments	11.9	0.2	0.3	0.8	0.8
048	Cereal preparations	11.9	0.2	0.4	0.1	0.2
655	Knitted fabrics	11.7	0.2	0.3	0.1	0.6
541	Pharmaceutical products	11.6	1.1	2.0	0.4	0.6
778	Electrical machinery	11.5	1.1	1.7	0.7	1.5
	20 most dynamic products	12.9	9.5	22.6	14.1	28.7
	Memo item:					
	World exports[b]	8.4				
	Developing country exports[b]	11.3	15.4	24.3		

Source: UNCTAD secretariat calculations, based on United Nations Department of Economic and Social Affairs (UN/DESA), *Commodity Trade Statistics* database.

Note: SITC code numbers refer to *Standard International Trade Classification, Revision 2.* For export value growth rates of other product groups, see annex 1.

a Excluding fuels.

b Total of all product groups listed in annex 1.

trade. Here the analysis of market dynamism of products is concerned with export earnings rather than export volumes, since, for most products, separate volume and price data are not available. However, readily available evidence suggests that the ranking of products would remain largely unchanged if growth rates of products in world exports could be calculated on the basis of constant rather than current prices (see annex 2).

Table 3.1 shows the trend growth rates for the period 1980–1998 of the 20 most dynamic products in world trade.[2] Most of these products fall into four categories:

- electronic and electrical goods (SITC 75, 76, 77);
- textiles and labour-intensive products, particularly clothing (SITC 61, 65, 84);

- finished products from industries that require high research and development (R&D) expenditures and are characterized by high technological complexity and/or economies of scale (SITC 5, 87); and

- primary commodities including silk, non-alcoholic beverages and cereals (SITC 261, 111, 048).

The fastest growing category of products, electronic and electrical goods, also accounts for a sizeable share in world exports; in this category, the three fastest growing product groups (transistors and semiconductors; computers; and parts of computers and office machines) alone increased their share in world exports almost four times, from 2.6 per cent in 1980 to 9.7 per cent in 1998. Taken together, the share in world exports of the seven groups of electronic and electrical products included in table 3.1 almost tripled to reach about 16 per cent in 1998. By contrast, the share in world exports of dynamic primary commodities is small, which suggests that their strong growth over the past two decades has been due, at least partly, to the fact that they started from a low base.

These fastest growing products have all shown yearly variations around their trend growth rates. Such variations reflect fluctuations and shifts in the determinants of trade in different products such as growth in global income, product innovation and policies affecting market access and integration, including international production networks (discussed in the next section). In general, the most market-dynamic manufactures, with high shares in world trade, show smaller variations around their trend values than less dynamic manufactures and primary commodities. Accordingly, for such products, current export values are better predicted by their past values than they are for less dynamic products. By contrast, the vast majority of those products for which export values are least predictable on the basis of their past behaviour also ranks low in terms of market dynamism.

However, all products have occasionally shown large deviations from their trend growth rates. Certain non-fuel primary commodities experienced their fastest rates of growth in export values in 1987 and 1988, years of rapid and synchronized expansion in the major industrialized countries; yet many others registered their lowest growth rates in 1997 and 1998, during the East Asian crisis. In both instances, sharp swings in commodity prices appear to have played a key role. Most of the dynamic manufactures also experienced their fastest rates of growth during the period 1986–1988, and their slowest growth rates during the 1980–1982 recession in the major industrialized countries. There is also evidence to suggest that a structural break occurred during the period 1986–1988 in the longer-term trends of export values of both non-fuel primary commodities and manufactures, possibly reflecting the shift in some major developing countries towards export-oriented strategies as well as the growing importance of international production networks, discussed below.[3]

The increased emphasis on exports by most developing countries appears to have been associated with a significant increase in the share of dynamic products in their export earnings during the past two decades (table 3.1). However, such products continue to account for a relatively small proportion of their total merchandise exports. The combined share of the three fastest growing electronic and electrical products in developing country exports in 1998 was only about 16 per cent, despite a sevenfold increase since 1980. And the share of all electronic and electrical products in developing country exports increased fourfold, from 5.3 per cent in 1980 to 22 per cent in 1998. Most developing countries which are considered to have been marginalized in the context of world trade, continue to rely on products that are subject to high volatility in the short term and show a declining trend in world trade over the longer term.

Although developing countries as a whole appear to have become major players in markets for many dynamic products, it is only in knitted undergarments that the share of developing countries in world exports exceeds that of developed countries. Developing countries account for only 10 per cent of world exports of products which score high in R&D content, technological complexity and/or economies of scale (table 3.2). In this category, only in optical instruments do they account for about 30 per cent of world exports. The share of developing countries in the total exports of parts and components for electrical and electronic goods is about 40 per cent, while for

Table 3.2

SHARES OF MAIN EXPORTERS AND OF DEVELOPING ECONOMIES IN WORLD EXPORTS OF THE MOST MARKET-DYNAMIC PRODUCTS,[a] 1998

(Per cent)

Rank	*SITC code*	*Product group*	*Share of developing countries*	*Main exporting countries (Share)*	
1	*776*	Transistors and semiconductors	46	United States (17) Japan (15) Singapore (10)	Republic of Korea (10) Malaysia (7)
2	*752*	Computers	36	United States (13) Singapore (13)	Japan (10) Netherlands (9)
3	*759*	Parts of computers and office machines	38	United States (17) Japan (14) Singapore (9)	Taiwan Province of China (7) Malaysia (6)
4	*871*	Optical instruments	30	Japan (22) United States (17) Republic of Korea (12)	Germany (10) China (5) Hong Kong (China) (5)
5	*553*	Perfumery and cosmetics	10	France (28) United States (12)	United Kingdom (12) Germany (11)
6	*261*	Silk	87	China (70) Germany (9)	India (3)
7	*846*	Knitted undergarments	57	China (16) United States (8) Turkey (6)	Italy (6) Mexico (5)
8	*893*	Plastic articles	23	United States (14) Germany(13)	China (7) Italy (7)
9	*771*	Electric power machinery	37	United States (11) Germany (10)	China (9) Japan (9)
10	*898*	Musical instruments and records	18	United States (20) Japan (12) Ireland (12)	Germany (8) United Kingdom (7)
11	*612*	Leather manufactures	45	Italy (16) Taiwan Province of China (11) China (7)	United States (7) India (6) Republic of Korea (6)
12	*111*	Non-alcoholic beverages	22	France (19) Canada (7) United States (7)	Belgium/Luxembourg (7) China (7)
13	*872*	Medical instruments	12	United States (27) Germany (12) United Kingdom (7)	Japan (6) Ireland (6)
14	*773*	Electricity distribution equipment	34	Mexico (16) United States (14) Germany (9)	Japan (6) France (4)
15	*764*	Telecommunications equipment, and parts	24	United States (15) United Kingdom (9)	Japan (9) Sweden (7)
16	*844*	Textile undergarments	4	United States (30) United Kingdom (23) France (11)	Germany (9) Canada (5)
17	*048*	Cereal preparations	14	Italy (11) Germany (10)	France (10) United Kingdom (8)
18	*655*	Knitted fabrics	54	Taiwan Province of China (20) Republic of Korea (16) Germany (8)	Italy (8) China (8)
19	*541*	Pharmaceutical products	8	Germany (15) Switzerland (11)	United Kingdom (10) United States (10)
20	*778*	Electrical machinery	23	Japan (17) United States (13) Germany (13)	United Kingdom (7) Mexico (6)

Source: See table 3.1.

Note: See UNCTAD, *Handbook of Statistics* (table 4.4) for the main exporters of these products within the group of developing countries.

a Product groups ranked by growth in export value, 1980–1998.

telecommunications equipment and parts of electric circuit equipment it is about a quarter of the total value. It should be noted that this refers to shares in gross export values, thus involving double counting of imported parts and components. As discussed in subsequent sections, the picture is even less promising in value-added terms, particularly where developing countries are involved in low-skill, low-value-added assembly stages of global production networks, as in electronics. The evidence discussed in annex 2 suggests that the export values of the most market-dynamic products from the electronics industry have been subject to a higher degree of volatility in developing countries than in the industrialized countries. Similarly, since the mid-1990s, the prices of these products seem to have fallen more steeply in developing countries than in developed countries.

C. Factors contributing to trade expansion in different products

Expansion of world trade is closely related to growth in world output and income. However, the link is neither linear nor uniform across all products. While world trade in non-fuel products grew (in current dollars) at an average rate of more than 8 per cent per annum over the past two decades, the growth rate of global output and income (in current dollars) was below 6 per cent. Moreover, trade in many products grew much faster than global output and income; for some products at the top of the list in table 3.1 and annex 1, trend growth rates were almost three times the growth in world income and output. By contrast, growth of trade in a large number of products (71 out of the 225 products listed in annex 1), including both primary commodities and manufactures, lagged behind growth of global income; indeed, as noted above, trade in some of these products shrunk in absolute terms.

Against this background, a number of questions arise: Why has total world trade in non-fuel products been growing faster than world output and income? Why has trade in some products been growing much faster than in others, and at rates several times the trend growth of world income? What is the significance of these trends for economic growth and development?

It has long been recognized that income is one of the principal factors that determines demand, and that there are significant differences among products with respect to their income elasticity. Differences in income elasticities can be expected to play an important role in disparities in the growth rates of broad product categories in world trade. For example, the relatively low income elasticity of demand for most agricultural products seems to have played a major role in the steady decline in the share of agriculture in developing country merchandise exports (chart 3.2). However, large differences in the ranking of individual products belonging to the same broad product categories according to their dynamism in export markets during the period 1980–1998 suggest that additional factors must have exerted a major influence on their performance in world trade. Although product-specific estimates of income elasticities are not available, it is unlikely that the ranking of products according to their performance in world trade would coincide with their ranking according to income elasticities. In-

deed, policies governing market access and international production networks appear to have played a greater role in the differential growth of world trade in different products through their impact on the speed with which markets in various products are globally integrated.

1. Income growth and demand

The observation that growth of world trade in manufactures is faster than trade in primary products is not new. As incomes rise, a smaller share of household budgets tends to be spent on food, which implies that the share of food in world consumption and trade will tend to decline, unless relative production costs rise. For agricultural and industrial raw materials, demand grows less rapidly than income for several reasons: the shift in main consuming countries towards an economic structure based on products and services that require less raw material input, the development of synthetic substitutes (in particular for cotton, rubber and wool), and the general decline in the intensity of use of such raw materials in industrial production are some of the main reasons.

There are significant differences with respect to the income elasticities of demand for different products, which can lead to disparities in their growth rates in world trade ...

Income elasticity of demand also reflects the impact of product innovation on spending patterns. Such innovations can result in sharp increases in spending on certain product categories, once new products become accessible for mass consumers in the household sector and business. In this sense, the more innovative among manufacturers, often (though not always) enjoy more rapidly expanding markets for their products, thereby attaining faster growth. Over the past few years, economic growth in major developed countries, in particular the United States, has been closely linked to the increasing use of information technology products (including computer hardware and software, and telecommunications equipment) combined with rapidly improving technology for producing computers. Indeed, in the United States, the demand for information technology products, particularly new ones such as mobile telephones and personal computers, exceeded the pace of income growth by a considerable margin, resulting in an increase in the share of these products in income, from an average of 3.3 per cent during the period 1974–1990 to 6.3 per cent during the period 1996–1999 (Oliner and Sichel, 2000). This, together with the rapid development of sourcing from overseas sites (see below), appears to have played an important role in the rapid growth of world trade in such products.

Not only manufactures, but also primary products, differ in their market potential and contribution to export earnings. For example, there are several categories of unprocessed and processed foods that can be identified as high-value products and/or have income elasticities not only much higher than traditional agricultural products, but also in excess of unity.[4] The standards of quality, safety, packaging and delivery of such products are, in many respects, more typical of modern manufacturing than traditional agricultural products, including basic food commodities. In terms of market dynamism, this set of products has performed well compared to other agricultural primary commodities: export earnings of developing countries in several of these product categories now exceed their earnings from traditional primary commodities such as cereals, cocoa, tea or natural rubber. Moreover, the rapid expansion of such exports has contributed to growth in agricultural output and total food production in a number of developing countries, such as Brazil, China and Thailand, as well as to rapid GDP growth, for example, in Chile and Israel.

Seven of these food categories have been among the most market-dynamic agricultural products over the past two decades (table 3.3) with their world exports expanding even faster than those of a number of manufactures (annex 1). Table 3.3 also shows that the share of developing countries in world exports is much higher for most of these products than for other market-dynamic agricultural products.

2. Market access

Differences in the speed of liberalization of markets can have a significant impact on the expansion of world trade in different products. When tariffs are the main forms of barriers to entry, across-the-board liberalization in the form of uniform tariff reductions is unlikely to result in significant differences in relative market access conditions and, hence, in the rates of expansion of trade in different products. By contrast, such differences can occur when: (i) trade liberalization involves non-tariff measures (NTMs) applied selectively to different products and/or suppliers; (ii) market access is liberalized in different degrees and speeds for different products; or (iii) selective and targeted contingent measures such as tariff-rate quotas or anti-dumping actions gain importance in commercial policy. All these features were prominent in the evolution of the world trading system during the period 1980–1998, and hence go a long way in explaining why world trade in different products has expanded at significantly different rates.

... So far, however, policies governing market access and international production networks appear to have played a greater role.

As discussed in *TDR 1993 (*Part One, chap. II, sect. D), an important feature in the evolution of market access conditions was the persistent and, in some instances, growing resort to NTMs by industrialized countries during the period between the completion of the Tokyo Round (1979) and the Uruguay Round negotiations (1994). Voluntary export restraints (VERs), in particular, were increasingly applied to trade in steel, automobiles and consumer electronics. The growing number of NTMs, especially against unsophisticated manufactures, reinforced the prevailing patterns of market access which favoured primary commodities and high-tech products over middle-ground products that tend to gain importance in the early stages of industrialization. This pattern of trade controls remained largely unchanged throughout the 1980s; the little change that did occur only served to reinforce – rather than weaken – the bias against middle-ground products.[5]

There were two types of response by developing countries. Some of them shifted their manufacturing to products that enjoyed better market access. For example, the more advanced NIEs began focusing more on machinery and transport equipment for export (i.e. products that faced lower tariff and non-tariff barriers). Others changed to production and exports of goods for which they faced fewer market access barriers than other countries, rather than shifting to products that enjoyed better overall market access. For example, some countries with unfilled quotas under the Multi-Fibre Arrangement (MFA) increased their exports of clothing (Page, 1994).

As a result of the Uruguay Round agreements, changes in the conditions of market access have varied for different products as well as for different importing countries (WTO, 2001d). In general, barriers to trade and industrial products have been lowered more than those to trade in agricultural products, and little has been achieved in terms of reducing trade-affecting subsidies in agriculture, particularly in the European Union (EU).

The major objective of the Uruguay Round Agreement on Agriculture was to establish a tariffs-only regime, so as to move away from a regime characterized by a large number of NTMs that were non-transparent in both their application and effects. Tariff rate quotas (TRQs) have been introduced to allow minimum access where there were no significant imports before the tariffication process, or to maintain current access levels where the tariffication would otherwise have reduced access.[6] They allow a certain quantity of imports to enter a market under a specific ("in-quota") tariff and then apply a higher ("out-of-quota") tariff to imports above the quota. The difference between the two tariff rates is frequently large: in those countries of the Organisation for Economic Co-operation and Development (OECD) that apply TRQs, they average 36 per cent and 120 per cent respectively. Most TRQs are concentrated in a few products, mainly fruits and vegetables, followed in importance by meat, cereals, dairy products and oilseeds.

Table 3.3

SHARES OF MAIN EXPORTERS AND OF DEVELOPING ECONOMIES IN WORLD EXPORTS OF THE MOST MARKET-DYNAMIC AGRICULTURAL COMMODITIES,[a] 1998

(Per cent)

Rank	*Rank among all products*	*SITC code*	*Product group*[b]	*Share of developing countries*	*Main exporting countries (Share)*	
1	6	*261*	Silk	87	China (70) Germany (9)	India (3)
2	12	*111*	Non-alcoholic beverages	22	France (19) Canada (7) United States (7)	Belgium/Luxembourg (7) China (7)
3	17	*048*	Cereal preparations	14	Italy (11) Germany (10)	France (10) United Kingdom (8)
4	23	*098*	Preserved food	17	United States (16) France (12) Germany (8)	China (5) Netherlands (6)
5	27	*062*	Sugar preparations	25	United Kingdom (10) Germany (9) Spain (9)	United States (7) Belgium/Luxembourg (6)
6	31	*122*	Manufactured tobacco	24	United States (29) Netherlands (16)	United Kingdom (10)
7	33	*073*	Chocolate	7	Germany (16) Belgium/Luxembourg (13) France (11)	United Kingdom (8) Netherlands (7)
8	67	*036*	**Fresh crustaceans**	70	Thailand (12) Indonesia (7) Canada (6)	India (6) Ecuador (6)
9	71	*245*	Fuel wood and charcoal	41	Latvia (15) Indonesia (10) China (10)	France (6) Poland (5)
10	72	*034*	**Fresh fish**	37	Norway (13) United States (7) Denmark (5)	China (5) Taiwan Prov. of China (5) Chile (5)
11	81	*269*	Waste of textile fabrics	16	United States (22) Germany (15)	United Kingdom (8) Netherlands (8)
12	84	*037*	**Fish preparations**	58	Thailand (20) China (10) Denmark (5)	Spain (4) Germany (4)
13	97	*112*	Alcoholic beverages	10	France (28) United Kingdom (16)	Italy (10) Spain (6)
14	101	*054*	**Fresh vegetables**	31	Netherlands (15) Spain (12) United States (9)	Mexico (9) Italy (7)
15	102	*091*	Margarine and shortening	25	Germany (16) Netherlands (11)	Belgium/Luxembourg (11) United States (7)
16	106	*292*	Crude vegetable materials	25	Netherlands (31) United States (7) Germany (5)	Italy (5) Denmark (5)
17	109	*431*	Processed animal and vegetable fats	48	Malaysia (25) Netherlands (12) Germany (10)	Indonesia (10) United States (6)
18	110	*058*	**Fruit preparations**	37	Brazil (11) United States (9) Germany (7)	Belgium/Luxembourg (6) Italy (6)
19	122	*014*	**Meat preparations**	23	Denmark (10) Belgium/Luxembourg (10)	United States (9) France (9)
20	123	*024*	**Cheese and curd**	2	France (19) Netherlands (18)	Germany (15) Denmark (9)

Source: See table 3.1.

Note: See UNCTAD, *Handbook of Statistics* (table 4.4) for the main exporters of these products within the group of developing countries.

a Product groups ranked by growth in export value, 1980–1998.

b Bold characters indicate high-value products and/or items with an income elasticity of demand greater than one.

While the Uruguay Round agreements achieved sizeable reductions in the use of NTMs, the phasing out period for existing NTMs differed significantly for different products: NTMs in agriculture, affecting mostly temperate zone food products (particularly grains and dairy products) exported mainly by developed countries, were to be phased out almost immediately, but those on textiles and clothing were given a transition period of 10 years, and VERs four years (Low and Yeats, 1995). These imbalances have been reinforced by the unequal incidence of VERs both across exporting countries and products. For example, as of 1992, of the 79 VERs outside agriculture and textiles and clothing, 69 involved Japan and the Republic of Korea as exporters, and they applied mainly to motor vehicles and consumer electronics (Finger and Schuknecht, 1999).

The failure of the Uruguay Round to impose a strong discipline over the use of anti-dumping practices may be one reason why they have become the most popular contingency protection actions employed by both developed and developing countries over the past few years. During the period 1995–1999, anti-dumping investigations increased rapidly, exceeding 1,200 cases, and most of the investigations were initiated against developing countries (WTO, 2001d). Producers of base metals (principally steel), chemicals, machinery and electrical equipment, and plastics have frequently resorted to the use of anti-dumping actions (Miranda, Torres and Ruiz, 1998).

It is difficult to make a precise assessment of the impact of changes in market access conditions on the expansion of trade in different products. While most measures are the outcome of multilateral trade negotiations and are, hence, applied globally, some of the most restrictive practices, such as VERs and anti-dumping, are applied on a bilateral basis, sometimes with effects that work in opposite directions. Indeed the prohibition of VERs in the electronics sector has coincided with increased resort to anti-dumping. In some cases, increased resort to restrictions was a response to rapidly expanding market penetration of imports, while in others liberalization provided the impetus for such expansion.

Nevertheless, regarding broad product categories, available evidence suggests that trade liberalization has been limited and slow in agriculture, textiles and clothing; compared to other sectors, access to markets for these products continues to be much more restricted. Agricultural subsidies, particularly in the EU, have been largely responsible for restricting growth of exports of a number of agricultural commodities from developing countries. Moreover, the structure of TRQs has made market access particularly restrictive for agricultural products that have comparatively high income elasticities. These factors have certainly inhibited the expansion of world trade in agricultural products compared to manufactures. They also go a long way in explaining why, within the group of agricultural products, those with comparatively high income elasticities have not been able to outperform the others. In manufacturing, except in textiles and clothing, differences in the evolution of market access conditions are not large enough to explain the differences in the pace of expansion of trade in these products. Other factors affecting integration of markets, notably the growing importance of international production networks, appear to have played a greater role.

3. International production networks

(a) The development of international production networks

The three product groups with the fastest and most stable growth rates over the past two decades (namely, parts and components for electrical and electronic goods, labour-intensive products, such as clothing, and finished goods with high R&D content) are also the ones most affected by the globalization of production processes through international production sharing.[7] Lower transport and communication costs and reduced trade and regulatory barriers have facilitated production sharing, which is generally concentrated in labour-intensive activities. These activities tend to involve technically unsophisticated production such as clothing or footwear industries; but they can also involve separation and location in different sites of labour-intensive segments of otherwise technologically complex production processes, such as those in the electronics or the automotive industry (Hummels, Rapoport and Yi, 1998). In

such sectors, production sharing allows firms to exploit the comparative advantages specific to the production of particular components, including scale economies, and differences in labour costs across countries. In the electronics industry, components such as semiconductors are marketable commodities themselves, and can be used in a variety of end-products, such as computers, automobiles and household appliances. This allows firms to determine the location of the production of such components according to their own factor intensity and costs rather than the average factor intensity and cost of the end product.

International production networks involve large TNCs which produce a standardized set of goods in several locations, or groups of small and medium-sized enterprises located in different countries and linked through international subcontracting; some of the more important areas of international production sharing organized along these lines are discussed in annex 3. In the production of standardized goods, scale economies play a key role, and TNCs seek to increase profits by choosing locations with appropriate combinations of high labour productivity and low wage and infrastructure costs. This type of investment is highly mobile, as cost advantages can be easily lost due to wage increases or the emergence of more attractive new locations. Another characteristic of this type of international production network is that know-how and technology are usually kept within the TNCs themselves; they often enjoy monopolistic positions, as high costs of managing and coordinating such complex units constitute important barriers to entry into such sectors. Where international production networks are organized on the basis of subcontracting, the lead firm usually concentrates on R&D, design, finance, logistics and marketing, but it is not always involved in production activities. Such networks are typical of activities where labour-intensive segments of the production process can be separated from capital-and skill-/technology-intensive segments and located in low-wage areas.

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It has been estimated, on the basis of input-output tables from a number of OECD and emerging-market countries, that trade based on specialization within vertical production networks accounts for up to 30 per cent of world exports, and that it has grown by as much as 40 per cent in the last 25 years (Hummels, Ishii and Yi, 2001). However, the size of international production sharing at the global level is difficult to trace over time, because international trade classifications prior to the second revision of SITC did not allow a distinction to be made between trade in final goods and trade in parts and components (Yeats, 2001). While this distinction is still not possible for most categories of products, it can be made for machinery and transport equipment, which accounts for about half of world trade in manufactures. Trade in parts and components is particularly important in the motor vehicle industry, computers and office machines, telecommunications equipment and electrical circuit equipment.[8] Moreover, trade in transistors and semiconductors[9] plays an important role in production sharing in East Asia (Ng and Yeats, 1999). The fact that trade in parts and components has grown strongly over the past few years, especially in the electronics industry, suggests that the rapid development of global production sharing has been a crucial factor in the rapid expansion of trade in these products as well as in the rising share of developing countries in these markets.

The dependence of manufacturing production and exports in developing countries on imported inputs such as capital and intermediate goods is not a new phenomenon. International production sharing constitutes a particular form of input-output relations between imports and exports that

tends to raise the direct import content of exports relative to value added. In a sense, it has the same effect as trade liberalization, which often raises the direct as well as indirect import contents of exports by allowing easier access of foreign suppliers of capital and intermediate goods to domestic markets. However, international production networks promote a new pattern of trade, in that goods travel across several locations before reaching final consumers, and the total value of trade recorded in such products exceeds their value added by a considerable margin. Consequently, trade in such products can grow without a commensurate increase in their final consumption as production networks are extended across space.

The increased import content of exports has heightened the importance of the rules applied to determine the origin of traded goods, both as an instrument of commercial policy (regarding, for example, duty drawbacks and quantitative restrictions) and for recording trade flows on a product basis. Rules of origin follow the general concept that a product has its origin where the last "substantial transformation" took place. In practice, three main methods are used to determine whether substantial transformation has occurred. The first is the value-added measure, which refers to the percentage of value added created at the last stage of the production process. The second is the tariff heading criterion, whereby origin is conferred if the activity in the exporting country results in a product classified under a different heading of the customs tariff classification than its intermediate inputs. This criterion is comparatively simple and predictable, but trade classification systems have not been designed with the objective of distinguishing substantial transformation. The third is the technical test, which determines, on a case-by-case basis, specific production activities that may confer originating status. Given that there are no internationally agreed standards, there is considerable room for interpretation and discretion by customs authorities in setting rules of origin. As a result, an importing country can vary rules of origin according to its trading partners and products.

International production sharing constitutes a particular form of input-output relations between imports and exports that tends to raise the direct import content of exports relative to value added.

(b) Production sharing and preferential market access

The development of international production sharing has often been associated with the provision of preferential market access. While such a provision usually results in trade diversion, it tends to create trade when it is granted in the context of international production sharing. For instance, the MFA quota restrictions have had a crucial impact on production location and expansion of trade in textiles and clothing, particularly in Asia, where countries that had exhausted their quotas in industrial markets shifted production to new locations, using them as bases for exports (see annex 3).

Other more specific arrangements affecting the volume of trade have involved mainly the United States and the EU. The United States implemented special tariff provisions as early as 1964 to encourage the use of its products in foreign assembly operations. These provisions have been continued, with some modification after 1988, under the production-sharing provisions of Chapter 98 of the Harmonized Tariff Schedule of the United States. They exempt from duty the value of components made in the United States that are returned to that country as parts of products assembled abroad. An additional provision was introduced in the context of North American Free Trade Agreement (NAFTA) to allow duty-free treatment of Mexican value added in textile and apparel products assembled from fabric formed or cut in the United States (USITC, 1999a).

Outward processing trade (OPT) between the EU and its trading partners has been concentrated in labour-intensive sectors, particularly textiles and clothing.[10] The legislation on OPT goes back to the second extension of the MFA in 1982, when quotas for OPT were included for the first time in MFA III. The special treatment of textiles and clothing imports into the EU generally involves application of customs relief within certain import limits, or under surveillance arrangements

provided for in the bilateral textile agreements concluded by the EU with a number of suppliers under the MFA. In practice, this usually means a combination of VERs and tariff suspension. It provides a preferential tariff quota on OPT re-imports, applied on a selective basis. The main beneficiaries of this scheme are some Mediterranean countries (Morocco, Tunisia and Turkey) and countries in Eastern Europe, especially the Baltic States. The scheme has been widely used: in Germany more than two thirds of the total trade in textiles and clothing with Central and Eastern European countries involves outward-processing operations.[11]

Preferential tariffs provided under regional trade agreements among developing countries, such as the Southern Common Market (MERCOSUR)[12] in Latin America and the ASEAN Free Trade Agreement (AFTA) in Asia, have also had a substantial impact on the expansion of trade in specific products among the countries involved. For example, the creation or consolidation of regional automobile industries in Latin America and in the Association of South-East Asian Nations (ASEAN), respectively, has given rise to substantial increases in FDI and intra-industry trade in these regions. In MERCOSUR, reciprocal preferential market access among member countries is aimed at developing an integrated regional industry and markets for automobiles; temporary protection is provided against non-members, until the industry can be substantially restructured with the help of FDI and integrated into the world market (annex 3).

D. Export dynamism and the potential for productivity growth

As noted above, the developmental effects of production and export of products differ according to their potential for demand and productivity growth. It is generally agreed that this potential is limited for primary commodities. However, there are also considerable differences among manufactures in terms of their skill and technology intensity and productivity potentials.

A classification of products according to the mix of different skill, technology and capital intensity as well as scale characteristics results in five categories: primary commodities, labour- and resource-intensive manufactures, manufactures with low skill and technology intensity, manufactures with medium skill and technology intensity, and manufactures with high skill and technology intensity (*TDR 1996*: 116). Although the skill and technology intensity of a product does not necessarily indicate the productivity growth potential of the sector producing it, the relationship is close enough to focus the analysis on product categories based on their skill and technology intensity (box 3.1).

Trade in all the five product categories listed above has expanded considerably since the mid-1980s. The expansion was particularly rapid for manufactures with high skill and technology intensity since 1993; trade in such products increased about fivefold between 1980 and 1998 (chart 3.3). Trade in labour- and resource-intensive products, as well as medium skill- and technology-intensive manufactures, has also grown faster than total non-fuel trade, but the difference has been fairly small. By contrast, trade in manufac-

Box 3.1

SKILL AND TECHNOLOGY INTENSITY OF PRODUCTS AND THEIR POTENTIAL FOR PRODUCTIVITY GROWTH

The product grouping used above reflects common perceptions regarding skill and technology intensities of their production processes. Since increased application of human capital and technology tends to raise labour productivity, such a classification can be expected to provide a reasonably good guide to sectoral differences in the potential for productivity growth. However, it should also be kept in mind that: (i) high productivity is not synonymous with high skill and technological intensity of production; and that (ii) productivity is influenced by a number of factors in addition to the mix of inputs and technology.

High value added per worker usually occurs in highly capital-intensive sectors or in traditional heavy manufacturing, while value added per worker can be lower in sectors that are highly technology-intensive. For example, in 1999 value added per worker in the United States was substantially higher in cigarette manufacturing, petroleum refining and automobile manufacturing ($1,944, $551 and $308 thousand respectively) than in aircraft manufacturing and computer and electronics (both around $170 thousand) (United States Census Bureau, 2001).

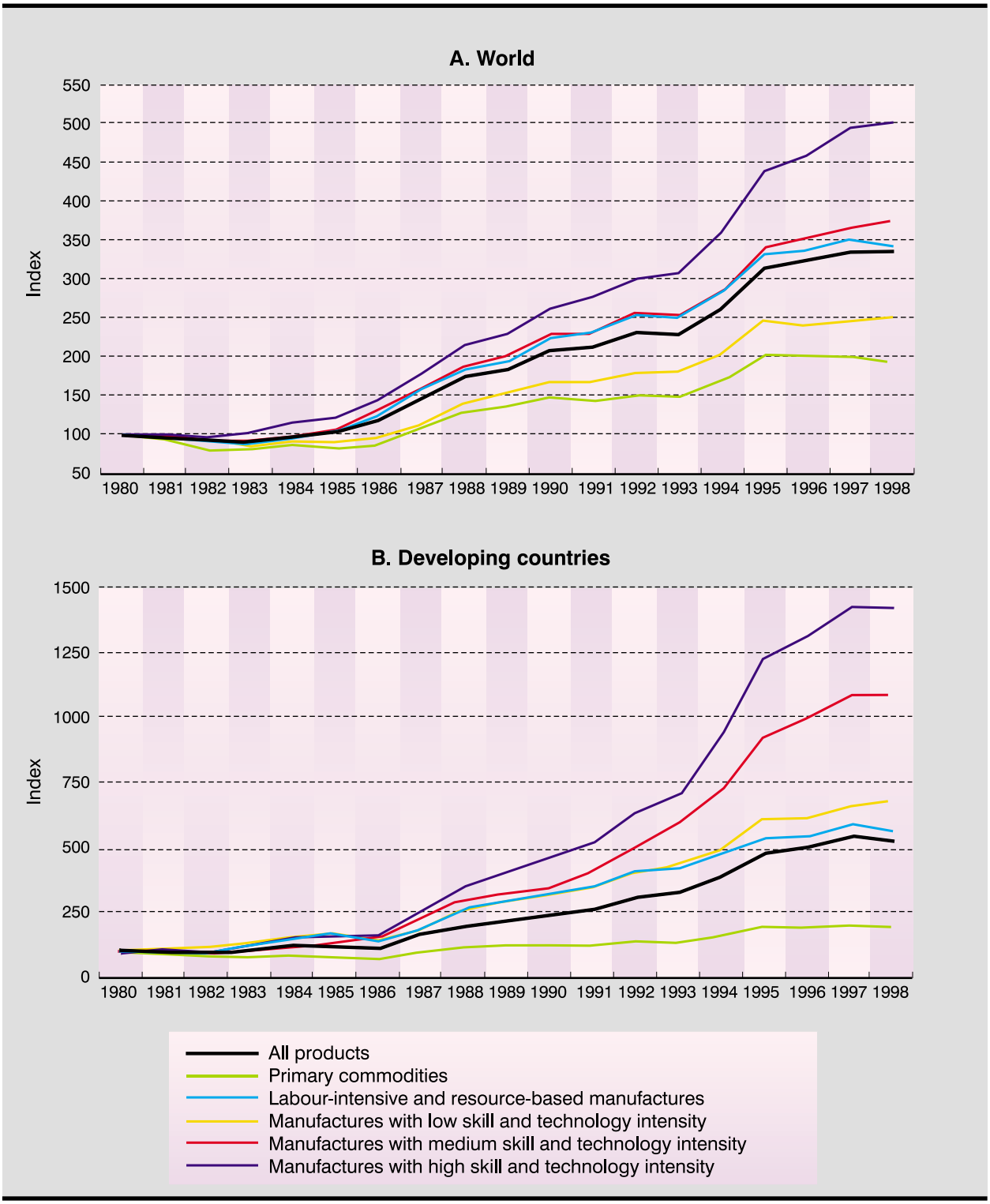
Since labour productivity is determined by a complex array of factors, high value added per worker does not always correspond to high technology intensity of production. Introduction of new management and organizational techniques, for example, can lead to substantial productivity increases in specific industries, as in the case of the lean production system introduced by Japanese automobile manufacturers. This gave them a substantial advantage over their competitors who continued to rely on the Fordist system of production. The ongoing debate on the sources of the growth of labour productivity in the United States during the second half of the 1990s also testifies to the complexity of this issue. While some stress the contribution to overall productivity growth resulting from the production of computers and semiconductors, others emphasize the large productivity gains that accrue from the use of information technology (see, for example, Oliner and Sichel, 2000; Gordon, 2000).

Total factor productivity (TFP) is an alternative measure to assess productivity and the link between technology intensity and economic performance. On the basis of this measure, sectors can be classified according to estimates of long-term rates of growth in TFP in large developed countries that are likely to be technological leaders (Choudhri and Hakura, 2000). However, this measure cannot be fully applied in the present context because it is based on the International Standard Industrial Classification (ISIC), while the SITC is usually applied in trade analyses. Nonetheless, allocating the products identified above as market-dynamic in world exports shows that almost all of them are in the group of high TFP-growth manufacturing sectors (textiles, wearing apparel and leather; chemicals and chemical products; and fabricated metal products, machinery and equipment), except for three primary commodities (silk, non-alcoholic beverages and cereals) and the group covering musical instruments, records and tapes.

Chart 3.3

GROWTH OF EXPORTS OF DIFFERENT CLASSES OF GOODS,[a] BY FACTOR INTENSITY, 1980–1998

(Index numbers, 1980 = 100)



Source: See table 3.1.
a Excluding fuels.

Table 3.4

STRUCTURE OF EXPORTS[a] BY PRODUCT CATEGORIES ACCORDING TO FACTOR INTENSITY, 1980 AND 1998

(Percentage share)

	Share in exports from developing countries		*Share in world exports*	
Product category	*1980*	*1998*	*1980*	*1998*
Primary commodities	50.8	19.0	25.7	14.8
Labour-intensive and resource-based manufactures	21.8	23.2	14.7	15.0
Manufactures with low skill and technology intensity	5.8	7.3	10.1	7.6
Manufactures with medium skill and technology intensity	8.2	16.8	26.4	29.6
Manufactures with high skill and technology intensity	11.6	31.0	20.2	30.2

Source: See table 3.1.
Note: For the product classification see text.
a Excluding fuels.

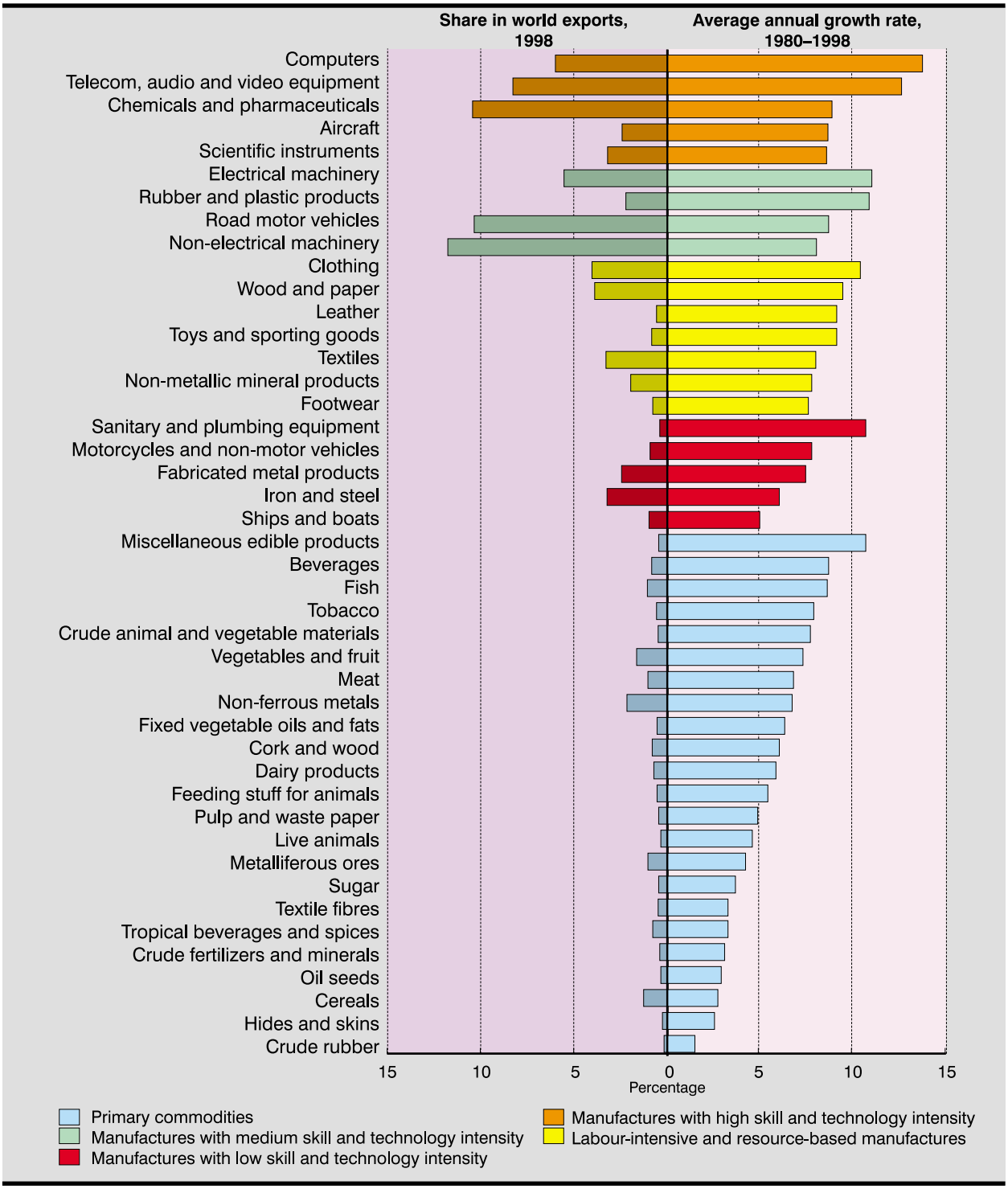
tures with low skill and technology intensity, and non-fuel primary commodities, has grown at a much slower rate than the average, particularly in recent years. Thus there has been a sharp fall in the share of non-fuel primary commodities in world trade, and a strong and sustained increase in the share of manufactures with high skill and technology intensity. Indeed, by the end of the 1990s, the share of the latter product category came to exceed the share of medium skill- and technology-intensive manufactures (table 3.4).

Except for non-fuel primary commodities, developing country exports of all product categories have grown more rapidly than world exports in the same product categories, and the difference has been higher the greater the skill and technology intensity of the products (chart 3.3). As a result, there has been a steep fall in the share of non-fuel primary commodities in total non-fuel exports of developing countries, from over 50 per cent in 1980 to under 20 per cent in 1998. The shares of labour- and resource-intensive products as well as low skill- and technology-intensive manufactures in total non-fuel exports of developing countries have remained largely unchanged, while those of medium and, in particular, high skill- and technology-intensive manufactures have increased strongly; in fact since the mid-1990s, the latter have accounted for the largest share in developing country exports.

Chart 3.4, based on SITC classification at 2- and 3-digit levels, shows that several goods in all product categories have experienced rapid growth in world exports in the past two decades, and, in this sense, dynamism is broad-based. However, all goods that combine rapid growth with a high share in world exports belong to the high- and medium-skill and technology-intensive product categories. In developing countries, the products with a high share in total exports have also experienced the highest growth rates over the past two decades (chart 3.5). Thus the main exports of developing countries are concentrated in computers and office equipment; telecommunications, audio and video equipment and semiconductors; and clothing. All these products involve labour-intensive processes, which suggests that the increased importance of global production sharing has been a crucial determinant of the growth of their exports.

Chart 3.4

MARKET DYNAMISM OF INTERNATIONALLY TRADED GOODS,[a] BY FACTOR INTENSITY



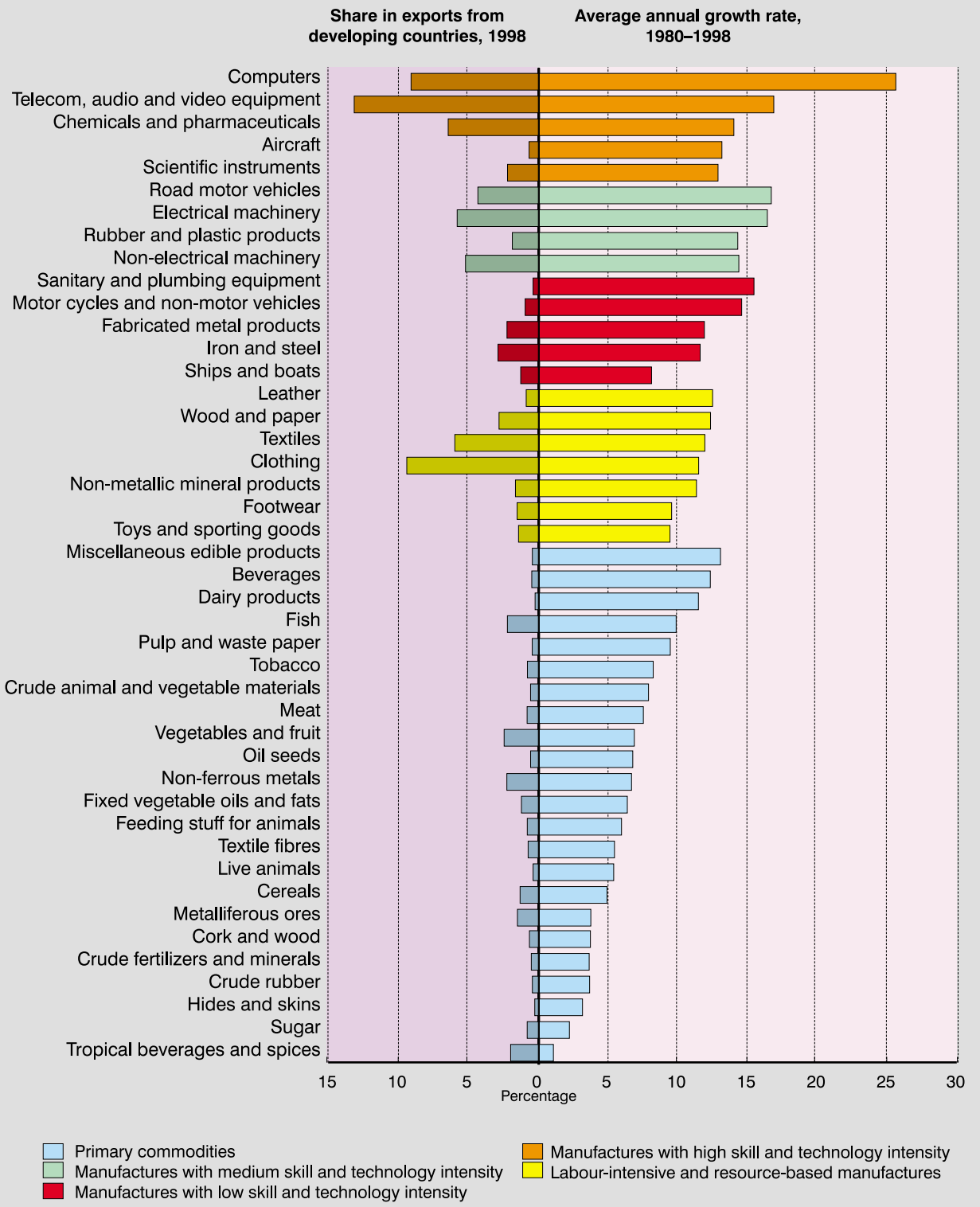
Source: See table 3.1.

Note: Both product groups and subgroups are ranked in decreasing order by their average rate of growth during the period 1980–1998. For some of the product groups listed in this chart, the definition differs from that used elsewhere in this *TDR*. These are: "Computers", comprising here computers and office equipment, and parts of computers and office machines (SITC 75); "telecom equipment", comprising here telecommunications, audio and video equipment (SITC 76), and transistors and semiconductors (SITC 776); and "electrical machinery", comprising here electrical power machinery, electrical apparatus and appliances, and parts thereof (SITC 771–775), but excluding transistors and semiconductors (SITC 776).

a Excluding fuels.

Chart 3.5

MARKET DYNAMISM OF DEVELOPING COUNTRY EXPORTS,[a] BY FACTOR INTENSITY



Source: See table 3.1.
Note: See chart 3.4.
a Excluding fuels.

Thus, the analysis of growth in exports of different product categories suggests that there are market-dynamic products in all categories, including some primary commodities. However, exports of products from the high skill- and technology-intensive group have grown most rapidly over the past two decades. Perhaps the most striking finding is that the higher the skill and technology contents of exports, the faster is the growth rate of exports of developing countries compared to growth in world trade. However, this does not necessarily imply that there has been a rapid and sustained technological upgrading in exports of developing countries. First, their rapid growth in exports of skill- and technology-intensive goods started from a relatively small base in the early 1980s. Secondly – and more importantly – since the involvement of developing countries in exports of such products is usually limited to the labour-intensive processes in these sectors in the context of international production sharing, simple measures of growth in gross export values are poor guides for an assessment of the nature of participation of developing countries in world trade.

E. Variations among developing countries

The main exporters of the most dynamic products in world markets are the industrialized countries. Among developing countries only some of the East Asian economies have managed to supply the world markets with a significant quantity of these dynamic products. Most of the other developing regions do not appear to have been able to participate in this process.[13]

The most market-dynamic products in the exports from developed countries, developing countries as a group, and for regional subgroups are given in table 3.A2 in annex 1. The table shows that the 15 fastest growing exports of industrial countries are among the 20 most market-dynamic products in world markets. By contrast, only 8 of the 20 most rapidly growing exports of developing countries are among the 20 most dynamic products in world markets. While these include the four fastest growing products in world trade, this is largely due to the increased participation of developing countries in the labour-intensive segments of production of high-tech electronic goods in the context of international production sharing. Similarly, the growing importance of production outsourcing to developing countries appears to be the main reason why products from the clothing sector are among the fastest growing exports of industrial countries rather than developing countries.

It is perhaps surprising that only 3 of the 20 most dynamic products in world markets (table 3.1) are among the 20 fastest growing exports of the *first-tier NIEs*; these are computers, parts of computers and office machines, and optical instruments. However, this is only an indication that these economies do not provide attractive locations for labour-intensive processes in the production of many dynamic products with high skill and technology context. By contrast, 5 items from the chemical industry are among the 20 most rapidly expanding exports of the first-tier NIEs, and finished products of the motor vehicle industry also rank comparatively high. Textiles rank much higher than clothing in their exports, suggesting that the first-tier NIEs have, over the years, succeeded in upgrading from comparatively la-

bour-intensive clothing to more sophisticated textiles.

Computers, parts of computers and office machines, optical instruments, and telecommunications, audio and video equipment are the most important subgroups in the dynamic exports of the *ASEAN-4* (Indonesia, Malaysia, the Philippines and Thailand). But it is noteworthy that passenger motor vehicles are also among the 20 fastest growing exports from these countries. The most dynamic products in exports from *South Asia* belong to a wide variety of product groups, but there are significantly fewer electronics products than in East Asia. The absence of any product from the clothing sector is also notable.

As a group, countries in *South America* appear to have been largely excluded from dynamic exports in world markets. Only 2 of the group's fastest growing exports are among the 20 most dynamic products in world trade: non-alcoholic beverages and knitted fabrics. Products that are subject to global production sharing are not among the most dynamic exports from South America. The region does not participate significantly in global production sharing because of such factors as greater geographical distance from the developed countries that have been the most active in such activities, high wages compared to productivity, and inadequate infrastructure. Countries in the region have relied on their abundance of natural resources to strongly expand their primary exports: their 6 most dynamic products are primary commodities, and among the 20 fastest growing exports of South America there is a total of 9 primary commodities.[14]

As a group, countries in South America appear to have been largely excluded from dynamic exports in world markets.

Turning to the experiences of individual countries, a comparison of the shares of the four fastest growing product groups in the exports of the major developing countries reveals the following:[15]

- *Electronic and electrical goods* are the leading exports of all four first-tier NIEs (though they are less important in the Republic of Korea than in the others), as well as of Malaysia, the Philippines and Thailand. They also play an important role in China, Costa Rica and Mexico.

- *Textiles and labour-intensive manufactures, in particular clothing*, are important in China, Costa Rica, India, Mexico, Morocco, the Philippines, the Republic of Korea, Taiwan Province of China, Thailand, Tunisia and Turkey.

- *Transport equipment, in particular passenger motor cars and other motor vehicles*, is the only group of finished goods from technologically complex industries that features among the leading exports of several developing countries, in particular Argentina, Brazil, Mexico and the Republic of Korea. However, only in the Republic of Korea do these exports reflect nationally grown production activities.

- *Primary commodities and, in particular, supply-dynamic primary commodities* are of some importance in India, Indonesia, Malaysia, the Philippines, Thailand, Tunisia and Turkey, and are very important for a number of countries in South America and for Morocco.

No doubt, many country-specific factors, including size and resource endowments, have influenced the export composition and dynamics of these countries. However, there is a distinctive regional pattern in the different experiences of countries, which suggests that geography has played an important role. Products involved in global production sharing are important only in the exports of countries which are geographically close to one of the main developed country markets, namely the United States, the EU and Japan. By contrast, they are not significant exports of countries geographically distant from these markets.

However, this does not mean that international production networks are contained within regions. In this respect too, East Asian economies appear to be different from countries in other regions in that their integration in international

production networks is much broader than that of countries geographically close to the United States or the EU. Enterprises in East Asia operate regional production networks but they also export to the United States and Europe. By contrast, countries in Eastern Europe tend to concentrate on production sharing with the EU, and enterprises in countries close to the United States, notably Mexico, tend to be included in production networks only with the United States.

F. Exports, industrialization and growth

1. International production networks, trade and industrialization

How are these varying performances of countries in world trade reflected in their overall economic performance, particularly in industrialization and growth? In general, closer integration of countries into the global trading system through greater liberalization and openness is expected to increase the share of international trade in domestic economic activity. It does so by expanding the size of the traded goods sectors relative to the rest of the economy and by shifting resources from protected import-substituting industries – thereby lowering production in such industries – to export-oriented industries. As a result, imports and exports tend to increase at any given level of resource utilization. The participation in global production networks reinforces this process. Indeed, most developing countries which have rapidly opened up their economies in recent years have experienced a significant increase in the ratio of trade to income. On some accounts, such a reshuffling of resources according to comparative advantages yields significant efficiency gains and welfare benefits. However, the benefits are extremely difficult to quantify and substantiate, giving rise to considerable debate over the potential benefits of the Uruguay Round agreements. In any case, these benefits tend to be one-off. What matters, from a development point of view, is whether closer integration and faster expansion of imports and exports result in a faster rate of growth and convergence of incomes with industrial countries.

The mechanisms linking exports to economic growth and industrialization in developing countries have been described in considerable detail in previous *TDRs* in relation to the evolution of the East Asian NIEs and to the problems encountered in commodity-dependent African countries in accelerating accumulation and growth.[16] These linkages vary according to the stage of development. In the earliest stage, access to world markets provides a "vent for surplus" for developing countries, allowing them to take advantage of formerly underutilized land and labour to produce larger volumes of primary commodities, the surplus of which can be exported. This considerably helps raise income and activity, even when value added per worker is relatively low, and it provides the foreign exchange needed for imports and investment. The next step is to begin diversification and processing of the commodities for export. However, the possibilities for accelerating development through deepening and diversification in the primary sector are limited. For the vast majority of developing countries, sustained economic growth requires a shift in the structure of economic activity towards manufactured goods. In most countries, manufacturing industries are established ini-

tially for traditional labour-intensive products, which are the obvious candidates for the first generation of manufactured exports. As incomes rise and the surplus labour is absorbed, rising labour costs and the entry of lower-cost producers progressively erode the competitiveness of many labour-intensive manufactures. This leads to a new challenge, that of upgrading industrial activity so as to produce more sophisticated manufactures. This move away from resource-dependent and labour-intensive activities towards more technology- and skill-intensive activities underlies the success of post-war industrialization in East Asia, mainly in Japan, the Republic of Korea and Taiwan Province of China. As discussed in considerable detail in earlier *TDRs*, this success was based on a mix of trade and industrial policies and an approach to FDI that were substantially different from the ones adopted by a large number of developing countries either in the previous era of import-substitution, or during the more recent shift to big-bang liberalization.[17]

Evidence suggesting a rapid expansion of technology- and skill-intensive exports from developing countries is misleading, since these countries are mostly involved in the low-skill assembly stages of the production chain.

Indeed, the evidence examined above suggests that, with the exception of a few East Asian NIEs, which have reached income levels as high as or even higher than many industrialized countries, the exports of developing countries are still largely based on the exploitation of natural resources or unskilled labour. Evidence suggesting a rapid expansion of technology- and skill-intensive exports from developing countries is misleading, since these countries are mostly involved in the low-skill assembly stages of the production chain. The shift from primary products to a first generation of manufactures does not, for the most part, represent a shift towards more sophisticated activities. On the contrary, the production of certain primary products may be more skill-/capital-intensive and have more linkages to the rest of the economy than some unskilled or semi-skilled assembly activities.

This is not to deny that the growing importance of international production sharing in products such as computers and office equipment, semiconductors and communications equipment offers new opportunities to developing countries with considerable surplus labour to utilize it more fully, and hence to raise their per capita income. Participation in such production networks can also create some impetus to development by broadening the range of sectors in which developing countries can base their industrialization efforts. It can indeed be argued that since product-specific characteristics of production processes allow them to be partitioned into various "slices", it is no longer necessary for producers to master entire production chains and to organize them within single firms, which would be beyond the means of most developing countries. They can thus focus on mastering just one facet of production and a limited subset of all the activities involved in making a final product. This is likely to entail large savings in learning costs and can allow small and medium-sized domestic companies to coexist with large TNCs. Given relative factor endowments, developing countries may begin by creating competency in the more labour-intensive components of complex products and gradually progressing to more skill- and technology-intensive activities.

However, the participation of developing countries in such production chains is not without problems and risks. First, increasing value added through technological upgrading and productivity growth in the context of international production sharing may prove to be more difficult than in self-contained, independent industries. Second, growing competition among developing countries to attract FDI in order to enter such markets may lead to problems relating to fallacy of composition and provoke a race to the bottom.

As illustrated by the cases examined in annex 3, participation in the labour-intensive segments of international production chains does not automatically bring the technological spillovers needed to move up in the production chain. There are certainly successful examples of import substitution in the context of international production sharing,

involving a move from assembly of imported components to their domestic production. One such example is the development of domestic capacity in textiles and clothing in the Republic of Korea, described in annex 3. Another is the computer industry in Taiwan Province of China, which is the most broadly-based industry in that sector in Asia outside Japan. That economy has diversified beyond core PC-related products into a variety of high-growth market segments and improved its domestic production capabilities for a number of high value-added components, moving even beyond manufacturing into a range of higher-end, knowledge-intensive support services (Ernst, 2000). Similarly, Singapore has been rather successful in targeting specific industries for promotion, and in using TNC-controlled assets in efforts to upgrade.[18]

However, such success stories appear to be exceptions. Generally, developing countries participating in international production chains are not involved in the skill- and technology-intensive parts of the overall production process. Where the local suppliers' base is developed, it is mainly the foreign-owned suppliers, rather than national firms, that manufacture the most sophisticated key components.[19] This can hinder development of domestic supply capability and carries the risk of the host country getting locked into its current structure of comparative advantage, with its stress on unskilled or semi-skilled labour-intensive activities, thereby delaying the exploitation of potential comparative advantage in higher-tech stages of production. It can be a major problem for most developing economies involved in international production networks. Since they are not at rudimentary stages of development with large amounts of underutilized labour, but rather middle-income economies, which have been successful in early stages of industrialization based on labour and natural resources, they now need to undertake rapid upgrading in order to advance further in industrialization and development. Indeed, this pattern of participation in international production networks for manufacturing exports has been causing concern in recent years, even in some of the East Asian countries which have been more successful in exploiting various advantages associated with TNCs. It has been noted that these concerns relate to:

> … the costs to local businesses of the bias towards export-led manufacturing and foreign investment. ... With the partial exceptions of Taiwan [Province of China] and Singapore (which are heavily engaged in 'original equipment manufacturing' production for foreign firms), East Asia's economic bias towards manufactured exports has delivered neither the quantity nor the depth of backward linkages that planners and local capital desired. Except for Taiwan [Province of China], manufacturing exports are still dominated by foreign firms' branch plants with unsatisfying linkages either to the local market or to local firms. (*Oxford Analytica*, 2002a: 1–2)

It is also notable that most of these countries remain attractive locations for low-wage, labour-intensive segments of international production networks for manufacturing exports by accepting a large number of foreign workers who, according to some estimates, constitute up to 25 per cent of the labour force in countries like Malaysia and Singapore (*Oxford Analytica*, 2002a). A similar picture was drawn by the Economic Commission for Latin America and the Caribbean (ECLAC) concerning recent efforts in Latin America, where

> … many countries that improved their international competitiveness through FDI in manufactures not based on natural resources, generated very weak linkages between the local economy and the export platforms. In general, the lack of linkage promotion strategy was highlighted, especially in the cases of Mexico, Costa Rica and Honduras, where the success in exports has not been followed by a similar development of the local industrial base. (UNCTAD/ECLAC, 2002)

According to the UNCTAD/ECLAC study, efforts aimed simply at attracting FDI through macroeconomic stability and passive investment policies run the risk of locking static advantages inside export platforms with minimal linkages to the domestic industry.

This risk of getting locked in is particularly high where trade flows are based on preferential market access that requires production inputs to be sourced from a developed country partner. Moreover, the increased production complement-

arities between developed and developing countries imply that a greater share of developing country production and exports comes to depend on the decisions and performance of foreign firms and countries. This reduces policy autonomy in developing countries regarding the formulation of development strategies that emphasize national capabilities and goals. Thus the geographic dispersion of production activities may lead to less, rather than more, technology transfer. The spillovers from engaging in subcontracting or hosting affiliates of TNCs are reduced because the package of technology and skills required at any one site becomes narrower and because cross-border backward and forward linkages are strengthened at the expense of domestic ones. Furthermore, when only a small part of the production chain is involved, out-contractors and TNCs have a wider choice of potential sites – since these activities take on a more footloose character – which strengthens their bargaining position vis-à-vis the host country. This can engender excessive and unhealthy competition among developing countries as they begin to offer TNCs increasing fiscal and trade-related concessions in order to compensate for the shifting competitiveness from one group of developing countries to another; it can thereby aggravate the inequalities in the distribution of gains from international trade and investment between TNCs and developing countries.

Indeed, technological upgrading can be more difficult for economies that are used by TNCs primarily as bases for exports to third markets than for economies where FDI is of the market-seeking, tariff-jumping kind. Since the latter form of FDI is more dependent on the domestic economy, it gives the host country government greater bargaining power for using FDI selectively to ensure that it will create spillovers and linkages with domestic industry in the context of a broader industrialization strategy. Most examples of successful use of FDI in industrialization and technological progress, including some of the cases mentioned above, are from countries that have exploited this advantage effectively.

These features of TNC-driven international production networks were noted by Paul Streeten in the 1970s, when the trend first became apparent:

> In one sense, the doctrine of comparative advantage seems to be vindicated, though in a manner quite different from that normally envisaged. It is foreign, not domestic, capital, know-how and management that are highly mobile internationally and that are combined with plentiful, immobile domestic semi-skilled labour. Specialisation between countries is not by commodities according to relative factor endowments, but by factors of production: the poor countries specialising in low-skilled labour, leaving the rewards for capital, management and know-how to the foreign owners of these scarce but internationally mobile factors. The situation is equivalent to one in which *labour itself* rather than the *product of labour* is exported. For the surplus of the product of labour over the wage … accrues abroad. … Since the firms operate in oligopolistic and oligopsonistic markets, cost advantages are not necessarily passed on to consumers in lower prices or to workers in higher wages, and the profits then accrue to the parent firms. The continued operation of this type of international specialisation depends upon the continuation of substantial wage differentials …
>
> The packaged nature of the contribution of the MNEs, usually claimed as its characteristic blessing, is in this context the cause of the unequal international distribution of the gains from trade and investment. If the package broke or leaked, some of the rents and monopoly rewards would spill over into the host country. But if it is secured tightly, only the least scarce and weakest factor in the host country derives an income from the operations of the MNEs, unless bargaining power is used to extract a share of these other incomes. (Streeten, 1993: 356–357)

A strategy of development based on participation in labour-intensive processes in global production networks is substantially different from the successful post-war experiences of industrialization in East Asia, where the location of countries in the international division of labour resulted from well-targeted trade and industrial policies. Such policies were particularly important in the first-tier NIEs, notably the Republic of Korea and Taiwan Province of China, as they moved out of labour-intensive manufactures and into more technologically sophisticated and capital-intensive activities. As part of a strategic

approach to FDI inflows, their policy makers sought to maximize the benefits in foreign exchange and technology that they could extract from TNCs, and to ensure that these complemented – rather than substituted – efforts to strengthen domestic capacity.[20]

2. Trade in manufactures, value added, and growth

The discussion above suggests that the recent success of many developing countries in expanding their manufactured exports and improving their share in world trade, particularly in what appear to be high-tech products, cannot be taken at face value. In fact, the increased import content of domestic production and consumption brought about by rapid trade liberalization, together with the greater participation of developing countries in import-dependent, labour-intensive, low value-added processes in international production networks, implies that such increases in the manufacturing exports of developing countries may have taken place without commensurate increases in income and value added. Chart 3.6 compares the evolution of manufacturing trade and value added in the G-7 countries with a group of seven of the more advanced developing countries (D-7) for which data are available. This comparison is revealing, since the G-7 accounts for almost half of world trade and two thirds of global income, and the D-7 for about 60 per cent of developing country trade and 40 per cent of developing country GDP.[21] It yields a number of results:

- A significant difference between the two groups is that manufacturing value added consistently exceeds manufacturing trade in developed countries, but the opposite is true for developing countries.

- In both groups, manufacturing value added tended to fall relative to manufacturing trade over the past two decades, but the decline was much more pronounced in developing countries; in the G-7 countries the ratio of manufacturing value added to manufactured exports fell from some 225 per cent in the early 1980s to 180 per cent in the late 1990s, compared to developing countries where it declined from 75 per cent to 55 per cent over the same period.

- In developing countries, manufacturing exports and imports were broadly at the same levels until the end of the 1980s, when imports started to grow much faster than exports, while in industrial countries manufactured exports constantly exceeded imports.

- While the ratios of manufactured value added and exports to GDP remained broadly unchanged in the industrialized countries, in the developing countries the ratios of manufactured exports to GDP rose steeply, but there was no significant upward trend in the ratio of manufacturing value added to GDP.

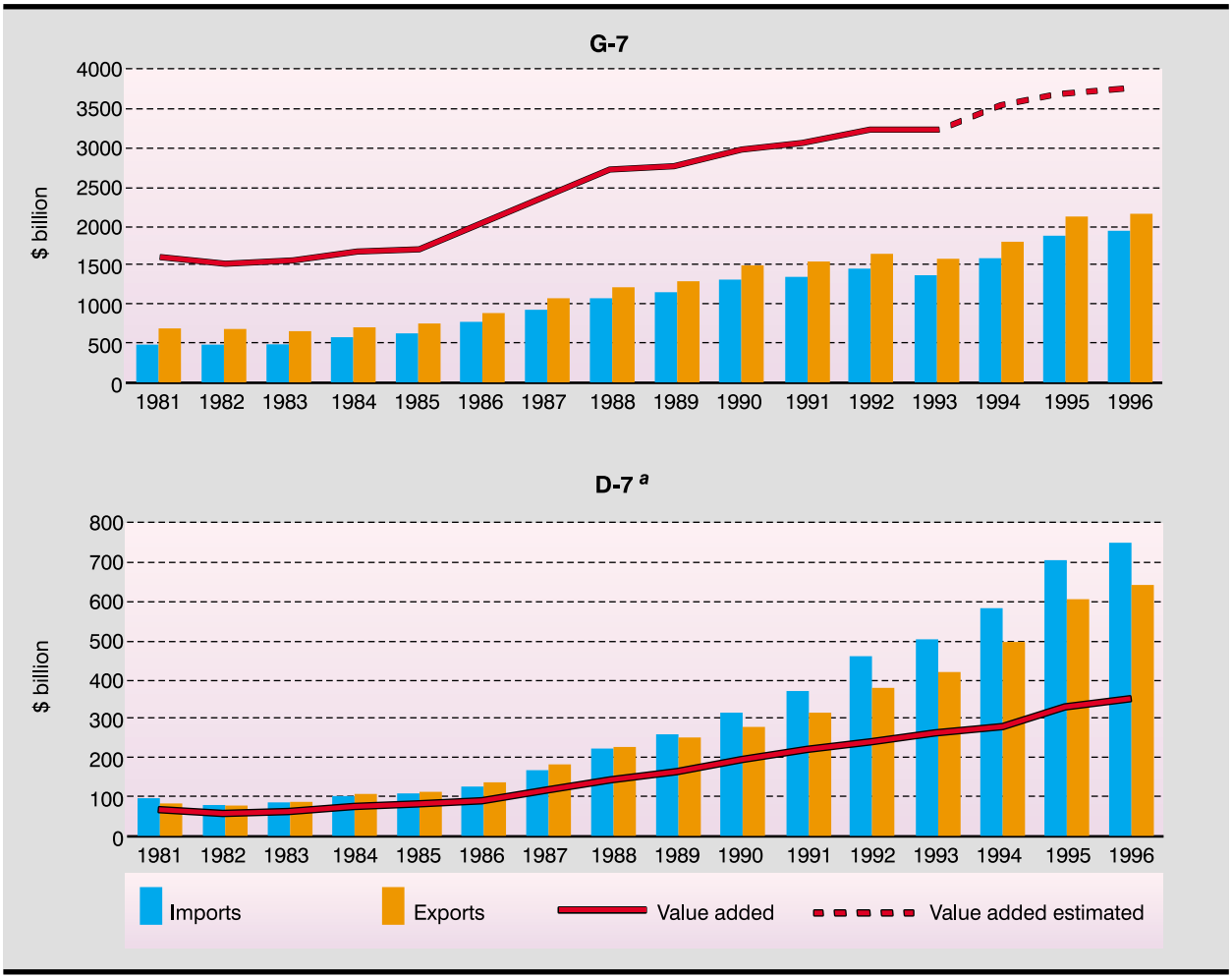
There are, however, significant differences among developing countries regarding the relation between manufactured trade and value added, reflecting, in large part, differences in their pattern of industrialization and integration into the global trading system (chart 3.7).[22] Of these countries, the Republic of Korea stands alone, with a production-trade configuration similar to that of the major industrial countries. In all first-tier NIEs, except Hong Kong (China), manufacturing value added rose as fast as, or faster than, both manufactured imports and exports over the past two decades. Indeed, Hong Kong (China) stands at the other extreme; it appears as an entrepôt, with much of its earnings coming from intermediary services. Its manufacturing value added is only a fraction of its manufactured exports, and the gap between the two has been widening. In contrast to the three other economies in the first-tier NIEs, Hong Kong (China) has pursued a laissez-faire approach to FDI. It is the least successful of the East Asian NIEs in upgrading, but its special circumstances have allowed it to grow and prosper.[23]

In both Malaysia and Mexico, manufactured imports and exports exceed valued added by a large margin. As noted above, in both countries exports have high direct import contents due to their close involvement in international production networks. For example, one recent study estimated that in Mexico imports for further processing constitute as much as one half to two

Chart 3.6

TRADE IN MANUFACTURES AND VALUE ADDED IN MANUFACTURING FOR SELECTED GROUPS OF ECONOMIES, 1981–1996

(Billions of dollars)



Source: UNCTAD secretariat calculations, based on Nicita and Olarreaga (2001).

Note: Manufactured goods as defined by SITC. Value added data for the period after 1993 was not available for all countries. The estimates for G-7 value added during the period 1994–1996 are based on data for four countries (Canada, Japan, the United Kingdom and the United States) and on the assumption that value added for the G-7 as a whole grew at the same rate during that period as it did for these countries.

a Hong Kong (China), Malaysia, Mexico, Republic of Korea, Singapore, Taiwan Province of China, and Turkey.

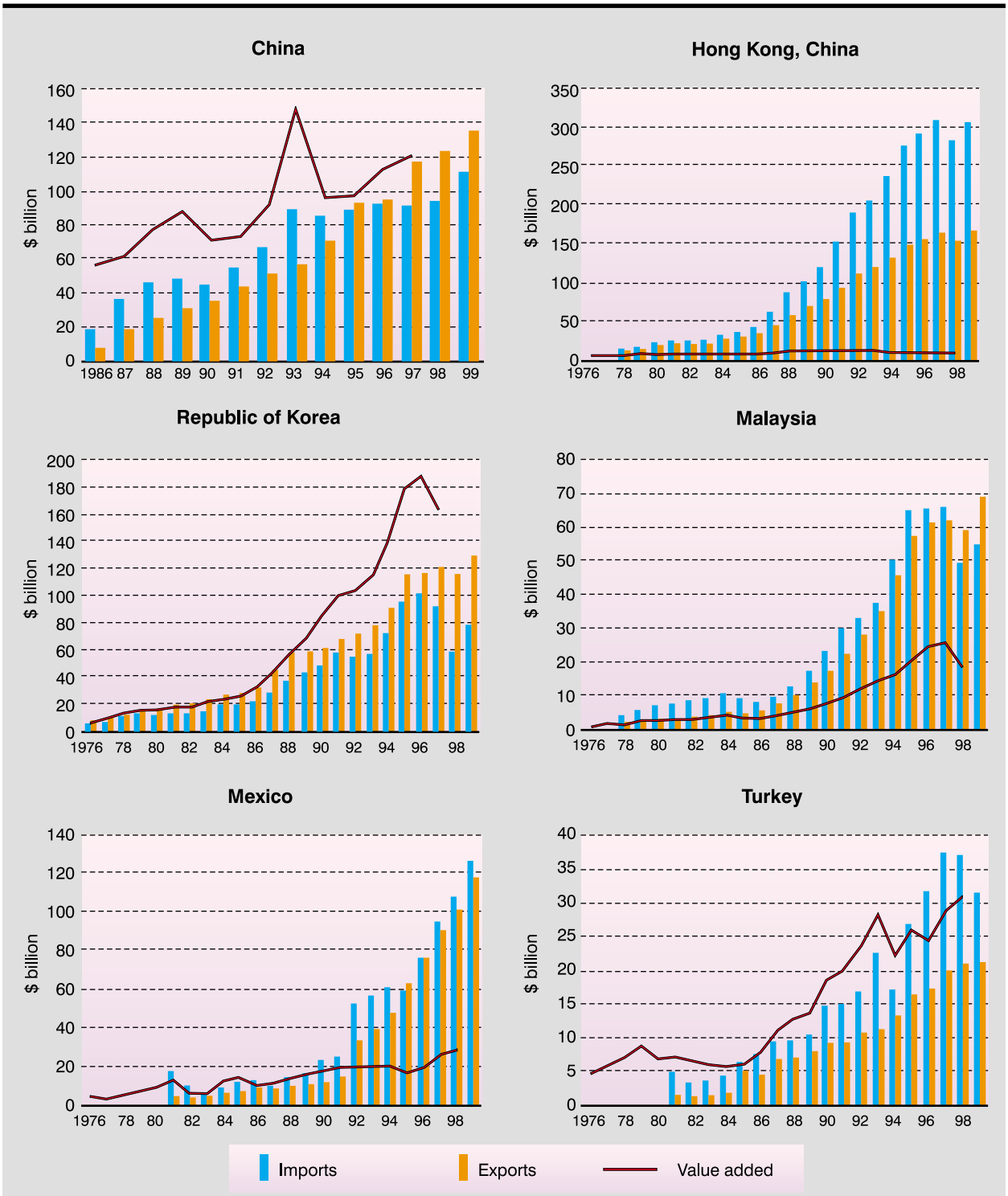
thirds of the total sales of affiliates of United States TNCs in industries such as computers and office equipment, electronic equipment, and transport equipment.[24] In Mexico, growth in manufacturing value added has been negligible compared to the surge in its manufactured imports and exports. Malaysia, however, has had a very strong growth in manufacturing value added in the past two decades, in part due to the establishment of local suppliers' networks based on foreign ownership.

By contrast, in both Turkey and China, on average, manufacturing value added has exceeded manufactured exports. Turkey does not participate significantly in international production networks, and its manufacturing exports have a low direct

Chart 3.7

TRADE IN MANUFACTURES AND VALUE ADDED IN MANUFACTURING OF SELECTED DEVELOPING ECONOMIES

(Billions of dollars)



Source: UNCTAD secretariat calculations, based on Nicita and Olarreaga (2001).
Note: Manufactures as defined by SITC.

import content. However, its manufacturing imports exceed exports by a wide margin, partly due to its high degree of dependence on imported capital goods and intermediate inputs and a growing share of consumer goods imports in total spending. As noted above, China participates in labour-intensive segments of international production networks, and the direct import content of its exports of electrical and electronic goods is high. But it also has large traditional labour-intensive export industries with relatively high value added and little direct import content. Furthermore, China has so far avoided rapid import liberalization (except for exports), and its imports of manufactured consumer goods remain low.

Economic size is an important determinant of the degree of trade orientation, and smaller countries tend to have a high trade-income ratio. However, success in industrialization and the pattern of integration into the global trading system also matter, as can be seen by comparing the relative evolution of trade and value added for the Republic of Korea and Mexico (chart 3.7), two economies that are identical in size (with a 3 per cent income weighting in OECD). Comparing Turkey with Mexico, even though it is smaller in economic size (less than 2 per cent in OECD income weighting), the Turkish manufacturing value added exceeds its manufactured exports by almost 50 per cent, whereas for Mexico manufacturing value added is around one third of its exports (and imports).

A country's growing share in world manufacturing trade does not necessarily imply a corresponding increase in its share in world manufacturing output and income.

These results also suggest that a country's growing share in world manufacturing trade does not necessarily imply a corresponding increase in its share in world manufacturing output and income. However, comprehensive and consistent data on manufacturing value added are not available to allow worldwide comparisons in these respects. Table 3.5 shows data, assembled from various sources, on the shares of developed and developing economies in world manufacturing trade and production over the past two decades.[25] An important observation from the table is that, while the share of developed countries in world manufacturing exports fell between 1980 and 1997, their share in world manufacturing income rose significantly. In other words, in relative terms, industrial countries appear to be trading less but earning more in manufacturing activity.

Developing economies' shares both in world manufacturing exports and value added show a sharp increase during the same period, but growth in exports is much stronger than in value added. All Asian economies in table 3.5, as well as Turkey, increased their shares in world manufacturing exports, while in Latin America this was true only for Mexico. It is notable that the other major economies in Latin America, notably Argentina and Brazil, which do not participate significantly in international production networks, have been unable to increase their shares in world manufacturing exports. Similarly, with the exception of Hong Kong (China) and the Philippines, all East Asian countries increased their shares in world manufacturing value added, but none in Latin America was able to do so. Briefly, of the economies examined here, none of those which pursued rapid liberalization of trade and investment over the past two decades achieved a significant increase in its share in world manufacturing income, although some of them experienced a rapid growth in manufacturing exports.

There is thus little correlation between the growth of exports and growth of value added for any of the developing economies listed in table 2.5. Hong Kong (China), Mexico, the Philippines and Turkey are among the countries that recorded the largest increases in their shares in world manufactured exports, but the shares of Hong Kong (China) and Mexico in world manufacturing value added actually fell, that of the Philippines stagnated, while that of Turkey registered only a moderate increase. It is particularly notable that between 1980 and 1997 Mexico's share in world manufactured exports rose tenfold, while its share in world manufacturing valued added fell by more than one third, and its share in world income (at current dollars) by about 13 per cent. By contrast, the Republic of Korea, Singapore and Taiwan

Table 3.5

SHARE OF SELECTED REGIONAL GROUPS AND DEVELOPING ECONOMIES IN WORLD EXPORTS OF MANUFACTURES AND MANUFACTURING VALUE ADDED, 1980 AND 1997

(Percentage share)

	Share in world exports of manufactures		*Share in world manufacturing value added*	
Region/economy	*1980*	*1997*	*1980*	*1997*
Developed countries	82.3	70.9	64.5	73.3
Developing countries	10.6	26.5	16.6	23.8
Latin America	1.5	3.5	7.1	6.7
Argentina	0.2	0.2	0.9	0.9
Brazil	0.7	0.7	2.9	2.7
Chile	0.0	0.1	0.2	0.2
Mexico	0.2	2.2	1.9	1.2
South and East Asia	6.0[a]	16.9	7.3	14.0
NIEs	5.1	8.9	1.7	4.5
Hong Kong (China)	0.2	0.6	0.3	0.2
Republic of Korea	1.4	2.9	0.7	2.3
Singapore	0.9	2.6	0.1	0.4
Taiwan Province of China	1.6	2.8	0.6	1.6
ASEAN-4	0.6	3.6	1.2	2.6
Indonesia	0.1	0.6	0.4	1.0
Malaysia	0.2	1.5	0.2	0.5
Philippines	0.1	0.5	0.3	0.3
Thailand	0.2	1.0	0.3	0.8
China	1.1[b]	3.8	3.3	5.8
India	0.4	0.6	1.1	1.1
Turkey	0.1	0.5	0.4	0.5

Source: UNCTAD secretariat calculations, based on UNIDO, *Handbook of Industrial Statistics* (various issues); UNIDO, *International Yearbook of Industrial Statistics,* various issues; World Bank, *World Development Indicators 2000* (table 4.3); UN/DESA, *Commodity Trade Statistics* database; and UN/DESA, *Monthly Bulletin of Statistics* (various issues).

Note: Calculations in current dollars. Value-added data are based on the definition of manufactures used in industrial statistics, while export data are based on the definition of manufactures used in trade statistics. However, calculating the share in world manufactured exports based on the definition of manufactures used in industrial statistics yields very similar results for countries for which comprehensive data are available.

a Excluding China.

b 1984.

Province of China recorded the highest gains in terms of their share in world manufacturing income, without concomitant increases in their shares in world manufactured exports. While China had an outstanding performance both in trade and growth, the increase in its share in world manufacturing value added is less impressive than its share in manufactured trade. This is also true for the second-tier NIEs, that have succeeded in improving their shares in both world manufacturing trade and value added in the past two decades.

Moreover, in countries that participate extensively in international production networks through FDI, an important part of the value added in TNCs accrues to foreign firms as profits. In East Asia this is true for both Malaysia (*TDR 1999*: 120–123 and table 5.6) and China (see chapter V).

G. Conclusions

For more than a decade, world trade has been growing, on average, faster than world income as a result of rapid integration. However, integration has progressed at differential rates in different markets. While world trade in a number of products has expanded at double digit rates, in some others it has stagnated or declined in absolute terms. To a certain extent, this is due to differences in income elasticities and the pace of product innovation in different sectors. But it also reflects, in part, structural shifts in the pattern of competitiveness, particularly the emergence of new players among developing countries in a number of sectors.

It is also possible that policies governing market access for both goods and FDI may have had a more decisive influence over the evolution of trade in different products. While continued barriers in industrial countries have impeded growth of trade in many areas of export interest to developing countries, rapid liberalization in these countries has helped expand trade in skill- and technology-intensive manufactures in which more advanced countries have a competitive edge. The increased mobility of capital, together with continued restrictions on the mobility of labour, has extended the reach of international production networks. This has accelerated trade in a number of sectors where production chains can be split up and located in different countries. Commercial policies in industrial countries have helped this process by granting preferential market access to goods produced by the foreign assembly operations of their TNCs as well as to goods containing inputs originating in their countries. Policies in developing countries have also contributed by offering various incentives to FDI and encouraging TNCs to operate in their territories with minimum restrictions.

Further progress in industrialization calls for a strategy designed to increase the domestic value-added content of exports.

The evidence examined above shows that the benefits of integration and expansion of international trade depend on the modalities of countries' participation in the trading system and on how trade is linked to domestic economic activity. An important conclusion that emerges is that the evolution of a country's share in world trade is not always mirrored by changes in its share in world income. Indeed, while the share of industrial countries in world manufacturing trade fell over the past two decades, their share in manufacturing income rose. By contrast, the share of developing countries in both manufacturing trade and value added increased. However, this aggregate picture conceals considerable diversity in the developing world:

- First, countries that have not been able to move away from primary commodities, the markets for which are relatively stagnant or declining, have been marginalized in world trade. However, growth in trade in several primary commodities has been as rapid as in some manufactures, and countries that have successfully entered such sectors have experienced a significant expansion in their exports and incomes.

- Second, most developing countries that have been able to shift from primary commodities to manufactures have done so by focusing on resource-based, labour-intensive products which generally lack dynamism in world markets.

- Third, a number of developing countries have seen their exports rise rapidly in skill- and technology-intensive products, which have enjoyed a rapid expansion in world trade over the past two decades. However, with some notable exceptions, the involvement of developing countries in the manufacture of such products has been confined to labour-intensive, assembly-type processes with little value added. Consequently, the share of some of these countries in world manufacturing income actually fell. For others, increases in manufacturing value added lagged considerably behind their recorded shares in world manufacturing trade.

- Finally, a few economies have seen sharp increases in their shares in world manufacturing value added, which have matched or exceeded increases in their shares in world manufacturing trade. This group includes some East Asian NIEs that had already achieved considerable progress in industrialization before other developing economies began to shift their emphasis to export-oriented production. However, none of these other economies which have rapidly liberalized trade and investment in the past two decades is in this group.

With the exception of this last group, therefore, exports of developing countries continue to be concentrated on resource-based, labour-intensive products. Market growth is slow for many of these products, which continue to be protected in industrial countries. While expansion in such sectors can allow countries at the lower end of development to improve employment and income, for more advanced developing countries they offer little, since their productivity potential is limited compared to that of skill- and technology-intensive products. As discussed in the next chapter, a simultaneous drive by a large number of developing countries – especially those with large economies – to expand such exports, and increased competition among them to attract FDI for labour-intensive segments of vertically integrated production networks could be self-defeating. For many countries, rapid upgrading into market- and supply-dynamic products, combined with greater reliance on domestic markets, appears to be a more viable strategy for the expansion of industrial activity than extending the existing pattern of production and trade. In this process, technological upgrading can play a crucial role not only by enhancing the gains from trade, but also by expanding the domestic market through increases in productivity and wages. In countries located in the low-wage, labour-intensive segments of international production networks, further progress in capacity-building and industrialization calls for a strategy designed to replace imported skill- and technology-intensive parts and components with domestically produced ones in order to raise the domestic value-added content of exports. In most countries, this would require a different approach to FDI and TNCs than has hitherto been pursued. ■

Notes

1 Indeed, neither economic theory nor longer historical experience can confirm such an unequivocal causal link from trade to growth. While the mainstream literature has often focused on efficiency gains and welfare effects of improved resource allocation resulting from free trade, it has not been able to establish a strong causal link between trade and the two main sources of growth, namely capital accumulation and productivity growth. For controversies over the relationship between trade and development, see Srinivasan and Bhagwati (1999); and Rodrik (1999).

2 In this chapter no formal distinction has been made between dynamic and non-dynamic products. The analysis uses an ordering of products according to their recorded growth rates in world trade since 1980 (see table 3.A1 in annex 1). A formal distinction would require a threshold; the average growth rate of world income over the same period could provide an appropriate measure for this purpose.

3 The evidence is based on an analysis of one-step forecast errors and of a Chow test.

4 According to Jaffee and Gordon (1993) and World Bank (1994), these are: meat and meat products; dairy products; fish and fishery products; vegetables; fruits and nuts; spices; and vegetable oils.

5 However, there were major increases in both frequency and coverage ratios of NTMs over the 1966–1986 period: food products recorded the highest overall increase in the frequency index; among manufactures, textiles and clothing, ferrous metals and transport equipment were the most affected products (Laird and Yeats, 1990).

6 As the rules of tariffication also allowed for significant increases in tariffs, they remain high even after implementation of the agreed tariff reductions. Moreover, only limited progress has been made in reducing domestic support to agriculture and trade-distorting export subsidies. The account here draws on WTO (2001d).

7 The phenomenon has alternatively been referred to as outsourcing, delocalization, fragmentation, intra-product specialization, intra-mediate trade, vertical specialization, and slicing the value chain, but it generally means the geographic separation of activities involved in producing a good (or service) across two or more countries. For a discussion of various issues associated with international production sharing, see, for example, Arndt and Kierzkowski (2001).

8 These product groups correspond to the SITC classification as follows: SITC 784 (parts and accessories for road motor vehicles), SITC 759 (parts and accessories for office machines and automatic data processing equipment), SITC 764 (telecommunications equipment, and parts and accessories for telecommunications and sound recording and reproducing equipment), and SITC 772 (electrical apparatus for electrical circuits).

9 This product group corresponds to SITC 776 (valves and tubes; photocells; diodes, transistors and similar semi-conductor devices; electronic microcircuits; and parts thereof).

10 The account here draws on ECE (1995), WTO (1998), and Graziani (2001).

11 For a detailed discussion of the OPT between the EU and Central European countries, see Baldone, Sdogati and Tajoli (2001).

12 MERCOSUR comprises Argentina, Brazil, Paraguay and Uruguay (with agreements for a free trade area signed with Bolivia and Chile). ASEAN comprises Brunei Darussalam, Cambodia, Indonesia, Lao People's Democratic Republic, Malaysia, Myanmar, the Philippines, Singapore, Thailand and Viet Nam.

13 For the composition of the country groups used here, see UNCTAD (2000). For a more detailed description of export structure of individual or various groups of developing countries, see Mayer, Butkevicius and Kadri (2002).

14 For countries in Africa and Central America and the Caribbean, the wide range of product groups of their 20 most dynamic export products makes it difficult to detect a distinct pattern, due, in part, to the heterogeneity of countries in the regions.

15 In this comparison, only the 20 countries with the fastest export growth during the period 1980–1998 and with total export earnings in excess of $5 billion in 1998 are included. Without the latter condition, the group of 20 countries with the fastest rates of export growth would feature a number of very small countries such as Benin, Bhutan, Cambodia, Djibouti, Equatorial Guinea, Lao People's Democratic Republic, Lesotho, Maldives and Seychelles.

16 See, in particular, *TDR 1996* (Part Two, chap. II); *TDR 1997* (Part Two, chap. II); and *TDR 1998* (Part Two, chap. IV).

17 For a discussion of policies in East Asia, see *TDR 1994* (Part Two, chap. I) and *TDR 1996* (Part Two). For a critical assessment of big-bang liberalization, see *TDR 1997* (Part Two, chaps. II and IV) and *TDR 1999* (chap. VI); and for import-substitution policies in Africa, see *TDR 1998* (Part Two, chaps. IV and V).

18 See Lall (1995, 1998). For a comparison of policies related to FDI and TNCs among the East Asian NIEs, see *TDR 1996* (Part Two, chap. II).

19 This appears to be the case even in Malaysia, which has a more developed local suppliers' base in electrical equipment and electronics industry than many other countries participating in international production networks in these products, including Mexico and Thailand (Mortimore, Romijn and Lall, 2000: 71). Foreign ownership of domestic suppliers is also important in the automotive industry (UNCTAD, 2001a, box IV.2: 132).

20 See *TDR 1996* (Part Two, chap. I).

21 The original data provided by Nicita and Olarreaga (2001) were based on the definition of manufactures used in the International Standard Industrial Classification (ISIC). Data in chart 3.6 are based on the definition of manufactures used in the Standard International Trade Classification (SITC); the conversion of the former to the latter required an adjustment, involving the exclusion of processed foods, fuels and minerals. Data for China are available only from 1986 onwards. Without China it is possible to construct time series for manufacturing trade and value added for the period 1981–1996. The overall picture, however, is broadly the same.

22 The figures in the Industrial Statistics database of the United Nations Industrial Development Organization (UNIDO) as well as those given in Nicita and Olarreaga (2001) show a strong spike for Chinese manufacturing value added for 1993. This appears to reflect, in large part, the effect of the devaluation of the currency, since value added in chart 3.7 is measured in current dollars.

23 For a detailed analysis, see *TDR 1996* (Part Two, chap. II).

24 The fact that this share is much higher – particularly in electronic equipment – than that of affiliates in other locations with similar labour productivity and average incomes is probably due mainly to Mexico's favourable tax policies for TNCs, preferential market access provisions under NAFTA, and geographic proximity to the United States (Hanson, Mataloni and Slaughter, 2002).

25 In table 3.5 the data on value added are based on the definition of manufactures used in ISIC, while the data on exports are based on the definition of manufactures used in SITC. However, calculating the share in world manufactured exports based on the definition of manufactures used in industrial statistics yields very similar results for countries for which comprehensive data are available.