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and

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October 2013
Working Paper No. 2013/16

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Abstract

This paper documents and analyzes emerging patterns of trade and foreign direct investment in Asia with a view to informing the contemporary policy debate on multilateralizing regionalism. The key theme running through the paper is the pivotal role of global production sharing in transforming trade patterns. The findings make a strong case for a global, rather than a regional, approach to trade and investment policy making. Global production sharing has strengthened economic interdependence among the countries in the region, but the dynamism of the regional cross-border production networks depends inexorably on trade with the rest of the world, particularly with North America and the European Union.

Key words: global production sharing, free trade agreements, foreign direct investment, Asia, economic integration

JEL codes: F13, F23, F53,

Forthcoming in Richard Baldwin and Masahiro Kawai (eds), *Multilateralizing Regionalism*, Oxford University Press.

Trade and Investment Patterns in Asia: Implications for Multilateralising Regionalism*

1 Introduction

The purpose of this chapter is to document and analyse the emerging patterns of international trade and investment in Asia, with a view to informing the contemporary debate on regional versus global economic integration. The paper aims to add new insight into the sizeable existing literature on this subject in two ways. First, it examines the implications of the on-going process global production sharing—the breakup of the production processes into geographically separated stages¹—for understanding the on-going process of economic integration in the region. Second, as an extension to this theme, an attempt is made to explore the emerging complementarities between trade and investment patterns.

It is widely held in policy circles that Asia, in particular East Asia, has become increasingly integrated through trade and investment over the year through the expansion of manufacturing exports. This view is rooted in the ‘standard’ trade data analysis which is based on the conventional notion of horizontal specialization that trade takes place in the form of final goods, goods that are produced from start to finish in a given country. It has largely ignored the ongoing process of global production sharing and the resulting trade complementarities among countries involved in this form of international exchange. Global production sharing opens up opportunities for countries to specialize in different slices (different tasks) of the production process depending on their relative cost advantage and other relevant economic fundamentals. Consequently, parts and components are now exchanged across borders at a faster rate than final goods. In this context, the decisions of how much to produce and for which market have to be combined with decisions of where to

* An updated and revised version of a paper presented at the conference on ‘Multilateralizing Asian Regionalism’, Asian Development Bank Institute, Tokyo, Japan, 18-19 September 2008. We are grateful to Richard Baldwin, Masahiro Kawai, Shujiro Urata and other conference participants for valuable suggestions and comments.

¹ In the recent literature on international trade an array of alternative terms have been used to describe this phenomenon, including ‘international production fragmentation’, ‘vertical specialisation’, ‘slicing the value chain’ and ‘outsourcing’.

produce and with what degree of intra-product specialisation. Trade flow analysis based on data coming from a reporting system designed at a time when countries were trading only in final goods naturally distorted values of exports and imports leading to a falsification of the degree of intra-regional trade integration. The degree of falsification is likely to increase over time as more complex production networks are created with an ever increasing number of interacting countries (Jones and Kierzkowski 2001a, 2001b). An analysis based on the standard trade data also tends to overlook the link between emerging patterns of trade and foreign direct investment, which is vital for assessing the implications of exchange rate policy for the growth dynamism of countries whose manufacturing performance is enmeshed in global production networks.

For the purpose of the study Asia is defined to encompass the economies of South and East Asia. East Asia includes Japan, and developing East Asia (DEA), which covers the newly industrialized economies (NIEs) in North Asia (South Korea, Taiwan and Hong Kong), China and members of the Association of Southeast Asian Nations (ASEAN). Developing Asia (DA) refers to South and East Asia except Japan. Hong Kong and China are treated as one geographical entity, while reporting data separately for the two economies for comparative purposes. This is justified not only because Hong Kong was reverted back to Chinese sovereignty, but also because the two economies have increasingly been closely interlinked through trade and investment following China's market oriented reform initiated in the late 1970s. To gain perspectives, the Asian experience is examined in the wider global context.

The results suggest that, while global production sharing is now an integral facet of economic globalisation, it is far more important for economic growth and structural transformation in Asian economies than elsewhere (although India and South Asia still remain minor players in global production networks). The degree of dependence of the East Asian economies on this new form of international specialisation is proportionately larger in this region compared to North America and Europe. MNEs from America, Europe and Japan, and more recently MNEs from the East Asian NIEs have played a pivotal role in linking the countries in the region to regional and global production networks. A highly important recent development has been the rapid integration of China into regional production networks as a major final assembler based on parts and

components imported from the rest of East Asia. These developments do not, however, mean lessening of the regions dependence on the global economy. On the contrary, the region's growth dynamism based on vertical specialisation is deeply dependent on its extra regional trade in final goods, and this dependence has, in fact, increased over the years. The on-going process of global production sharing has thus strengthened the case for a global, rather than a regional, approach to trade and investment policy making. Policy initiatives in the domain of trade (or financial) integration run the risk of hindering growth dynamism of these countries unless this new dimension of global integration is specifically taken into account.

The chapter is set out as follows. Section 2 examines trends and patterns of trade over time in aggregate and by major commodity groups, paying particular attention to the phenomenon of 'network trade' based on global production sharing. Central to the discussion in this section is the implications of network trade for the relative importance of intra-regional versus global economic integration. Section 3 investigates investment patterns, focusing on the comparative performance of Asian developing countries attracting and managing foreign direct investment (FDI), and the FDI-trade nexus. The final section summarizes the key findings and draws out some general inferences.

2. Trade Patterns

The analysis in this section is based on data compiled from the UN *Comtrade* database. In order to assess the magnitude and nature of trade within global production networks, it is necessary to separate parts and components (henceforth referred to as 'components' for brevity) from final (assembled) products in reported trade data. We do this through a careful disaggregation of 5-digit level data based on the Revision 3 of the Standard International Trade Classification (SITC, Rev 3) of the United Nation trade data reporting system (See Appendix). In its original form (SITC, Rev. 1), the UN trade data reporting system did not provide for the separation of parts and components from final manufactured goods. The version introduced in the late 1970s (SITC, Rev. 2), which was fully implemented by most countries only in the early 1980s, adopted a more detailed commodity classification that provided for the separation of parts and components within

the machinery and transport sector (SITC 7). However, considerable overlap between some advanced-stage assembly activities and related final goods within the sector made it difficult to undertake a precise separation of fragmentation-based trade from total trade (Ng and Yeats 2001). Revision 3, which was introduced in the mid-1980s, marked a significant improvement over Revision 2. In addition to redressing the issue of overlap within SITC 7, it provided for the separation of parts and components trade in the miscellaneous goods sector (SITC 8). For the purpose of analyzing overall trade trends and changes in commodity composition we combine the data reported under the Revisions 2 and 3 of the Standard International Trade Classification (SITC) for the period from 1980 to 2011. The separation of components from reported trade data is however possible only from 1992 when almost all countries reporting to the UN trade system had adopted the revised reporting system.

The data are tabulated using importer country records, which are considered more appropriate compared to the corresponding reporter records for analysing trade patterns for a number of reasons (Ng and Yeats, 2003, Appendix 1, Feenstra *et al.*, 2005). Importer records are admittedly less susceptible to double counting and erroneous identification of the source/destination country in the presence of entrepot trade compared to data based on reporting country records (e.g., China's trade through Hong Kong and Indonesia's through Singapore). Also, some countries fail to properly report goods shipped from their own export processing zones. These exports are simply lump these exports into one highly aggregated category of 'special transactions' under SITC 9. While no fully satisfactory solutions exist for these problems, it is generally believed that data compiled from importer records are less susceptible to recording errors and reveal the origins and composition of trade more accurately since there normally are important legal penalties for incorrectly specifying this information on customs declarations. In order to achieve comparability across countries, data on oil and gas trade (SITC 3) are excluded from the coverage of merchandise trade. The data are used in current US\$ terms.

Trends

One of the most dramatic developments in the world economy during the past half a century is the emergence of Asia as the third hub of world trade next to Europe and North America. The combined share of Asian countries in world non-oil exports recorded a three-fold increase over the past three decades, from 11.1% to 37.1%, between 1979-80 and 2010-11² (Table 1). The region accounted for over 40% of total increment in world exports over this period. East Asia dominated this impressive export growth story, accounting for over 95% of the total regional trade. By 2010-11, East Asia share in world trade was nearly three times of that of the North America Free Trade Area (NAFTA) (13.4%) and slightly higher than that of EU-15 (34.8%).

In the 1960s and 1970s, Japan dominated the region's trade, accounting for over half of total exports and imports. Next came the four 'Tigers': Korea, Taiwan, Hong Kong and Singapore. Over the past two decades the rise of China has been the dominant factor behind this structural shift in world trade in favour of Asia, but the other countries in the region have also increased their world market shares. Thus, on first inspection, there is no indication of China 'crowding out' its neighbours. The combined share of most other developing Asian countries too has increased persistently, though of course at a slower rate than DEA. Within East Asia, the combined world export share of ASEAN countries increased persistently from 2.0% in 1979-80 to 7.2% in 2010-11, but these countries still account for less than a fifth of total Asian trade. Notwithstanding some export expansion in recent years, South Asia still accounts for a mere 2.0% of total world trade, equivalent to less than 5% of Asia's total trade. In 1979/80 China's world export share (1%) almost at par with that of India (0.6%), but was more than 7 times larger in 2005/6 (India: 1.6%, China 12.8%)

Commodity Composition

² Hereafter, we will use the terms 'total world exports/trade' and 'total world non-oil exports/trade' interchangeably and to mean the same thing. Trade and investment magnitudes throughout the paper are measured in current US dollars unless otherwise indicated. Throughout the paper inter-temporal comparison calculations are made for the two-year averages relating to the end points of the period under study so as to reduce the impact of year-to-year fluctuations of trade flows.

Rapid export growth in Asia, mainly driven by the DEA group, has been underpinned by a pronounced shift in export structure away from primary commodities and toward manufactures (Table 1). By 2010/11 manufactures accounted for 89.1% of total exports from Asia, up from 54.4% three decades ago. Given the nature of their resource endowments, Japan and the four Asian NIEs (Hong Kong, Taiwan, Korea, and Singapore) relied very heavily on manufacturing for export expansion from the very beginning. However, beginning in the 1970s, a notable shift towards manufacturing is observable across all countries, at varying speeds and intensity. Among individual countries Indonesia and Vietnam, (and of course the very small late-comer Indo China economies) have a significantly lower share of manufactures in their exports, reflecting both their comparative advantage and their later adoption of export-oriented industrialization strategies.

Within manufacturing, machinery and transport equipment (SITC 7) (henceforth referred to as 'machinery'), in particular information and communication technology products (ICT) therein, have played a pivotal role in this structural shift. The share of machinery and transport equipment in total manufacturing exports from Asia increased from 40.3 % in 1979/80 to 58.9% in 2005/06, with DEA accounting for over four-fifths of the increment. In 2010-11 ICT products accounted for almost three fourth total machinery exports from these countries. The level and the change over time of world market shares in this product category among the Asian countries is strikingly similar to that of ICT products. Among the developing Asian countries, only Thailand has recorded notable increase in exports of motor vehicles.

East Asia accounted for 57.8% of total world ICT product exports in 2010-11; China alone accounting for 22.8% (Table 3). Electrical goods are the next major item of manufacturing exports. Asia's share in world exports of the other main product categories has also increased overtime, though at a slower rate. Of particular interest here is the notable increase in region's shares in textile and wearing apparel (SITC 8). China has accounted for much of this increase but, in contrast to ICT exports, the geographic participation has been broader. A number of low-wage countries in Southeast and South Asia, including Indonesia, Vietnam, India, Sri Lanka, Bangladesh, and Cambodia (the

latter included under ‘Other ASEAN countries’) have all recorded impressive gains in market share of wearing apparel.

Network Trade

The fast growth of machinery trade, in particular trade in ICT products and electrical goods, has been driven by the ongoing process of global production sharing and the increasingly deep integration of East Asian countries into the global production networks. Parts and components and final (assembled) goods traded within global production networks (henceforth referred to as ‘network trade’) increased from US\$ 1,207 billion (about 23.8% of total manufacturing exports) in 1992-1993 to US\$ 4,850 billion (45.7%) in 2007-2008, accounting for nearly two-thirds of the total increment in world manufacturing exports during this period.³ This increase was underpinned by a palpable shift in global production sharing away from mature industrial economies toward developing countries and in particular toward East Asia. The share of developing countries in total network exports increased from 22.0% in 1992-93 to 46.1% in 2007-2008, driven primarily by the growing importance of East Asian countries in global production sharing. The share of East Asia (including Japan) increased from 32.2% in 1992-1993 to 40.3% in 2007-2008, despite a notable decline in Japan’s share, from 18.4% to 9.5%. The major driving force has been China, whose share increased from 2.1% to 15.3%. Within East Asia, world market shares of ASEAN countries, with the exception of Singapore, have grown faster than the regional average. The mild decline in Singapore’s share reflects a marked shift in its role in global production networks for high-tech industries away from the standard assembly and testing activities to oversight functions, product design, and capital and technology-intensive tasks in the production process. Some, if not most, of these new activities are in the form of services and are, therefore, not captured in merchandise trade data (Wong 2007; Athukorala 2008).

³ The time coverage on data used in this and the following sub-section is from 1992-03 to 2007-08. As already noted, 1992 is the year for which Comtrade database provides a reasonable coverage of parts & components traded within global production networks. The years 2009 to 2011 are excluded to allow for distortions in patterns of network trade caused by the global financial crisis.

Table 4 presents comparative statistics on the share of network trade in total manufacturing exports and imports at the country and country group levels. It is evident that the share of network trade is much higher in East Asia than in all other regions of the world. In 2007-2008, exports within production networks accounted for over 60% of total manufacturing trade in East Asia, compared to the world average of 51%. Within East Asia, ASEAN countries stand out for their heavy dependence on production fragmentation trade, which is a critical part of their export dynamism. In 2007-2008, network exports accounted for over two-thirds of total manufacturing exports in ASEAN, up from 57% in the early 1990s. The patterns observed on the export and import sides of the ASEAN are strikingly similar, reflecting growing cross-border trade within production networks.

Production networks and regional versus global economic integration

There is a vast literature on what may be termed standard trade data analysis based on the traditional notion of horizontal specialization in which trade is an exchange of goods that are produced from start to finish in just one country. This literature unequivocally points to a persistent increase in intra-regional trade in East Asia, whether or not Japan is included, from about the early 1980s.⁴ This evidence figures prominently in the current regional debate concerning the establishment of regional trading arrangements covering some or all countries in East Asia.

The discussion in the previous section on the emerging patterns of network trade casts doubts on the validity of these inferences. We have seen that component trade has played a much more important role in trade expansion in East Asia compared to the rest of the world. Conventional trade flow analysis can yield an unbiased picture of regional economic integration only if component trade and final trade follow the same geographic patterns. If component trade has a distinct intra-regional bias, as one would reasonably anticipate in the context of growing network trade in the region, then the conventional trade flow analysis is bound to yield a misleading picture in regard to the relative importance of intra-regional trade versus global trade for growth dynamism in the region.

⁴ See for example Drysdale and Garnaut 1997; Frankel and Wei 1997; and Park and Shin 2009.

This is because growth based on assembly activities depends on the demand for final goods, which in turn depends on extra-regional growth.

Data on component intensity (percentage shares of parts and components) in bilateral flows of manufacturing trade are reported in Table 5. The data vividly show that components account for a much larger share of intra-regional trade in East Asia compared to these countries world trade and trade with the EU and NAFTA. Moreover, the share of components in total intra-regional imports is much larger than in exports and has increased at a faster rate. This reflects the fact that the region relies more on the rest of the world as a market for final goods than as a market for components. Within East Asia, ASEAN countries stand out for the high share of components in their intra-regional trade flows. The share of components in total intra-regional exports in ASEAN countries increased from 34.6% in 1992-93 to 56.0% in 2007-08. On the import side, the increase was from 50.4% to 55.9% from 75.3% to 84.4%. According to country-level data (not reported here, for brevity), the share of components in manufacturing exports and imports amounted to more than four-fifths in Singapore, Malaysia, and the Philippines and over two-thirds in Thailand. Korea and Taiwan are also involved in sizable trade in components with other countries in the region.

Intra-regional trade shares estimated separately for total manufacturing trade, component trade, and final manufacturing trade (that is, total manufacturing trade less component trade) are reported in Table 6. Estimates are given for total trade (imports + exports) as well as for exports and imports separately to illustrate possible asymmetry in trade patterns resulting from East Asia's increased engagement in fragmentation-based international exchange. Trade patterns depicted by the unadjusted (standard) trade data affirm the received view that Asia, in particular East Asia, has become increasingly integrated through merchandise trade.

In 2007-2008, intra-regional trade accounted for 55.2% of total manufacturing trade in East Asia, up from 53.2% in 1992-1993. The level of intra-regional trade in East Asia was higher than that of NAFTA throughout this period and was rapidly approaching the level of the EU. For DEA and ASEAN, the ratios are lower than the aggregate regional figure, but they have increased at a much faster rate. The intra-regional trade share of ASEAN has been much lower compared to the other two sub-regions. This

asymmetry in intra-regional trade in East Asia reflects the unique nature of the involvement of Japan and the PRC in regional production networks. From about the late 1980s, Japan's manufacturing trade relations with the rest of East Asia have been predominantly in the form of using the region as an assembly base for meeting demand in the region and, more importantly, for exporting to the rest of the world (Athukorala and Yamashita 2008). The emergence of the PRC as a leading assembly center within regional production networks since the early 1990s further amplified this trade asymmetry. That is, the PRC is importing parts and components from the other East Asia countries to assemble final products, which are predominantly destined for markets in the rest of the world (Athukorala 2009).

However, the picture changes significantly when parts and components are netted out: the share of intra-East-Asian final trade (total trade—parts and components) in 2007-2008 was 44.2%, down from 50.3% in 1992-1993. The estimates based on unadjusted data and data on final trade are vastly different for East Asia, particularly for DEA and ASEAN. Both the level of trade in the given years and the change over time in intra-regional trade shares are significantly lower for estimates based on final trade. Interestingly, we do not observe such a difference in estimates for NAFTA and the EU.

The intra-regional shares calculated separately for imports and exports clearly illustrate the risk of making inferences about regional trade integration based on total (imports + exports) data. There is a notable asymmetry in the degree of regional trade integration in East Asia. Unlike in the EU and NAFTA, in East Asia the increase over time in the intra-regional trade ratio (both measured using unadjusted data and data for final trade) has emanated largely from a rapid increase in intra-regional imports as the expansion in intra-regional exports has been consistently slower. The dependence of East Asia (and East Asian country sub-groups) on extra-regional markets, in particular those in NAFTA and the EU, for export-led growth is far greater than is revealed by the standard intra-regional trade ratios commonly used in the debate on regional economic integration. For instance, in 2007-2008 only 43.9% of total East Asian manufacturing exports were absorbed within the region, compared to an intra-regional share of 64.4% in total manufacturing imports. For DEA, the comparable figures were 33.4% and 46.7%, respectively. This asymmetry is clearly seen across all sub-regions within East Asia. The

asymmetry between intra-regional shares of imports and exports is therefore much sharper when components are netted out. This is understandable given the heavy component bias in Asian intra-regional trade and the multiple border-crossing of parts and components within regional production networks. On the export side, the intra-regional share of final goods declined continuously from 46% in 1995 to 37% in 2007, whereas the intra-regional import share increased from 56% to 63% between these two time points. The observed asymmetry in intra-regional trade in East Asia reflects the unique nature of the involvement of Japan and the PRC in regional production networks.

3 Investment patterns

The available data on FDI are generally of poor quality compared to the trade data. The only available time series data relates to only aggregate FDI inflows and outflows. Even these data (readily available from the *World Investment Report* database of the UNCTAD) suffer from a number of limitations.⁵ Not all countries record every component of FDI flows.⁶ For most countries, the data series on FDI capture only equity capital and inter-company debt; in fact, the majority of countries do not report data on the third component. There is evidence that the component “retained earnings” in FDI is positively related to the years of operation of firms in a given country, and that US MNEs have a general tendency to rely more on retained earnings for investment expansion compared to MNEs from other countries (Lipsev 2000). Thus, this problem of data coverage can lead to a considerable underestimation of the actual magnitude of FDI in a given host country, depending on the history of MNE involvement and the source country profile of FDI. Even for the components for which data are available, the quality of data varies considerably across countries. For instance, some countries (such as China and Hong Kong) do not make an adequate distinction between portfolio investment and

⁵ For details on the nature and limitations of the *World Investment Report* FDI data see UNCTAD 2005, Box 1.1

⁶ According to the standard definition, FDI consists of three components. These are: (a) equity capital, that is, the shares owned by the foreign direct investor (MNE) in its affiliates firms; (b) retained earnings, that is, the MNE’s share (in proportion to its direct equity participation) of earnings not distributed as dividends by affiliates, or earnings not remitted to the parent company (such retained profits are reinvested by affiliates); and (c) intra-company loans or intra-company debt transactions (except that for working capital) referred to as short- or long-term borrowing and lending of funds between the parent company and affiliated enterprises.

foreign direct investment. Moreover, the data coverage tends to vary over time in a given country because of changes made to the data recording system.⁷ For these reasons, a comparison of data among countries, and even over time for a given country, should be made with caution.

Data on FDI inflows are summarized in Tables 8 and 9. Total FDI flows to developing Asia increased sharply from an average annual level of \$39 billion during 1990-1994 to \$303 billion in 2008. After a notable dip during the global financial crisis (252 billion in 2009), inflows have gained pre-crisis growth momentum over the past three years. However, the post-crisis experiences of individual countries vary substantially. The share of Asia in total FDI flows to developing countries increased sharply from 29.6% to 57.9% between. As a share of total global flows, the increase was from 9.4% to 30.1%%. FDI inflows to developing Asia as a share of gross domestic fixed capital formation (GDFCF) have been significantly higher than the comparable figure for all developing countries throughout the period 1990-2012.

A notable feature within developing Asia is the dramatic increase in inflows to China. Over the past two decades China has been by far the largest developing country recipient of inward FDI. Over the past three decades, China has been the second largest recipient of foreign investment in the world. However, China's share in total FDI inflows to all developing and transition economies decreased from 22.1% during 1990-1994 to 17.2 in 2012.

The 1990s saw a marked increase in FDI to India, a trend that represents a clear break from the preceding two decades. India's share of FDI in total developing country inflows increased from 0.4% in the 1980s to over 1.5% in the first two years of the new millennium. FDI as a share of GDFCF increased from less than 0.3% to over 3% between these time points.⁸ Nevertheless, the increase has to be seen in perspective. Total annual FDI inflows to India during 2000-07 amounted to a mere 10% and 8% respectively of those into China and ASEAN. A notable aspect of FDI flows to India is

⁷ For instance, the Reserve Bank of India broadened the coverage of its FDI estimation procedure in 2003 (with effect from 2000/1 fiscal year) to include retained earnings. According to the revised data for 2000/1 and 2001/2, on average the new component accounted for about 40% of the total reported FDI figures (Reserve Bank of India).

⁸ The recorded increase in inflows in the past three years over the previous years partly reflects revisions to India's FDI estimation procedures, as noted above (see footnote 5).

that they have behaved quite independently of the global trends in FDI inflows to developing countries. This pattern clearly suggests that the domestic investment climate (demand-side factors in the investment market) has been the prime mover of investment flows to the country. FDI inflows to Bangladesh, Pakistan and Sri Lanka have registered notable increases over the past two decades, but they still account for a tiny share of total flows to developing countries, and are dwarfed by those into DEA.

Intra-regional FDI

Japan's FDI in the 1980s was directed largely to North America and Europe, when these two destinations accounted for about two thirds of the total. But the East Asian share began to increase in the 1990s, with a sharp rise in manufacturing FDI flows. The driving force was the sharp appreciation of Japanese yen in the late 1980s, which substantially reduced Japan's international competitiveness. Since the mid-1980s, the geographical distribution of Japanese FDI within Asia has changed significantly, first from the NIEs to ASEAN, and then to China and other Asian countries. From the late 1980s, Korean and Taiwanese firms too began to venture into export-oriented production in neighbouring countries for in response to mounting domestic cost pressure. As an outcome of its dramatic economic transformation over the past two decades, China is now becoming a significant overseas investor, predominantly in the other developing countries in the region and beyond (Chen and Lin 2007). Resource-rich countries like Indonesia, Malaysia, Laos and Cambodia have begun to attract 'resource seeking' investors from China. There is also evidence that the rapid increase in wages propelled by this fast growth has already begun to erode China's attractiveness as a low-wage investment and to entice Chinese firms involved in labour intensive manufacturing (clothing and footwear in particular) to relocate production to lower wage neighbours. For instance, Chinese investors are already the largest investors in the Cambodian garment industry and they have also begun to enter Vietnam. The imposition of punitive trade restrictions by the European Union and the USA on clothing and footwear imports from China in the mid-2005 has also driven this process.

How important are these intra-regional flows compared to extra-regional inflows to host countries in the region? To shed light on this issue, data on the source country

composition of FDI inflows to some Asian countries are summarized in Table 10. It is evident that, notwithstanding recent increases in intra-regional flows, the bulk of FDI inflows to Developing East Asian countries, other than to China, come from extra-regional sources. However, there are significant differences among these countries in terms of relative importance of individual source countries. For instance, investors from the East Asian NIEs accounted for relatively large share of total investment in Lao PDR and Vietnam. So were investors from the EU in Lao PDR, Brunei and Myanmar (included under 'other ASEAN').

China is unique for the dominance of regional investors in total inflows of FDI. During 2002-09, 73% of total FDI inflows to China originate in countries in East Asia, with Hong Kong and Taiwan accounting for 40.5% and 6.9% respectively. These regional flows are related to shift in production bases (mostly those involved in low-wage assembly activities to China). Thus, FDI inflow patterns in China mirror the growing importance of that country as the regional assembly center within regional production networks. Part of the reported FDI from Hong Kong is 'round tripping' capital. That is, it is investment that originated from the Mainland and returned to it in the guise of 'Hong Kong investment' to take advantage of tax, tariff and other benefits accorded to foreign-invested firms. It may be that these flows constitute about 15% of Hong Kong investment in China (Wee 2000, Naughton 2006).

A striking feature of the recent source-country is a profile of India compared to that of ASEAN in the relatively minor role played by investors from Japan and the East Asian NIE. This mostly reflect the fact that, despite recent reforms, the investment environment is still not conducive for efficiency seeking investment, an area where Japanese and East Asian investors generally played a more prominent role at the regional and global levels. Increase in the relative importance of investment by non-resident Indian investors (captured in 'other' sources in Table 9) has been an important feature of Indian investment approvals in recent years.

Industry profile

The past three decades have witnessed a profound shift, though at varying times, in the relationship between MNEs and the host countries in the region, as more and more

countries have adopted an outward-oriented growth strategy. During the first two decades of the postwar period, FDI in Taiwan and Korea was predominantly involved in domestic-market oriented production. In both countries from about the mid-1960s there was a major shift in the industry composition of FDI, from the early concentration on import substitution toward export-oriented production. From about the late 1980s, FDI has played an important role in the rapid world market penetration of exports from these economies, particularly in automotive, consumer electronics and electrical goods. In Singapore, from the beginning manufacturing FDI was predominantly in 'efficiency seeking' (export oriented) production, mostly electronics. In other ASEAN countries, there has been a major shift in MNE activities away from 'market seeking' (domestic-market oriented production) and towards efficiency-seeking production, gradually from the mid-1970s and at an accelerated pace in the 1990s. Old-style import-substituting FDI behind tariff barriers is still found, but only in a few industries, such as automobiles and petrochemicals.

The increase in efficiency seeking investment in East Asia largely mirrors the growing importance of the regional as a centre of global production sharing. Linking of Asia to the global electronics production networks began in 1968 with the arrival of two US companies, National Semiconductors and Texas Instruments, to set up plants to assemble semiconductor devices (Go 1990, Lee 2000, Athukorala 2008a). By the beginning of the 1970s Singapore had the lion's share of offshore assembly activities of the US and European semiconductor industries. Virtually every international electronics producer was present in Singapore by the mid-1980s, when the hard disk drive assemblers entered the country further boosting its role as a global assembly centre. During the next five years semiconductor production declined in relative importance, and computer peripherals, especially hard disk drives and computers became the more important part of the islands electronic industry. While MNEs from the US dominated the scene at the formative stage of the spread of assembly activities and well into the 1980s, Japanese and Western European MNEs have become increasingly involved since the late 1980s. More recently, MNEs from more advanced developing countries, notably those from the East Asian NIEs have also joined this internationalization process.

In the early 1980s, the US MNEs with production facilities in Singapore began to relocate some low-end assembly activities in neighbouring countries (particularly in Malaysia, Thailand and the Philippines) in response to rapid growth of wages and land prices. Many newcomer MNEs to the region also set up production bases in these countries bypassing Singapore. By the late 1980s, this process had created a new regional division of labour, based on skill differences involved in different stages of the production process and relative wages, and improved communication and transport infrastructure. At the time, there was a widespread concern in policy circles in Singapore that the regional spread of MNE operations in electronics industry could be at the expense of Singapore. However, the subsequent developments vividly demonstrated that ‘the larger the scale and scope of electronic industry (which produces a wide range of heterogenous end-products, each of which needs a large number of equally heterogenous components in its manufacture) in Southeast Asia, the greater the economies of scale and more the opportunities for specialisation for all participating countries (Go 1990).

From about the early 1990s, there was a massive relocation in China of final assembly stages of ‘high-tech’ industries—in particular, communication and information technology (ICT) industries from Hong Kong, Taiwan and Korea (Naughton 2006, Sung 2007). Multinational firms which had already established production bases in other countries in the region, particularly in Southeast Asia, began to participate in the production networks in a big way as suppliers of parts and components for final assembly activities in China.

With the regional spread of production networks, Singapore’s role in regional production networks has gradually shifted from low-skill component assembly and testing to component design and fabrication and providing headquarter services for production units located in the neighbouring countries. Singapore’s attractiveness as the regional centre of cross-border production networks has been continuously enhanced by the policy emphasis of the government on infrastructure development, expanding the human capital base, maintaining labour relations in a manner highly conducive for international production, and sound macroeconomic management (Borras et al. 2000; Mckendrik 2000).

Despite obvious advantageous in terms of location and relative wages, Indonesia has so far failed to benefit from this new form of international specialization presumably because of the unfavorable domestic investment climate. In Indonesia efficiency-seeking FDI has continued to remain confined largely to standard labour intensive consumer goods production. Among the later-reforming countries in the region, in Vietnam, FDI was heavily concentrated in domestic-market-oriented industries, construction and services sectors during the first decade of liberalization (Athukorala and Tein 2011). The period from about the late 1990s has, however, seen a notable expansion of MNE activity into labour-intensive consumer goods production, in particular clothing, footwear and furniture. More recent years have seen some promising signs of MNE entry into component assembly in the electronics and electrical goods industries (Athukorala and Kohpaiboon 2013). In Thailand in recent years there has been major FDI into electronics and automotive industries; in the latter industry, the country has become the major production hub in Southeast Asia (Kohpaiboon 2006).

Among major Asian economies, India still remains an outlier in terms of increased FDI participation in export-oriented activities. In the case of India, one-third of the FDI stock at independence in 1947 was in the primary sector (plantations, mining and oil), one-quarter in manufacturing, and the rest in services, mostly trade, construction, transportation and utilities (Athreye and Kapur, 2001, Table 3). From the 1960s, inflows tended to concentrate increasingly in manufacturing, while there was also considerable divestment out of other sectors. Within manufacturing, the capital goods sector (basic metal products, machinery and transport equipment) has continued to remain the predominant recipient of FDI. Though India has an enormous supply of low-wage, low-skill manpower that could be used to attract FDI into garments and other simple assembly activities, the overall investment regime has continued to favour foreign investment in heavy industry, complex activities predominantly focused on the domestic market. There has not been any significant increase in India's penetration of world markets in industrial products in the 1990s despite the increase in FDI. The only notable exception has been the phenomenal increase in software exports since the mid 1990s (Saxenian 2002, Dossani 2007).

FDI-Export Nexus

Table 11 assembles a data set to examine the contribution of FDI to manufactured exports from the DEAs. The role of FDI is measured here in terms of the percentage share accounted for by MNE affiliates in total manufactured exports (Column 2). The third column contains summary observations on the nature of the product composition of MNE-related exports.

It is important to note that the data on MNE share in exports reported here are not strictly comparable. In particular, there is no uniform treatment of the ownership share used in identifying the ‘multinationality’ of host country firms across the diverse sources used in compiling the data. Estimation errors in individual country figures are also unlikely to be consistent across countries, as obviously data quality varies. Nevertheless, the estimates assembled here support the view that MNE participation is vital for export performance of the latecomers to export-led industrialization (second-tier exporting countries) in Asia. A comparison of data reported in this tables with the data on export performance reported in Tables 1 to 3 in this chapter points to a close positive association between the share of exports accounted for by MNE affiliates and export performance, in particular the expansion of network exports. However, the post-crisis experiences of individual countries vary substantially for China, Indonesia, Malaysia, Thailand, the Philippines, and Vietnam. By contrast, in India, where MNE subsidiaries are still predominantly of the old-fashioned ‘tariff-jumping’ variety, both the share of MNEs in total manufactured exports and the rate of export growth have continued to remain low.

The widely held view that that MNE involvement in export expansion from the NIEs (other than Singapore) is low by international standards generally remains valid in our data set (Nayyar 1978). Nevertheless, there is evidence that MNEs have played a qualitatively much more important role than that suggested by these figures. For instance, many joint ventures in Korea, particularly those with minority ownership (which constituted almost three-quarters of all investment) were initiated by Korean entrepreneurs who approached potential foreign investors (Koo 1985). Detailed case-studies of the export performance of Korea and Taiwan reveal the important role played by MNEs in these countries, as they shifted from the early reliance on labour intensive, standard consumer goods sectors to assembly activities in vertically integrated high-tech

industries, and subsequently to sophisticated consumer durables production (Hobday 1995; Amsden and Che 2003, Schieve and Tu 1991).

The available data do not permit analyzing FDI-export nexus by taking into account the nationality of MNEs. However, the available case-study evidence suggests that affiliates of US-based MNEs play a dominant role in net work related export trade in ASEAN countries (McKendrick et al. 2000, Dobson and Yeu 1997). In 2005 US MNE affiliates accounted for nearly two thirds of total Malaysian exports to the USA (Tham et al 2007). Over 75% of electronics and electrical goods production in Singapore originates in US-MNE affiliates (Wong 2007). The hard disk drive industry in Thailand, which accounts for nearly 40% of total world demand of hard disk drives, is dominated by US firms. Initially, US-based firms located in the region exported predominantly to the US market, but over time they have diversified sales to third country markets, both intra- and extra regional. Until about the late 1980s, Japanese firms in Asia were less export oriented than US affiliates, but since then have become more like US affiliates in both industry composition and export-orientation. Their exports have been characterized by a distinct third-country (mostly US) bias throughout, notwithstanding some notable increase in sales to Japan in recent years (Yamashita 2008).

The bulk of export production in China are carried out by affiliates of multinational enterprises ('foreign invested enterprises', FIEs) from imported components within their global production networks (Naughton, 2007; Sung, 2007). The share of FIEs in total exports from China increased from less than 2% in 1980 to over 62.2% by the first decade of this century. They accounted for 88% of ICT products exported from China in 2005 (Sung 2007). The FIEs in China are mostly wholly foreign-owned, and their activities in China are overwhelmingly concentrated in the final assembly stage of production, which is the most labour intensive layer in production process spread over many countries. Basic research and product design, and capital and human-capital intensive stages of the production process are carried out in home countries of multinational enterprises or in other Asian countries which are in an advanced stage of industrial development compared to China. Affiliates of U.S.

multinational account directly for only small share of total exports by FIEs (about 10%)⁹, with affiliates of Taiwanese, Hong Kong and Korean firms accounting for the lion's share (over 80%). US multinationals seem, however, to play a major role in parts and component supply for all export oriented assembly firms from their production bases in China and other countries, in particular those located in Southeast Asia.

4 Concluding Remarks

Global production sharing has become an integral part of the economic landscape of East Asia. Trade in parts and components has been expanding more rapidly than conventional final-good trade. The degree of dependence on this new form of international specialization is proportionately larger in East Asia compared to North America and Europe. A highly important recent development in international fragmentation of production has been the rapid integration of China into the regional production networks. China's imports of components from countries in ASEAN and other developing East Asia countries have grown rapidly, in line with rapid expansion of manufacturing exports from China to extra-regional markets, mostly to North America and the European Union.

The evidence harnessed in this paper supports the view that, in a context where global production sharing is becoming the symbol of economic globalization, the standard trade flow analysis leads to misleading inferences about the patterns and degree of trade integration among nations. Booming trade in parts and components has resulted in a rapid increase in intra-regional trade in East Asia, both including and excluding Japan. This does not, however, mean that the process has contributed to lessening the region's dependence on the global economy. On the contrary, the region's growth dynamism based on vertical specialisation is deeply dependent on its extra-regional trade in final goods, and this dependence has in fact *increased* over the years. Put simply, increased participation in global production sharing has made the East Asia region increasingly dependent on extra-regional trade for its growth dynamism. Policy initiatives in the domain of financial (or trade) integration run the risk hindering growth dynamism

⁹ Exports by US MNE affiliates in China to the U.S. accounted for only 6% of total U.S. imports from China in 2004 (Bosworth and Collins 2008, Table 5)

of these countries unless this new dimension of global integration is not specifically taken into account.

There is strong evidence of deep complementarity between the trade and foreign direct investment. MNEs have been responsible for a larger share of exports from latecomers to export-led industrialization in Asia compared to the historically-specific experiences of Japan, Korea and Taiwan. For latecomer DCs the entry of MNEs is virtually essential for export success, in particular to benefit from the rapidly-expanding network-based international exchange. Notwithstanding, rapid growth in intra-regional FDI, US-based MNEs still play a dominant role within regional production networks in the region. There is evidence of local firms entering into production networks as component producers as the presence of MNE affiliates become deep rooted in a given country, but foreign trade in parts and components seems to be predominantly handled by the latter or international contract manufacturers who are playing an increasing role as middlemen in coordinating production and trade in modular parts and components worldwide.

What are the implications of these findings for the contemporary policy debate on regional economic cooperation? In particular, is the newfound fondness of countries in the region for free trade agreements (FTAs) consistent with the objective of maximising gains from the ongoing process of international product fragmentation?

Trade in components and final assembly is postulated to be relatively more sensitive to tariff changes than is final trade (or total trade as captured in published trade data) (Yi 2003). Normally a tariff is incurred each time a good-in-process crosses a border. Consequently, a one percentage point reduction in tariff leads to a decline in the cost of production of a vertically integrated good by a multiple of this initial reduction, in contrast to a 1 per cent decline in the cost of a regular traded good. Tariff reduction may also make it more profitable for goods that were previously produced entirely in one country to become vertically specialised. Consequently, in theory, the trade-stimulating effect of FTAs would be higher for trade in parts and components than for normal trade, other things remaining unchanged. However, in reality, much would depend on the nature of rules of origin built into FTAs. Trade-distorting effects of rules of origin are presumably more detrimental to fragmentation-based trade than to conventional final-

goods trade, because of the inherent difficulties in defining the ‘product’ for duty exemption and because of the transaction costs associated with the bureaucratic supervision of the amount of value added in production coming from various sources. Even small differences in ROOs among criss-crossing FTAs can raise business costs and divert trade and associated investment. Those costs are much more onerous for small and medium-size trading firms in developing countries than they are for large corporations. Reflecting these complications, the actual utilization rates of tariff concessions provided under the existing FTAs have so far been rather low, ranging from about 5% to 20% across different product categories (Takahasgi and Urata 2008, Kawai and Wignaraja 2009, Athukorala and Kohpaiboon 2011). More importantly, there is evidence that the utilization rates are often firm/industry specific: Normally Large firms and firms with close trade and FDI ties or those located in particular industries where meeting ROO requirements are simple and straightforward use FTAs. Moreover, given the importance of extra-regional market for final goods for the growth dynamism of production networks in Asia, maintaining barriers to trade against non-members (while allowing free trade among members) can thwart ‘natural’ expansion of fragmentation-based trade across countries.

Baldwin (2006) put forward a case for ‘multilateralizing regionalism’ in Asia (a ‘New East Asia regional management effort’ with a reinforced ASEAN+3) with a view to ensuring smooth functioning of the process of fragmentation-based specialization (which he dubs ‘Factory Asia’). Baldwin has correctly identified the importance of fragmentation-based specialization for economic growth in these countries, but he has overlooked the important fact that the growth dynamism based on this new form of specialization depends on extra-regional trade in final goods, and this dependence has in fact increased over the years.

To benefit from the new opportunities for trade expansion through the fragmentation-based division of labour, the best and the policy choice appears to be non-discriminatory multilateral and unilateral liberalization; the ongoing process of product fragmentation seems to have strengthened the case for a global, rather than a regional, approach to trade and investment policymaking. An effective approach to redressing the complexity that the ‘spaghetti bowl’ of FTAs create for international trade would involve

a two-pronged strategy of systematically fitting the FTAs into the WTO system and reducing the distortionary preference margins created by PTAs through multilateral tariff reduction. The Information Technology Agreement which came into force in 1997 is a promising start in achieving the latter objective.

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Table 1: Asia in World Trade (%)

Country/country group ¹	Total exports ²				Manufacturing exports ³				Manufacturing share in total exports			
	1979/80	1989/90	2005/6	2010-11	1979/80	1989/90	2005/6	2010-11	1979/80	1989/90	2005/06	2010-11
<i>Asia</i>	17.3	24.7	31.3	37.1	12.9	27.5	35.0	41.2	54.4	89.7	91.9	89.1
<i>East Asia</i>	16.5	23.8	29.9	35.1	12.0	26.7	33.7	39.1	53.0	90.4	92.6	89.4
Japan	8.6	10.4	6.5	5.9	8.9	12.7	7.6	6.1	75.5	98.4	96.1	83.0
<i>Developing East Asia</i>	7.9	13.4	23.3	29.2	3.1	14.0	26.1	33.0	28.6	84.2	92.0	90.7
China	1.0	2.9	11.6	12.8	0.5	3.0	13.4	15.3	36.5	83.3	94.9	95.9
Hong Kong	1.1	1.7	0.7	3.2	1.3	2.0	0.7	3.7	86.2	94.8	82.2	92.8
Korea	1.2	2.2	3.0	3.5	0.3	2.6	3.5	4.2	18.2	95.2	95.9	96.3
Taiwan	1.6	2.7	1.9	2.5	0.6	3.1	2.2	3.2	27.3	92.5	95.1	98.2
<i>ASEAN countries</i>	3.0	3.9	6.1	7.2	0.4	3.3	6.2	6.6	9.7	68.2	83.5	73.6
Indonesia	0.5	0.5	0.9	1.1	0.0	0.4	0.7	0.6	0.0	64.4	63.9	43.8
Malaysia	0.9	1.0	1.7	1.3	0.1	0.7	1.8	1.3	8.1	56.4	87.0	80.3
Philippines	0.5	0.3	0.7	0.4	0.1	0.3	0.7	0.3	14.6	80.6	82.2	60.2
Singapore	0.5	1.1	1.3	2.3	0.1	1.3	1.5	2.5	14.6	95.2	94.8	87.2
Thailand	0.5	0.8	1.3	1.5	0.1	0.6	1.3	1.4	14.6	60.4	82.2	74.9
Vietnam	---	---	0.3	0.6	---	---	0.3	0.5	---	--	82.2	66.9
<i>South Asia</i>	0.9	0.9	1.4	2.0	0.9	0.8	1.3	2.0	54.8	71.5	74.4	76.6
India	0.6	0.6	1.0	1.6	0.7	0.5	1.6	1.6	57.9	71.5	77.8	78.2
Sri Lanka	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	22.8	62.2	75.7	74.3
Bangladesh	0.0	0.1	0.1	0.2	0.0	0.1	0.1	0.2	65.2	78.4	78.2	77.2
Pakistan	0.1	0.2	0.1	0.1	0.2	0.2	0.1	0.1	54.4	71.8	75.2	74.3
NAFTA	18.4	17.5	14.6	13.4	24.1	16.2	14.6	13.0	95.5	74.6	82.2	77.9

EU15	42.0	41.1	35.2	34.8	53.4	42.2	35.5	37.2	92.7	82.7	83.8	84.2
World	100	100	100	100	100	100	100	100				
US% billion	1093	2386	9618	13,400	797	1922	7902	10,756	72.9	80.6	82.2	80.3

Note:

1 Asia = East Asia +South Asia; East Asia = Developing East Asia + Japan; Developing East Asia: China, Hong Kong, South Korea + Taiwan + ASEAN countries.

2 Total merchandise exports net of oil and gas exports.

3 Commodities classified under the Standard International Trade Classification (SITC) codes 5 through 9 less SITC 68 (nonferrous metals).

--- Data not available

Source: Compiled from UN Comtrade database, and Trade Data CD-ROM, Council for Economic Planning and Development, Taipei (for data on Taiwan)

Table 2: Commodity Composition of Manufacturing Exports for Asian Countries¹ (2010-11)⁴ (%)

County/country group ²	Chemicals (5)	Products classified by material (6)	Machinery and transport equipment (SITC 7)				Miscellaneous manufacturing (8)		Total
			Total	ICT ³ products (75+76+772+776)	Electrical good (77 - 772 - 776)	Road vehicles (78)	Total	Apparel (84)Apparel	
<i>Asia</i>	7.3	13.2	58.9	37.2	6	15.6	18.6	5.3	100
<i>East Asia</i>	7.4	12.3	59.8	36.4	6.2	15.7	18.2	5.2	100
Japan	8.3	10.3	72.1	23.7	5.5	23.4	9.3	0.1	100
<i>Developing East Asia</i>	6.5	11.8	59.2	44.3	6.4	3.4	22.5	7.1	100
Taiwan	11.3	17.2	56.7	33.5	8.6	3.6	14.8	0.8	100
Korea	9.3	12.2	69.8	39.1	4.8	12.7	8.7	0.9	100
China	3.9	12.4	56.3	36.1	7.4	1.5	27.4	9.2	100
Hong Kong	4.4	15.3	45.9	34.7	6.1	0.4	34.4	15	100
<i>ASEAN10</i>	9.1	8.8	66.8	53.1	4.3	2.6	15.3	5.4	100
Indonesia	9.5	25.3	37.6	24.6	6.4	2.5	27.6	12.6	100
Malaysia	5.9	6.4	78.2	71.7	3.4	0.6	9.5	2.3	100
Philippines	1.3	3.1	85.1	74.8	6.4	1.4	10.5	4.9	100
Singapore	22.7	3.7	66.6	54.7	2.9	0.5	7.0	0.3	100
Thailand	9.3	12.7	65.4	39.6	5.1	11.2	12.6	4.8	100
Vietnam	2.5	10.3	18.0	8.6	4.1	1.5	69.2	26.1	100
Other ASEAN	0.3	4.0	2.0	0.5	0.3	0.6	93.7	85.6	100
<i>South Asia</i>	13	40.3	11.6	1.9	2	2.6	35.1	25.5	100
India	16.4	41.5	23.2	1.2	1.6	20.1	18.9	13.7	100
Bangladesh	1.6	9.2	1.0	1.6	0.1	0.3	88.2	86.3	100
Pakistan	2.8	60.2	1.3	0.2	0.1	0.2	35.7	28.7	100
Sri Lanka	1.5	21.2	9.7	1.6	2	0.9	67.6	65.2	100

NAFTA	15.8	12	58.9	17.2	4.9	15.7	13.3	1.0	100
EU	21.6	17.4	48.4	10.7	3.7	15.6	12.6	1.8	100
World	13.5	16.2	54.3	21.2	4.8	11.6	16.0	3.8	100

Notes:

1. The SITC commodity code is given under each commodity nomenclature.
2. Asia = East Asia +South Asia; East Asia = Developing East Asia + Japan; Developing East Asia: China, Hong Kong, South Korea + Taiwan + ASEAN countries.
3. ICT Information and communication technology products (SITC 75+76+77)

Source: Compiled from UN Comtrade database, and Trade Data CD-ROM, Council for Economic Planning and Development, Taipei (for data on Taiwan)

Table 3: World Exports Shares of Selected manufactured Products¹ (%)

Country/country groups ²	ICT products ³ (75+76+772+776)		Electrical goods (77 - 772 - 776)		Road vehicles (78)		Textiles (65)		Apparel (84)	
	1989-90	2010-11	1989-90	2010-11	1989-90	2010-11	1989-90	2010-11	1989-90	2010-11
<i>Asia</i>	37.2	58.0	28.3	42.7	11.2	19.8	37.2	45.3	33.4	52.2
<i>East Asia</i>	37.8	57.9	28.3	42.1	11.0	19.5	34.6	38.1	26.3	45.5
Japan	13.8	9.9	12.9	8.7	8.3	12.5	4.2	2.8	0.4	0.2
<i>Developing East Asia</i>	22.9	48.0	15.8	33.4	2.7	7.0	29.2	35.3	24.7	45.3
Taiwan	4.4	3.8	3.7	4.3	1.1	0.6	7.8	4.6	2.1	0.4
Korea	3.9	6.7	0.8	3.7	1.2	4.3	6.1	4.2	2.0	0.6
China	3.2	22.8	5.2	20.6	0.1	1.7	8.5	20.2	11.2	35.1
Hong Kong	1.9	1.0	1.5	0.8	0.0	0.0	2.9	1.3	3.0	2.6
<i>ASEAN countries</i>	10.2	13.7	4.6	4.0	0.3	0.4	3.4	5.0	5.7	6.6
Indonesia	0.2	0.7	0.2	0.8	0.1	0.1	1.5	2.2	1.2	2.4
Malaysia	4.2	6.2	1.5	1.3	0.1	0.1	0.8	0.6	1.3	1.0
Philippines	0.9	2.5	0.5	0.9	0.0	0.1	0.1	0.2	0.8	0.9
Singapore	4.2	3.9	1.4	0.8	0.0	0.1	0.2	0.2	0.2	0.1
Thailand	1.2	1.5	0.9	1.7	0.1	1.2	0.8	0.2	1.2	1.1
Vietnam 2006/7	---	0.4	---	0.2	---	0.0	0.1	1.8	1.1	2.2
Other ASEAN countries	---	0.0	---	0.0	---	0.0	---	0.1	---	1.3
<i>South Asia</i>	0.1	0.1	0.2	0.6	0.2	0.3	5.6	7.2	4.2	6.7
India	0.1	0.1	0.1	0.5	0.2	0.3	2.8	3.9	2.9	3.2
Developed countries	61.2	34.5	67.9	47.2	90.5	76.2	46.7	36.3	27.2	16.2
Developing countries	38.8	65.5	32.1	52.8	9.5	23.8	53.3	63.7	72.8	83.8

Notes

1. The SITC commodity code is given under each commodity nomenclature.
2. Asia = East Asia +South Asia; East Asia = Developing East Asia + Japan; Developing East Asia: China, Hong Kong, South Korea + Taiwan + ASEAN countries.
3. ICT Information and communication technology products

Source: Compiled from UN Comtrade database, and Trade Data CD-ROM, Council for Economic Planning and Development, Taipei (for data on Taiwan)

Table 4 continued
(b) Imports

East Asia	21.7	23.7	30.1	36.6	14.3	18.1	21.0	28.1
Japan	4.1	3.5	4.0	3.8	3.0	3.3	3.4	3.5
Developing East Asia (DEA)	17.6	20.3	26.1	32.8	11.2	14.9	17.6	24.5
China	2.9	7.1	3.0	11.5	1.5	6.0	2.2	9.0
Hong Kong, China	4.4	3.6	5.4	6.3	2.8	2.1	3.9	4.4
Taiwan	2.1	1.6	3.1	2.3	1.4	1.2	2.1	1.8
South Korea	2.0	2.2	3.1	2.5	1.1	1.6	1.9	2.1
ASEAN)	6.2	5.8	11.5	10.2	4.4	4.0	7.4	7.3
Indonesia	0.8	0.4	1.1	0.3	0.3	0.3	0.6	0.3
Malaysia	1.4	1.3	3.0	2.4	1.1	1.2	1.9	1.9
The Philippines	0.4	0.5	0.6	1.2	0.2	0.4	0.4	0.8
Singapore	2.3	2.1	4.8	4.5	2.0	1.5	3.2	3.2
Thailand	1.3	1.1	2.0	1.4	0.8	0.6	1.3	1.0
Viet Nam	0.0	0.4	0.0	0.3	0.0	0.2	0.0	0.2
South Asia	0.9	1.3	0.7	1.1	0.4	0.9	0.6	1.0
India	0.5	1.1	0.4	0.9	0.2	0.8	0.3	0.8
Oceania	16.6	18.6	31.8	19.6	8.5	17.9	18.5	18.8
NAFTA	1.8	2.4	2.7	3.2	1.0	2.0	1.7	2.6
EU 15	42.0	35.2	45.5	29.9	7.5	15.9	23.8	23.5
Developed countries	71.4	61.1	82.7	52.3	68.8	66.8	74.7	59.0
Developing countries	28.6	38.9	17.3	47.7	31.2	33.2	25.3	41.0
World	100	100	100	100	100	100	100	100

Source: data compiled from UN Comtrade database.

Table 5: Share of network products in manufacturing trade, 1992-93 and 2006-08 (percent)

	Parts and components		Final assembly		Total network products	
	1992-93	2007-08	1992-93	2007-08	1992-93	2007-08
(a) Exports						
East Asia	20.2	34.3	31.6	26.4	51.8	60.7
Japan	23.9	34.3	44.5	32.3	68.4	66.6
Developing East Asia (DEA)	17.3	34.0	21.8	25.2	39.1	59.2
People's Republic of China (PRC)	7.4	25.5	13.7	26.6	21.1	52.1
Hong Kong, China	15.8	33.3	18.0	17.8	33.8	51.1
Taiwan	24.7	44.2	17.6	21.5	42.3	65.7
Republic of Korea	18.1	44.2	22.2	25.4	40.3	69.5
ASEAN	22.7	44.2	34.1	22.0	56.8	66.2
Indonesia	3.8	21.5	5.6	16.8	9.3	38.4
Malaysia	27.7	53.6	40.7	25.1	68.4	78.8
The Philippines	32.9	71.7	20.5	15.6	53.4	87.3
Singapore	29.0	49.3	45.9	17.2	74.9	66.5
Thailand	14.1	29.9	29.0	33.0	43.1	62.9
Viet Nam	---	11.0	---	7.6	---	18.5
South Asia	2.3	8.2	2.9	3.1	5.1	11.3
India	3.0	10.4	3.4	3.8	6.4	14.2
North American Free Trade Area (NAFTA)	28.4	31.2	31.4	28.1	59.7	59.3
Mexico	42.1	34.6	30.8	42.1	72.9	76.6
European Union (EU) 15	18.3	22.4	22.4	21.1	40.7	43.5
Developed countries	20.4	25.2	28.5	23.6	48.9	48.8
Developing countries	14.6	29.2	21.8	24.3	36.4	53.6
World	19.3	27.1	26.3	23.8	45.5	50.9

Table 5 continued

	Parts and components		Final assembly		Total Network products	
	1992-93	2007-08	1992-93	2007-08	1992-93	2007-08
(b) Imports						
East Asia	27.2	42.0	17.2	17.8	44.4	59.8
Japan	19.3	29.2	19.3	21.9	38.6	61.1
Developing East Asia	29.0	44.4	16.7	17.3	45.8	61.7
PRC	20.4	44.0	14.0	19.8	34.4	63.7
Hong Kong, China	24.1	48.5	16.5	13.5	40.6	62.1
Taiwan	29.5	38.9	18.0	16.8	47.5	55.7
Republic of Korea	30.1	31.9	14.6	17.4	44.7	49.3
ASEAN	36.0	47.8	18.4	16.2	54.4	64.0
Indonesia	27.0	21.8	9.2	15.8	36.1	37.7
Malaysia	40.5	50.0	20.2	22.0	60.7	72.0
The Philippines	32.6	61.3	15.0	17.4	47.6	78.6
Singapore	39.9	60.4	21.9	17.3	61.8	77.7
Thailand	30.6	36.1	15.6	12.4	46.2	48.5
Viet Nam	---	19.1	---	9.7	---	28.8
South Asia	16.6	23.8	12.9	16.5	29.5	40.3
India	17.5	22.9	10.6	17.0	28.1	39.9
NAFTA	37.4	28.8	13.4	22.4	50.7	51.2
Mexico	29.4	36.1	14.2	19.0	43.7	55.1
EU15	21.2	23.2	4.7	10.6	25.9	33.8
Developed countries	22.6	23.4	25.2	25.5	47.8	48.9
Developing countries	11.9	33.6	28.6	19.9	40.4	53.4
World	19.6	27.3	26.2	23.3	45.7	50.7

Note: --- Negligible (less than 0.05%)

Source: Compiled from UN Comtrade database.

Table 6: Share of parts and components in bilateral trade flows, 2007/8 (%)

Reporting country	EA	Japan	DEA	PRC	ASEAN	NAFTA	EU15	World
(a) Exports								
East Asia (EA)	47.6	32.9	50.1	51.6	54.5	25.1	24.1	34.1
Japan	42.0	0.0	42.0	41.5	47.9	31.5	30.4	34.4
Developing East Asia (DEA)	48.1	33.4	53.9	0.0	65.2	22.7	21.6	34.0
China (PRC)	36.2	25.2	40.6	0.0	49.1	17.1	16.3	25.6
Korea	61.9	51.5	63.5	57.3	63.7	36.6	26.8	44.2
Taiwan	51.5	59.0	50.5	39.5	61.2	35.0	37.6	44.2
ASEAN10	58.2	39.9	61.4	64.0	56.0	32.1	33.9	44.2
NAFTA	46.7	36.5	49.8	34.8	67.9	28.8	30.6	31.2
EU15	31.4	18.7	34.8	30.4	46.5	22.1	22.0	22.4
(b) Imports								
East Asia (EA)	51.7	48.8	52.8	34.8	68.3	54.7	33.1	42.1
Japan	34.2	0.0	34.2	23.1	44.9	41.0	18.9	29.9
Developing East Asia (DEA)	55.5	47.7	59.5	0.0	74.3	40.3	31.7	44.2
China (PRC)	55.2	47.5	59.2	0.0	74.0	40.1	31.6	44.0
Korea	33.0	26.6	38.1	26.1	55.7	38.9	22.9	31.9
Taiwan	46.7	33.8	58.3	44.1	68.8	40.2	28.0	38.9
ASEAN10	50.3	47.2	51.4	40.1	55.9	67.5	41.7	47.9
NAFTA	29.4	39.3	26.0	17.7	40.5	36.3	25.1	28.8
EU15	25.0	33.6	22.8	14.9	37.9	34.1	22.1	23.4

Note:

1. EA: East Asia, DEA: Developing East Asia; ASEAN6: six main ASEAN countries; EU15: 15 member countries of the European Union; NAFTA: countries in the North American Free Trade Agreement (USA, Canada and Mexico)

Source: Compiled from UN Comtrade database.

Table 7: Intra-regional shares of manufacturing trade: Total, parts and components, and final trade, 1992-93 and 2006-08¹(percent)

	East Asia	Developing East Asia	ASEAN	NAFTA	EU15
(a) Total trade					
Exports					
1992-93	47.2	38.2	20.7	44.4	61.2
2007-08	43.9	33.5	18.4	48.1	56.8
Imports					
1992-93	58.2	34.9	15.5	36.3	64.1
2007-08	64.4	46.6	20.8	32.6	57.8
Trade (exports + imports)					
1992-93	53.2	36.5	17.8	39.9	62.6
2007-08	55.2	40.4	20.1	38.4	57.5
(b) Parts and Components					
Exports					
1992-93	50.2	42.6	30.3	43.5	62.3
2007-08	61.1	53.9	25.4	46.9	55.9
Imports					
1992-93	65.9	35.3	20.2	39.5	58.0
2007-08	66.9	50.9	22.9	39.9	55.2
Trade					
1992-93	57.0	38.7	24.1	41.4	60.1
2007-08	63.0	52.2	23.3	43.2	55.5
(c) Final Goods ³					
Exports					
1992-93	46.0	36.8	16.1	44.7	60.9
2007-08	36.9	28.3	15.9	48.7	57.0
Imports					
1992-93	55.4	34.7	12.9	35.3	65.6
2007-08	63.0	42.8	20.6	30.2	58.5
Trade					
1992-93	50.3	35.7	14.3	39.4	63.3
2007-08	44.2	34.1	18.1	37.4	57.3

Note:1. Intra-regional trade shares have been calculated excluding bilateral flows between China and Hong Kong.

2. ASEAN+3=ASEAN+ Japan + Korea +China

3. Total (reported) trade (a) – parts and components (b).

Source: Compiled from UN Comtrade database, and Trade Data CD-ROM, Council for Economic Planning and Development, Taipei (for data on Taiwan)

Table 8: FDI Inflows, 1990-2012

	1990-94	1995-99	2000-04	2005	2006	2007	2008	2009	2010	2011	2012
(a) Value, US\$ million											
World	201304	604114	842132	989618	1480587	2002695	1816398	1216475	1408537	1651511	1350926
Asia	42492	104639	144702	232597	304714	396246	431452	341234	404946	445475	418915
Japan	1389	3886	7589	2775	-6507	22550	24426	11939	-1251	-1755	1731
Developing Asia ²	38810	95354	124036	180506	227650	285289	302606	252770	341229	387092	359651
East Asia	22610	61712	89366	122778	135846	165104	195454	162523	214604	233818	214804
China + Hong Kong	20617	55524	80767	113366	117627	145631	175347	149274	197442	220110	195664
China	16028	42057	50894	72406	72715	83521	108312	95000	114734	123985	121080
Hong Kong	4588	13467	29873	40960	44912	62110	67035	54274	82708	96125	74584
South Korea	819	4338	5595	6309	9047	8961	11195	8961	10110	10247	9904
Taiwan	1154	1764	2567	1625	7424	7769	5432	2805	2492	-1957	3205
ASEAN countries	15256	29885	26265	43300	63886	85640	50543	47810	97898	109044	111336
Cambodia	31	218	132	381	483	867	815	539	783	902	1557
Indonesia	1713	2670	-1216	8336	4914	6928	9318	4877	13771	19241	19853
Lao PDR	22	88	20	28	187	324	228	190	279	301	294
Malaysia	4423	5209	2928	4065	6060	8595	7172	1453	9060	12198	10074
Myanmar	167	553	227	235	276	710	863	973	1285	2200	2243
Philippines	942	1445	1031	1854	2921	2916	1544	1963	1298	1816	2797
Singapore	5181	12778	16024	18090	36700	46972	12200	24939	53623	55923	56651
Thailand	1990	4378	4584	8067	9501	11359	8455	4854	9147	7779	8607
Viet Nam	780	1896	1412	1954	2400	6700	9579	7600	8000	7430	8368
South Asia	944	3757	8405	14429	27919	34545	56608	42438	28726	44231	33511
Bangladesh	7	357	414	845	792	666	1086	700	913	1136	990
India	414	2619	4959	7622	20328	25350	47139	35657	21125	36190	25543
Pakistan	420	536	633	2201	4273	5590	5438	2338	2022	1327	847

Sri Lanka	119	196	201	272	480	603	752	404	478	981	776
(b) Share in global flows											
Developed economies ³	69.5	66.7	69.2	62.8	66.6	65.9	56.5	50.4	49.4	49.7	41.5
Developing economies ³	29.9	31.9	28.6	33.8	29.2	29.4	36.8	43.6	45.2	44.5	52.0
Africa and the Middle East	3.2	2.3	3.8	7.9	7.2	6.6	8.5	10.5	7.6	6.1	7.6
Latin America + Caribbean	7.7	11.2	9.2	7.6	6.4	8.3	11.3	12.1	13.2	14.7	17.6
Transition economies ⁴	0.7	1.4	2.2	3.4	4.2	4.7	6.7	6.0	5.3	5.8	6.5
Developing Asia	19.7	18.8	17.0	22.7	20.0	18.2	21.8	26.7	28.4	26.4	30.1
East Asia	10.5	11.4	11.0	12.4	9.2	8.2	10.8	13.4	15.2	14.2	15.9
China	7.3	8.2	6.8	7.3	4.9	4.2	6.0	7.8	8.1	7.5	9.0
Hong Kong	2.1	2.2	3.2	4.1	3.0	3.1	3.7	4.5	5.9	5.8	5.5
ASEAN countries ⁵	7.6	6.0	3.5	4.4	4.3	4.3	2.8	3.9	6.9	6.6	8.2
India	0.4	0.7	1.2	1.5	1.9	1.7	3.1	3.5	2.0	2.7	2.5
(c) Share in inflows to developing countries											
Africa and the Middle East	10.9	7.1	12.6	23.5	24.6	22.5	23.1	24.1	16.7	13.7	14.5
Latin America + Caribbean	25.8	36.2	32.5	22.4	22.0	28.2	30.7	27.7	29.2	33.1	33.8
Transition economies ⁴	2.0	4.2	6.9	10.0	14.5	15.8	18.2	13.7	11.8	13.1	12.4
Developing Asia	65.5	57.7	59.2	67.3	68.5	61.9	59.3	61.2	62.9	59.3	57.9
East Asia	33.2	35.7	39.4	36.7	31.4	28.0	29.2	30.6	33.7	31.8	30.6
China	22.1	25.0	23.3	21.6	16.8	14.2	16.2	17.9	18.0	16.9	17.2
Hong Kong	7.2	7.3	12.4	12.2	10.4	10.5	10.0	10.2	13.0	13.1	10.6
ASEAN countries ⁵	27.3	17.9	11.6	12.9	14.8	14.5	7.6	9.0	15.4	14.8	15.8
India	1.4	2.2	3.9	4.3	6.5	5.9	8.5	8.0	4.5	6.0	4.8

Notes:

- 1 Annual averages.
2. Countries in East Asia (other than Japan), Southeast Asia (ASEAN) and South Asia.
3. Based on the United Nations standards classification.
4. Transition economies in Central and Eastern Europe.
5. Member countries of the Association of Southeast Asian Nations.

Source: Compiled from UNCTADT World Investment database.

Table 9: FDI Inflows as % of Gross Domestic Fixed Capital Formation (GDFCF), 1970-2012

	1990-94	1995-99	2000-04	2005	2006	2007	2008	2009	2010	2011
Developing Asia	5.28	9.10	10.02	10.69	11.87	11.95	10.70	8.00	8.25	7.60
East Asia	5.58	10.27	11.01	9.64	9.02	9.15	8.67	6.13	6.82	6.16
China	8.63	13.60	9.25	7.99	6.59	6.11	5.88	4.14	4.23	3.72
Hong Kong	15.17	28.69	73.62	110.16	108.11	148.92	156.12	130.31	173.46	180.51
South Korea	0.67	3.16	3.19	2.58	3.31	2.99	4.09	3.72	3.54	3.35
Taiwan	2.31	2.47	3.71	1.98	8.85	8.98	6.43	3.94	2.66	-2.00
South-East Asia	10.44	16.02	16.29	19.57	24.07	26.50	12.85	11.75	19.11	18.60
Cambodia	12.26	48.20	17.32	32.07	34.34	50.78	45.61	25.75	42.99	44.00
Indonesia	4.40	3.50	-4.17	12.33	5.59	6.43	6.59	2.91	6.06	7.10
Lao PDR	10.01	31.09	6.26	2.97	16.95	23.71	13.20	9.57	13.43	11.13
Malaysia	17.49	14.32	10.53	12.70	16.97	19.82	15.11	3.27	16.50	19.14
Philippines	6.28	7.25	5.90	9.04	11.88	9.81	4.51	6.13	3.17	4.18
Singapore	30.04	40.56	62.88	68.25	116.09	115.37	23.48	48.92	97.51	91.89
Thailand	4.57	13.37	14.24	15.38	15.96	16.97	10.97	7.44	11.36	8.39
Vietnam	33.47	28.71	12.64	11.23	11.81	24.65	30.38	22.65	21.14	20.44
South Asia	0.77	2.38	4.04	4.01	6.65	6.35	9.38	6.98	3.94	5.33
Bangladesh	0.12	4.06	3.65	5.98	5.33	3.97	5.64	3.23	3.75	4.33
India	0.55	2.57	3.61	2.89	6.61	6.18	10.83	8.00	3.87	5.90
Pakistan	3.68	4.27	5.09	11.54	16.45	18.71	18.28	9.04	8.33	5.54
Sri Lanka	4.92	5.07	5.22	4.77	6.82	7.55	7.31	4.05	3.72	6.12
Memorandum items										
World	3.71	9.09	11.50	10.00	13.46	15.88	13.05	9.58	10.15	10.55
Developed countries	3.34	8.39	11.11	9.02	13.34	16.27	12.21	8.67	9.72	10.48
Developing countries	5.47	11.24	12.39	12.01	13.02	14.47	13.50	10.19	10.22	10.11

Notes:

1. Annual averages.
2. Countries in East Asia (other than Japan), Southeast Asia (ASEAN) and South Asia.
3. Based on the United Nations standards classification.
4. Transition economies in Central and Eastern Europe.
5. Member countries of the Association of Southeast Asian Nations.

Source: Compiled from UNCTADT World Investment database.

Table 10: Source-country Composition of FDI Inflows into Selected Asian countries, 2002-09 (%)

Source Countries	ASEAN countries								India ¹	China ²
	Indonesia	Malaysia	Philippines	Singapore	Thailand	Vietnam	Other	Total		
Japan	13.83	20.00	17.36	6.25	35.29	10.52	13.94	14.34	8.2	11
China	4.82	0.38	-0.01	2.27	0.39	1.99	2.71	2.31	---	0
Hong Kong	1.11	3.48	5.72	0.09	4.10	5.23	2.33	2.21	0.6	40.5
Taiwan (ROC)	0.53	0.26	0.09	0.88	0.79	9.13	1.53	1.54	0.2	6.9
Korea, South	3.54	1.02	0.46	1.45	0.70	11.04	2.91	2.67	4.6	8.6
ASEAN	27.94	19.99	3.37	5.54	23.12	14.02	13.54	13.56	3.7	5.7
Indonesia	---	1	0.4	1.3	0.1	0.9	0.3	0.8	---	---
Malaysia	1.8	---	0.7	1.7	0.5	3.2	4	1.5	1.8	0.7
Philippines	---	0.5	--	0.2	0.1	0	0.2	0.2	0	---
Singapore	-1.1	16.7	8.2	---	12.9	12.5	22.7	7	1.9	5
Thailand	3.2	0.1	0.2	0.9	---	2.8	4.2	1	---	---
India	-0.96	-2.55	0.01	3.13	0.12	0.37	1.04	1.05	---	---
EU	24.44	26.13	4.88	31.08	9.04	14.42	24.63	23.87	28.3	8.5
USA	11.81	12.18	16.51	7.26	2.27	15.74	8.16	8.42	13.6	9.8
Canada	-0.26	1.43	0.04	0.85	2.73	1.33	1.12	1.13	---	1.1
Australia	4.43	1.48	0.09	0.98	0.75	0.67	1.28	1.29	---	1
New Zealand	0.00	-0.11	0.00	0.33	0.08	0.08	0.22	0.19	---	---
Other countries	6.36	15.89	21.04	29.27	17.45	13.77	19.97	20.54	38.13	6.9
Total	100	100	100	100	100	100	100	100	100	100

Note: 1 Date for 2000-04 2 Date for 2001-06 --- Zero or negligible
3 Includes investment by non-resident Indians and possibly considerable amount of local private investment 'round-tripped' via Mauritius.

Source: Compiled from ASEAN Secretariat, ASEAN Statistical Yearbook (http://www.aseansec.org/pdf/ASEAN_Statistical2003.pdf), CIEC database (China), and The Indian Investment Office website at http://iic.nic.in/iic2_c01.htm.

Table 11: MNE Involvement in Manufactured Exports and Selected Export Performance Indicators in Developing Asian Countries¹

Period	MNE share in exports ² (%)	Nature of export composition of MNE affiliates by the late 1990s ⁴ .
South Korea		
1980-84	25.8*	B3.1 and B3.2. with the latter
1985-89	26.1*	Increasing rapidly in recent years
Taiwan		
1980-84	27.9	2.3a and 2.3b, with the latter
1990-94	19.7	Increasing rapidly in recent years
2000-04	10.1	
Singapore		
1980-84	74.9	2.3a and 2.3b. 2.3a still dominates, but
1990-94	85.2	there as been a continuing shift from
2000-04	89.1	2.3a to 2.3b since about the mid-1980s
2005-10	87.5	
China		
1985-89	5.3	Predominantly B2 and B3.2, with some
1990-94	24.3	Increase in B3.1 recently
2000-04	53.1	
2005-10	62.2	
Indonesia		
1990-94	28.5	Predominantly B2, with some increase
1995-99	38.5	In B3.1 recently
2000-04	45.3*	
2005-09	49.2*	
Malaysia		
1985-89	75.6	Predominantly B3.1a, with some
1990-94	78.1	(but diminishing) involvement in B3.2.
2000-04	86.1	
2005-09	87.6	
Philippines		
1985-89	49.9*	Predominantly B3.1, with a small and
1990-94	47.6*	Diminishing share of B3.2 .
2000-04	85.7*	
Thailand		
1980-84	13.5*	B1, B2, B3.1 and B3.2, with the latter
1990-94	50.4*	two increasing rapidly in recent years.
1995-99	62.6*	
Vietnam		
1990-94	12.0	Predominantly B1 (mostly seas food)
1995-99	39.2	and B2, with a small, but increasing,
2000-04	48.6	share of B3.1.
2004-09	58.2	
India		
1980-84	8.7	A wide range of 1, with some minor
1990-94	4.6	increase in B2 and B3.1
2000-04	4.6*	

Sri Lanka		
1980-84	42.8	Predominantly B2, and some B1 (mostly ceramics and rubber goods) and B3.1
1990-94	63.5	
2000-04	43.2	
2005-09	38.3*	

Notes

- 1 In all cases manufactured exports have been measured using the ISIC-based definition (i.e. all goods belonging to Division 3 of the International Standard Industry Classification) or an approximation to it. Figures reported are five-year averages unless otherwise indicated.
- 2 Annual averages.
- 3 Figures marked with asterisk are for a single year or some years falling within the given five year period. For details see the Appendix.
- 4 Product categories listed in Column 7:
 - A Exports by market-seeking MNE affiliates: product mix varies depending on the nature of import-substitution policy regime, domestic market size, export incentives and export performance requirements imposed by the government.
 - B Exports by efficiency-seeking (export-oriented) MNE affiliates.
 - B1 Resource-based manufacturing – Local processing of primary products previously exported in raw state
 - B2 Standard consumer goods – clothing, shoes, sporting goods.
 - B3 Assembly activities within vertically integrated production systems
 - B3.1 Parts and component assembly: parts of electronic and electrical machinery, motor vehicle parts etc.
 - B3.2 Final assembly: computers, cameras, motor vehicles etc

Source: Athukorala (2007), Chapter 3 (updates using the same data source detailed therein)

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