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**Multinational Enterprises and Manufacturing for Export in
Developing Asian Countries:
Emerging Patterns and Opportunities for Latecomers**

Prema-chandra Athukorala

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Institute of Economic Research
Hitotsubashi University
Kunitachi, Tokyo, 186-8603 Japan
<http://hi-stat.ier.hit-u.ac.jp/>

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Prema-chandra Athukorala

Research School of Pacific and Asian Studies
Australian National University
and
The Institute of Economic Research
Hitotsubashi University

Summary: This paper examines the role of multinational enterprises (MNEs) in the expansion of manufacturing exports from developing countries, in the light of the Asia experience. First a typology of MNE-export nexus is developed in the context changes in patterns of international production over the past two decades. The typology is then applied to empirical evidence from newly industrialized countries (NICs) and latecomer exporting countries in Asia. The evidence suggests that the share of MNEs in manufactured exports from all these countries has recorded a significant increase from about the mid 1970s and the entry of MNEs is virtually essential for the export success of latecomers.

Key words: multinational enterprises, manufacturing exports, Asia, newly industrialized countries

E-mail: prema-chandra.athukorala@anu.edu.au

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Summary: This paper examines the role of multinational enterprises (MNEs) in the expansion of manufacturing exports from developing countries, in the light of the Asia experience. First a typology of MNE-export nexus is developed in the context changes in patterns of international production over the past two decades. The typology is then applied to empirical evidence from NIEs and latecomer exporting countries in Asia. The evidence suggests that the share of MNEs in manufactured exports from all these countries has recorded a significant increase from about the mid 1970s and that, contrary to the specific experience of Korea and Taiwan, the entry of MNEs is virtually essential for the export success of latecomers.

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1. INTRODUCTION

The past three decades have witnessed a profound shift in the relationship between multinational enterprises (MNEs) and developing countries (DCs), as more and more countries have adopted an outward-oriented growth strategy. Affiliates of MNEs, as part of the parent company's global network, have marketing channels in place, possess experience and expertise in the many complex facets of product development and international marketing, and are well placed to take advantage of inter-country differences in the costs of production. Textured flows of information and knowledge needed for successful market

penetration can be more effectively channeled through MNE networks than through arm's-length trade links. Moreover, MNEs may be better able to resist protectionist pressures and other barriers to market entry in their home countries in such a way as to favour imports from their affiliates. In view of these considerations, enticing export-oriented foreign direct investment (EOFDI) has become an integral element of policy reforms toward export-led industrialization in many developing countries.

However, the debate on the role of MNEs in this outward-oriented policy thrust is far from settled. Although the case for trade liberalization is now widely accepted in development policy circles, the case for liberalizing the FDI regime is still debated. Some who favour trade liberalization continue to advocate restriction of or conditions on FDI. This 'revisionist' school of thought admits that FDI can play an important role in the transmission of technology, market know-how and modern management practices to developing countries. But it argues for a selective approach to the promotion and screening of FDI, and possibly trade policy, with a view to avoiding potential threats to the development of indigenous entrepreneurial and technological capabilities (Lall 2003, Rodrik 1999, Amsden and Chu 2003). This view has often been reflected in a mismatch between the liberalization of FDI and trade policy regimes in some countries.¹

The empirical underpinning for this revisionist view largely comes from studies conducted in the 1970s, at the formative stage of the export take-off in the newly industrializing economies (NIEs) in East Asia (for example, Hone 1974, Cohen 1975, Lall and Streeten 1977 Chapter 7, Nayyar 1978). The general inference of these studies was that the export take-off in the East Asian NIEs was predominantly based on local initiatives and ownership; and, at the firm level, transnationality was not an important aid to exporting.² It was the innovative and selective use of various 'non-equity' forms of foreign participation, so

the argument went, rather than the direct involvement through FDI, that was the key to NIE success.

The purpose of this paper is to take a fresh look at the role of MNEs in the export of manufactures from developing countries in Asia using more recent and comprehensive data. The paper is motivated by the concern that, given major changes in patterns of international production over the past two decades, evidence from the early years of export-led industrialization in the East Asian NIEs may send quite inappropriate signals to policymakers in latecomer exporting countries.³ Two major developments are particularly noteworthy. First, an increasing number of firms from some NIEs have become aggressive international investors, and these 'third world' MNEs seem to possess specific competitive advantages over 'first world' MNEs in some product areas, particularly where latecomers to export-led industrialization have a comparative advantage in international production. Second, and more importantly, the 'slicing up of the product chain' in high-tech industries, involving cross-border reallocation of global MNE activities according to the host country's relative factor endowments, has rapidly gained importance over traditional labour-intensive final goods production as the prime mover of the internationalization of production.

The paper begins with an analytical account of the nature and changing patterns of MNE involvement in production for export in developing countries in the context of the ongoing process of globalisation of manufacturing industries. The next section assembles a large body of empirical evidence on the role of MNEs in the export performance of developing host countries in Asia, and analyses it from a comparative perspective. The final section summarizes the key findings and draws out some broader policy implications.

2. MNES AND MANUFACTURING FOR EXPORTS: A TYPOLOGY

For the purpose of discussing factors impacting on the decision of MNEs to engage in export production in a given host (investment receiving) developing country, it is important to distinguish between two types of MNE affiliates. These are firms engaged in serving the domestic market ('market-seeking' investors) and those engaged in production for the global market ('efficiency-seeking' investors).

When it comes to market-seeking investment in developing countries, the forces explaining the location decisions of MNEs are about the same as those explaining their presence in industrialized countries. The location decision depends primarily on the prevalence in the host country of production opportunities aimed predominantly at meeting domestic demand. Given the scale economies and very small domestic markets in many developing countries, a major (if not the key) determinant of congenial domestic production is restrictions on international trade. As domestic income levels approached industrial country levels, MNEs involved in many production activities aimed at serving both domestic and export markets, but MNE involvement in this area in most developing countries has so far been largely limited to serving the domestic market, and such investment has predominantly been determined by the 'tariff-jumping' motive. The so-called 'life-cycle' investors (*a la* Vernon 1962), who expand their production networks globally predominantly on scale-economy considerations hardly regard low-income countries as attractive investment locations under free-trade conditions. In theory, in certain circumstances, MNE affiliates originally set up to serve local markets could well develop competitive advantage over the years and penetrate markets in other countries without government support (Moran 1998, Bennett and Sharp 1979). But in the real world such cases are rare and limited predominantly, if not solely, to middle-income and upper-middle-income developing countries with sizeable domestic markets.⁴

In some circumstances it may be possible to entice MNE affiliates which originally entered production to meet local markets to shift to exporting through government intervention. But this is typically more difficult than the encouragement of 'fresh' export-oriented investors since it requires the alteration of the firm's global production and marketing strategies. A well-known feature of MNE behaviour is that the parent company strictly controls the performance of its affiliates in the interest of global profit. The export decision of affiliates is, therefore, not simply a matter of responding to domestic export incentives and government directives. Even if import-substituting MNE affiliates do respond to a host government's carrot-and-stick approach, there is no guarantee that the final outcome will justify the overall cost involved. Import-substituting production units operating in a small protected market are not usually internationally competitive. Therefore, export incentives have to be introduced and maintained at high levels to generate the anticipated export push. In addition to the related budgetary and institutional constraints, the degrees of freedom available for host countries to resort to such an interventionist policy stance is becoming increasingly limited by the ongoing efforts to enhance the contestability of global markets through international agreements on cross-border investment and competition policies under the World Trade Organization (WTO) and regional trading agreements (RTAs). On the benefit side, there may be little to gain in terms of employment generation because such exports, being simply an extension of import-substitution production, tend to be highly capital intensive (Bhagwati 1996).

For these considerations, the present-day discussion on MNE involvement in export-led industrialization in developing countries is focused almost exclusively on 'efficiency-seeking' investment (commonly known as export-oriented FDI). The role of MNEs in this sphere is 'more distinctively a developing-country question' (Caves 1996, p. 217). Export-oriented FDI is, however, not a homogeneous phenomenon. Rather it is a complicated and finely differentiated means of globalization of production. The opportunities available to a given

country in mobilizing FDI in economic growth and development depend on relevant typological characteristics and the investment environment of the country and the changing pattern of international production in the global context. In order to understand the opportunities arising from the interaction of these two factors, it is important to distinguish among three different categories of export-oriented production (Table 1):

- (1) resource-based manufacturing,
- (2) labour-intensive final consumer goods, and
- (3) assembly processes within vertically integrated global production systems.

Table 1 near here

In the first category, the relevance for a given host country of MNE participation for export expansion depends primarily on the availability of relevant natural resources. Even if resources are available, there are other factors which may render policies designed to entice foreign investors ineffective. For instance, some processing activities, particularly those in the mineral and chemical industries, are characterized by high physical and/or human-capital intensity and may not be economic in a low-income country. A further major deterrent is cascading tariff structures in industrialized countries, which still provide heavy effective protection to domestic processing industries. Insecure property rights in resource-rich developing countries also may act as a deterrent to investors in large, capital-intensive projects. These constraints notwithstanding, there are some product areas where there are significant opportunities for successful export expansion through MNE participation. One such product line, which has gained importance over the past two decades for agricultural-resource-rich developing countries, is agro-based processed food, seafood in particular (Athukorala and Jayasuriya 2003).

For the typical developing economy, labour-intensive consumables (Category 2.2) are generally considered the natural starting point in the process of export-led industrialization. However, the role of MNEs in this area remains a controversial issue. In the spectacular export take-off of the East Asian NIEs in the 1960s, the key role was played by indigenous firms with the help of marketing services provided by foreign buyers, the Japanese trading houses and the large retail buying groups in developed countries (Hone 1974, Nayyar 1978, Naya 1990, Westphal *et al.* 1979).

There are, however, strong reasons to argue that this ‘early East Asian pattern’ of local-entrepreneur dominance in exports may not be replicated in latecomer countries. First, perhaps the most important factor behind the East Asian experience was the unique entrepreneurial background of these countries. Hong Kong, Taiwan and to some extent Singapore started with a stock of entrepreneurial and commercial talents inherited from the pre-revolution industrialization in China. Hong Kong and Singapore also had well established international contacts based upon entrepot trade that involved exporting manufactured goods to begin with. Likewise, the considerable industrial experience that accumulated over the preceding five decades or so under the Japanese occupation was instrumental in the export take-off in Taiwan and Korea (Amsden and Chu 2003, Rhee *et. al.* 1988). Therefore, there was no such a large difference between domestic firms in these countries and foreign firms with regard to knowledge of and access to market channels.

The present-day newcomers to export-led industrialization (including most transitional economies) are not generally comparable to the East Asian NIEs in terms of the initial level of entrepreneurial maturation. In many of these countries, the import-substitution growth strategy pursued indiscriminately over a long period has thwarted the development of local entrepreneurship. Domestic firms are generally weakly oriented towards, and have limited knowledge of, highly competitive export markets. This observation seems even more

relevant for the present-day transition economies, which have embarked on the process of integration into the global economy following a long period of central planning (Lankes and Venables 1996).

Moreover, from around the mid 1980s, successful exporting firms in the East Asian NIEs have begun to play an important role as direct investors in the latecomers' labour-intensive export industries. Two main factors accounted for this trend: the erosion of international competitiveness of labour-intensive export products from their home countries as a result of rising real wages and exchange rates; and the imposition and gradual tightening of quantitative import restrictions (QRs) under the Multifibre Arrangement (MFA) by Industrialized countries on certain labour intensive exports (mostly textile, garments and footwear) (Wells 1994). There are indications that, consistent with rapid structural transformations that are taking place in the NIEs, the intermediary role of these "new" investors in linking late comers to world markets may become increasingly important in years to come. A major advantage which investors from these new countries possess is that, unlike MNEs from developed countries they are familiar with and/or easily adaptable to the more difficult business conditions (such as poor infrastructure, bureaucratic red tape, and unpredictable policy settings) in latecomers. Given that NIE firms have developed considerable specialized knowledge of small scale and labour-intensive production procedures in the manufacture of standardized products, they have a powerful competitive advantage over both local firms and MNEs from industrialized countries in these latecomer environments (Gereffi 1999).

The location in developing countries of relatively labour-intensive component production and assembly within vertically integrated international industries ('international production fragmentation' or 'outsourcing') (Table 1, Category 3) has been an important feature of the international division of labour since about the late 1960s. The process was

started by electronics MNEs based in the USA in response to increasing pressures of domestic real-wage increases and rising import competition from low cost-sources (Sharpton 1975, Helleiner 1973, Feenstra 1998). The transfer abroad of component assembly operations now occurs in many industries where the technology of production permits the separation of labour-intensive components from other stages of production. Assembly operations in the electronics industry (in particular, assembly of semiconductor devices, hard disk drives and so on) are still by far the most important. The other industries with significant assembly operations located in developing countries are electrical appliances, automobile parts, electrical machinery, optical products, musical equipment, watches and cameras. In general, industries that have the potential to break up the production process to minimize the transport cost involved are more likely to move to peripheral countries than other industries.

The expansion of production fragmentation as an important facet of international production has been hastened by two mutually reinforcing developments over the past few decades. First, rapid advances in production technology have enabled the industry to slice up the value chain into finer, 'portable' components. Second, technological innovations in communication and transportation have shrunk the distance that once separated the world's nations, and improved the speed, efficiency and economy of coordinating geographically dispersed production processes (Krugman 1995, Jones 2000, Jones and Kierzkowski 2001). There is evidence that global trade in parts and components (middle products) is growing much faster than total manufactured exports (Athukorala 2006, Freenstra 1998; Hummels, Ishii and Yi 1998, Yeats 2001).⁵

At the formative stage of worldwide assembly operations in the late 1960s, some observers were sceptical about prospects for developing countries to rely on this form of international specialization for export expansion. They predicted that the process would be reversed because of rapid automation of production processes in developed countries (for

example Frobel *et al.* 1980, Cantwell 1994). However, in many high-tech industries (notably electronics and electrical products) rapid innovation and continuous technical change, which bring about a constant cycle of change and obsolescence, have proved to be formidable constraints on rapid automation as an alternative to offshore assembly. Therefore, the indications are that this form of internationalization of production will continue to expand, providing countries with the opportunity to find new niches for labour-intensive, export-oriented production (depending of course on their ability to provide an enabling domestic economic environment).

The bulk of outsourcing takes the form of locating small fragments of the production process in a low cost-country and re-importing the assembled components to be incorporated in the final product (Category 3.2a in Table 1). However, recent years have seen a noteworthy expansion of the coverage of global assembly operations from component assembly to assembly of final products (such computers, cameras, TV sets and motor cars) (Category 3.2b). In final assembly, labour costs, while significant, are of secondary importance compared with the availability of world-class operator, technical and managerial skills; a good domestic basis of supplies and services; relatively free access to world-priced inputs including capital; and excellent infrastructure. In other words, the location decisions of MNEs in this sphere depend on the availability of a wider array of complementary inputs that enable their facilities to be efficient by world standards. Also, given the heavy initial fixed costs, MNEs are hesitant to establish overseas plants in final assembly without considerable first-hand commercial experience in the host country. For these reasons, overseas production units of MNEs involved in such final stage assembly are normally located in countries which are at a relatively advanced stage of export-led industrialization.⁶

MNEs from industrialized countries are the key actors in worldwide offshore assembly operations. While MNEs from the USA dominated the scene at the formative stage of

global spread of assembly activities in the late 1960s, the involvement of Japanese and Western European MNEs also has been gaining importance since the late 1970s. More recently MNEs from more advanced developing countries, notably those from the East Asian NIEs, have also joined this process of internationalization of production. In response to rapid domestic wage increases, the growing reluctance of domestic labour to engage in low-paid blue-collar employment, and stringent restrictions on the importation of labour, firms in the electronics industry and other durable consumer goods industries in NIEs in East Asia have begun to produce components and sub-assemblies in neighboring countries where labour costs are still low.

In recent years, outsourcing has begun to spread beyond the domain of MNEs. Many companies, which are not parts of MNE networks, now procure components globally through arm's-length trade. Technological innovations in communication (in particular the Internet) have reduced the cost of outsourcing, particularly through reduced research costs. The process has also been facilitated by the 'standardization' of some components⁷. However, the bulk of fragmentation trade still takes place under the aegis of MNEs (Rangan and Lawrence 1999; Hanson, Mataloni and Slaughter 2001).

In sum, the discussion in this section suggests that, in the context of emerging patterns of international division of labour, MNE involvement through FDI is bound to be more important for latecomer countries to export-led industrialization compared with the early experience of present-day NIEs. These developments seem to have reduced the efficacy of relying predominantly on non-FDI forms of MNE as a means of acquiring export competence. With this background, we now turn to the available direct evidence concerning MNE participation in international production in developing countries for further scrutiny of these postulates.

3. EVIDENCE

Table 2 brings together a data set to examine the contribution of MNEs to manufactured exports from the four East Asian NIEs (Hong Kong, South Korea, Taiwan and Singapore) and eight other developing Asian countries (China, Indonesia, Malaysia, the Philippines, Thailand, Vietnam, India and Sri Lanka). MNE involvement in export expansion is measured in terms of the percentage share accounted for by MNE affiliates in total manufactured exports (column 3). Export performance is measured in terms of three indicators – export value (column 4), the share of each country in total world manufactured exports (world market share) (column 5) and annual export growth (column 6). The final column contains summary observations on the nature of the product composition of MNE-related exports in terms of the typology developed in the previous section. MNE share in total manufactured exports (MNEXS) and world market share (WMSH) are plotted in Figure 3.1 for the countries for which continuous annual data series on the two variables are available for at least ten years.

Table 2 about near here

Figure 1 near here

It is important to emphasize that data pieced together from diverse sources on MNE share in exports are not strictly comparable (See Appendix for details). In particular, there is no uniform treatment of the ownership share used in identifying the ‘multinationality’ of host country firms across these sources. Estimation errors in individual country figures are also unlikely to be consistent across countries, as data quality naturally varies. Nevertheless, the estimates assembled here are the best available and, taken together, they yield a number of important inferences.

The twelve Asian countries covered in this study accounted for over two-thirds of total manufacturing exports from the developing countries over the past two decades. Thus the data presented in Table 2 give some idea of the changing role of MNEs in manufactured exports from these countries. A rough calculation obtained by combining the data on MNE share in exports and total manufacturing exports from each country suggests that the share of MNEs in combined exports from the twelve countries increased from about 30 per cent to 50 per cent between 1980-84 and 1995-99. When Hong Kong, Taiwan and Korea are excluded from the calculations, the increase is from 33 per cent to over 60 per cent. These trends are in sharp contrast to what Nayyar (1978) found by surveying the experiences of 12 developing countries (in both Asia and Latin America) for the 1960s and the 1970s.⁸ According to his estimates share of MNEs in total manufacturing exports from developing countries amounted to around 15 per cent throughout the period under study without any discernible upward trend.

(a) Commodity composition

The available data do not permit precise disaggregation of exports by MNE affiliates according to the typology developed in the previous section. However, information coming from various country case studies on the nature of the product composition of MNE-related exports (summarized in Column 7, Table 2) does provide empirical support for our arguments concerning changing export patterns and the potential role of MNEs in manufactured export expansion. It is evident that light manufactured goods and assembly activities within vertically integrated high-tech industries have been the main areas of MNE export activities. In Singapore, Malaysia and the Philippines, MNE involvement is predominantly in assembly activities. In the other second-tier exporting countries, the standard labour-intensive products still account for the bulk of exports, but the relative importance of assembly activities seems to have increased over the years in all cases. There is also evidence of a

notable shift in assembly processes from component assembly to final goods assembly in China, Thailand and Malaysia. Interestingly, there is no evidence of a shift in MNE activities from component specialization to final goods assembly in Singapore. It seems that, given the highly favourable investment climate and deep-rooted operational links coupled with relatively high domestic wages, MNEs use Singapore as the regional centre for high-tech activities is component design and *production*, while undertaking more labour intensive component assembly and final goods assembly in neighbouring countries (mostly in Malaysia and also in Thailand and the Philippines) and China.

The prolonged heavy concentration of MNE activities in standard labour-intensive product lines (mostly garments and toys) in Sri Lanka can be explained in terms of unfortunate developments in the investment climate (Athukorala and Rajapatirana 2000, Chapter 6, Snodgrass 1999). Despite the government's continued commitment to outward-oriented policy since the late 1970s with further strengthening of general incentives for EOFDI over the years, and the availability of cheap and trainable labour, political and policy instability has been a major deterrent to MNE involvement in assembly activities. Foreign firms involved in vertically integrated assembly industries, unlike those involved in light consumer goods industries such as garments, usually view country risk and the other elements in the investment climate from a long-term perspective. Two major electronics multinationals from the USA (Motorola and the Harris Corporation) had in fact finalized plans to establish large assembly plants in the Katunayake Export Processing Zone in Sri Lanka in the early 1980s. These plans were abandoned as the political climate began to deteriorate. In the site selection process of electronics MNEs, there is something akin to “herd psychology”, particularly if the first-comer is a major player in the industry. Considering this, one can surmise that, if the two projects of Motorola and Harris had been successful, many

other MNEs would have followed suit, giving a major boost to the expansion of assembly exports from Sri Lanka.

There is some evidence of MNE involvement in resource-based processing activities in Indonesia, Vietnam, Thailand and Sri Lanka. But the share of MNE-related exports of these product lines in total manufactured exports seems have declined over time in the face of rapid expansion of the standard labour intensive products and/or component assembly.

(b) The Role of MNEs in Export Expansion

The observation that MNE involvement in export expansion from the NIEs (other than Singapore) is low by international standards generally remains valid in our data set. However, it is important to note that, in both Korea and Taiwan, the MNE share in exports did increase significantly from about the mid-1970s to the mid-1980s, as compared with the figures reported by Nayyar (1978) for the late 1960s. Detailed case studies of the export performance of these countries suggest that this increase reflected 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.⁹ The available evidence on product composition of exports by MNE affiliates in Taiwan and Korea clearly attest to this important role played by these firms in the structural transformation of exports from these countries (Ranis and Schive 1985, Schive and Tu 1991, Koo 1985). Given the rapid expansion of traditional labour-intensive exports at the initial stage of export-led growth in these countries, any analysis based on MNE shares of *total* exports obviously fails to capture this important point. It is interesting to note that the MNE export shares in Korea and Taiwan have tended to decline from about the mid-1980s. This is most probably due to the combined effects of exports by domestic firms growing more rapidly in recent years, and an

increase in domestic sales by MNE affiliates in consumer durable industries in response to the strong growth in domestic demand fuelled by rapid economic growth.

The relatively small role of MNEs in export expansion from Korea and Taiwan compared with Singapore, and more importantly with the second-tier exporting countries in the region, is generally interpreted as resulting significantly from the ‘guided’ industrial development policies pursued by these countries. These countries (Korea in particular), so the argument goes, followed the Japanese pattern by relying on non-equity arrangements rather than FDI to access technology and other MNE-controlled assets. However, following Goh Keng Swee (1993), the first finance minister and one of the architect of Singapore’s spectacular economic development, one can argue that this difference, at least to some extent, emanated from the nature of the investment environment at the time when technical advances in the US electronics industry began to create (from the late 1960s) rapid growth of demand for semiconductors, whose production and assembly required the massive use of low-cost labour. At that time, China’s Cultural Revolution was reaching its height, and political stability was a key factor governing the location decisions for assembly operations by electronics MNEs. To quote Goh (1993 p. 253):

It is a matter for speculation whether in the absence of the upheaval caused by the Cultural Revolution in the mid- and late 1960s, the large American multinationals – among them National Semiconductors and Texas Instruments – would have sited their offshore factories in countries more familiar to them, such as South Korea, Taiwan and Hong Kong. These had resources and skills superior to Singapore. My own judgment remains that these three areas were too close to the scene of trouble, the nature of which could not but cause alarm to multinational investors.

This argument receives further support from the fact that not only Korea and Taiwan (which, according to the revisionists, followed ‘strategic’ FDI policy) but also Hong Kong, a country that followed almost laissez-faire economic policy throughout, were largely shunned by the electronics multinationals. By the time the political risk waned, and export-led growth policies became firmly rooted in these countries, wages had increased to levels which made them less attractive as labour-intensive assembly locations. The electronics revolution in Singapore, which began in the mid-1960s, absorbed all unemployed labour in that country within a period of five to seven years and electronics MNEs shifted unskilled and semi-skilled simple assembly activities to neighbouring low-wage countries—Malaysia, Thailand and Indonesia, and more recently the Philippines. In the process, Singapore assumed a major regional headquarters function for the electronics industry in Southeast Asia (Hill and Pang, 1992). In the following 20 years, the MNEs diversified their operations in the region, first from simple assembly to component production operations (mainly hard disk drives), and more recently to consumer electronics, such as TV sets, radios and sound systems.

The inference that MNE participation is crucial for the export success of latecomers gains further support from a comparison between China and India, the two giant economies in the region. In China, the share of exports from enterprises with foreign investment rose from 0.4 per cent in 1984 to over 46 per cent in 1996 (Table 2). This was accompanied by a more than ten-fold increase in manufactured exports over this period. 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 remained low.¹⁰ Interestingly there has been a mild, yet persistent, decline in MNE share in manufactured exports from India from about the mid-1980s and the decline became sharper following the liberalization reforms initiated in 1991 (Figure 1). A detailed analysis of the underlying factors is beyond the scope of this study, but the explanation seems to be in the

nature of the post-reform trade and foreign investment regimes. From the early-1980s India gradually relaxed restrictions on intermediate and investment goods imports, and removal of these restrictions was intensified as part of the liberalization reforms initiated in 1991. Consequently the pressure on MNE affiliates (which are predominantly domestic-market-oriented) to export in order to become eligible for importing gradually waned and then virtually disappeared after 1991. At the same time, given the half-hearted nature of the policy regime relating to FDI and still-binding bureaucratic restraints on FDI approval procedure, so far India has not been successful in attracting export-oriented foreign investors.¹¹

Overall, there is a clear difference between the three Northeast Asian NIEs - South Korea, Taiwan and Hong Kong – and the other countries in terms of the relationship between the share of exports accounted for by MNE affiliates (*MNEXS*) and the share in total world manufacturing exports (*WMSH*) (Table 2, Columns 3 and 5, and Figure 1). For the former three countries, the data do not point to any systematic relationship. By contrast, for all the other countries there is a close positive relationship suggesting that the entry of MNEs has been *export creating*.

As a formal test of this relationship, we estimated the following regression:

$$WMSH_{it} = \alpha + \beta_1 MNEXS_{it} + \beta_2 WY_{it} + \beta_3 RER_{it} + \beta_d D_{it} + \mu_{it} \quad (1)$$

As we have already defined, the dependent variable and the explanatory variable of interest are respectively the world market share in manufactured exports (*WMSH*) and the share of MNE affiliates in total manufactured exports (*MNEXS*). *WY* is world income, *RER* is the real exchange rate, and *D* is a matrix of the country dummy variables included to

capture unobserved country-specific fixed effects, α is the constant term, μ is a stochastic error term, and i and t are country and time subscripts respectively. We are interested in testing whether there is a positive relationship between *MNEXS* and *WMSH*, when controlled for *WY* and *RER* and *D*, implying that MNE entry into export industries facilitates market penetration without crowding out the performance of purely local firms.

WY is measured as the weighed average of the indices of real GDP (1995 = 100) of the ten major importing countries of each country under study calculated using market shares in 1995 as weights.¹² The hypothesis relating to this variable is that market penetration becomes easier under buoyant demand conditions. The *RER* is measured in a similar fashion using indices of bilateral nominal exchange rate (expressed as domestic currency price of foreign currency), relative price indices (measured as foreign producer price relative to domestic consumer price) in relation to the same ten countries. It is used here to control for the implications of change in international competitiveness of the given countries for their export performance. By construct, an increase (decrease) in *RER* reflects an improvement (deterioration) in international competitiveness. Thus the coefficient on *RER* is expected to be positive. Country dummy variables are specified using Singapore as the base dummy.

Equation 1 is estimated using five-year average data reported in Table 2 on *MNEXS* and *WMSH*, and comparable *RER* and *WY* series constructed using data obtained from the World Development Indicators database of the World Bank (data on real GDP, bilateral exchange rates and price indices) and the UN Comtrade database. Thus the estimation is based on an unbalanced data panel consisting of 51 observations. The ordinary least squares (OLS) is used as the estimation technique. All variables (other than country dummies) are used in log form so that the coefficients can be directly interpreted as elasticities.

The results are reported (without country dummies) in Table 3.3. Equation 1 covers data for all 12 countries. Equation 2 is the estimate obtained after deleting observations

relating to the three Northeast Asian NIEs (Hong Kong, South Korea and Taiwan). Both equations comfortably pass the F test for overall statistical significance and the Ramsey RESET test for the functional form. There is no evidence of violation of normality and heteroscedasticity assumptions relating to the error term in both cases. In spite of the desirable statistical properties, the results need to be interpreted cautiously because of the poor quality of the data, in particular obvious inter-country differences in the measurement of the key explanatory variable, MNEs) and the small sample size.

Table 3 near here

In both equations, coefficients on export share accounted for by foreign firms (*MNEXS*) and world income (*WY*) carry the expected (positive) sign and are significant at the 1 per cent level. The coefficient on *RER* is also positive as hypothesized, but is not statistically significant. The coefficient on *MNEXS* suggests that, on average, the 1 per cent increase in the share of foreign firms in total manufacturing exports is associated with a 0.96 per cent increase in the degree of penetration of these countries in world manufacturing markets. The estimated elasticity increases marginally from 0.96 to 1.13 when the three Northeast Asian countries are excluded from the sample coverage. In sum, the results support the hypothesis that, when controlled for world demand conditions and unobservable country-specific effects, the involvement of MNEs has a strong salutary effect on manufactured export expansion. The result for *RER* runs counter to the widely held view that international competitiveness as measured by the real exchange rate is important in export success. It could well be that the increased involvement of MNEs in export-oriented manufacturing, and in particular the growing importance of the MNE-dominated trade in parts and components, has contributed to a weakening of the link between the real exchange

rate and export performance. There is evidence that exchange rate changes are generally of lesser relevance to pricing decisions governing intra-firm trade because of various other considerations impinging on global operations of MNEs (Rangan and Lawrence 1993 and 1999, Helleiner 1981).

4. CONCLUDING REMARKS

The evidence assembled and analyzed in this paper suggests that the share of MNEs in manufactured exports from developing countries has recorded a significant increase from about the mid-1970s, with the rate of MNE participation in export expansion accelerating over time. MNEs have been responsible for a larger share of exports from latecomers to export-led industrialization in Asia compared with the historical experiences of the East Asian NIEs. Contrary to the historically specific experience of Korea and Taiwan (and also Japan), for latecomers the entry of MNEs is virtually essential for export success. Export-oriented FDI is not a blunt and homogeneous but a complicated and finely differentiated instrument of international economic interaction, whose role changes in line with changes in patterns of international production.

A key policy inference from our analysis is therefore that, in designing policies of outward-oriented development, investment and trade policies must be considered together as co-determinants of the location of production and patterns of trade. Given the fact that an increasing number of developing countries compete in attracting export-oriented FDI, countries that attempt to implement a selective FDI promotion policy are likely to lose important opportunities for export expansion. Of course, enhancing national gains from export-oriented industrialization by encouraging greater participation of local companies is a legitimate objective for any country. But under the current competitive conditions governing international production, this objective can be achieved only by providing a conducive setting

for domestic entrepreneurial development as part of the overall development strategy, not through direct restrictions on the entry and operation of MNEs.

NOTES

* I am indebted to my colleague, Hal Hill for his valuable contribution to research leading to this paper at the formative stage.

¹ A prime example is the treatment of foreign investment in India following the liberalization reforms initiated in 1991 (World Bank 2003, Bajpai and Sachs 2000). Further liberalization of the FDI regime also remains a thorny issue in the ongoing debate on further economic opening in China (Naughton 1996, Lardy 2002).

² Surprisingly even some strong proponents of open trade and investment policies seem to accept such inferences as of general relevance for all developing countries at all times. For instance, on the issue whether China's superior export performance relative to India can be explained in terms of a superior record in attracting FDI, Anne Krueger recently observed that 'this was not the case in Japan, Hong Kong and Korea' (Srinivasan 1998, p. 233, fn 9)

³ The term 'latecomer exporting countries' is used here to refer to the developing countries which are gradually shifting from primary commodity specialization into manufactured exports following the example of the East Asian newly industrialized countries (NICs). Two alternative terms used in the literature are 'new exporting countries' and 'second-tier exporting countries'.

⁴ As Caves (1996, P. 253) aptly put it, '[G]iven scale economies and the very small domestic markets of most developing countries, a foreign subsidiary will locate there either to serve the domestic market or to export exclusively, but it will not serve the domestic market and export a little....Accordingly, generalizations that span the export and domestic markets are somewhat suspect.'

⁵ Through a disaggregation of OECD import data, Yeats (2001) found that the share of fragmentation-based trade (parts and components) accounted for 30 per cent of total manufacturing imports of OECD countries in 1996, compared with around 15 per cent in the mid-1980s. According to estimates reported in Athukorala (2006), between 1992 and 2000 the share of these products in total world manufacturing exports and exports from developing countries increased from 20.7 per cent to 25.4 per cent, and 19.2 per cent to 32.0 per cent respectively.

⁶ However, in recent years China has emerged as an important location for final assembly in many product lines largely because of the vast domestic market for these products, which naturally reduces the risk of covering the initial establishment costs (Lardy 2002).

⁷ Some fragments of the production process in certain industries have become ‘standard fragments’ which can be effectively used in a number of products. Examples include long-lasting cellular batteries, originally developed by computer producers and now widely used in cellular phones and electronic organizers; transmitters, which are used not only in radios (as originally designed) but also in PCs and missiles; and electronic chips, which have spread beyond the computer industry into consumer electronics, motor vehicle production and many other product sectors.

⁸ There are no recent estimates of MNE shares in exports from Latin American countries, but recent evidence on foreign direct investment in the region suggests that MNE involvement in export performance might have increased considerably over the past two decades (Blomstrom 1990, Fritsch and Franco 1992, UNCTAD 1995).

⁹ Numerous studies have drawn attention to this phenomenon. See for example Hobday 1995, Koo 1985, Lee 1992, Naya 1990, Ranis and Schive 1985, Schive and Tu 1991, and Amsden and Chu (2003).

¹⁰ For a fuller discussion on India’s failure to attract MNEs as a major cause of her lack-lustre export performance, see Srinivasan 1998.

¹¹ Note that the increase in export share in the late 1980s is consistent with the tightening of import and exchange controls in response to the balance of payments crisis preceding the 1991 liberalization.

¹² That is, $WY_{it} = \sum_i^n \delta_{it} Y_{it}$, where δ is the export market share in 1995, Y is an index (1995 =100) of real GDP, and i and t are country and time subscripts.

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Table 1: *A Typology of MNE Participation in Manufacturing for Export Newcomer Exporting Countries*

	Product category	Production characteristics		Role of MNEs in export expansion
		Technology	Factor intensity	
1	Exports by Market-seeking NME affiliates: product mix varies depending on the nature import-substitution policy regime, domestic market size, export incentives and export performance requirements.	Mostly internal to MNEs. Brand names are critical	Mostly capital and skill intensive	Of little importance (and costly)
2	Efficiency seeking (export-oriented) production by MNE affiliates			
2.1	Resource-based manufacturing: local processing of primary products previously exported in raw state	Diffused	Mostly capital intensive	Of selective importance
2.2	Standard consumer goods: clothing, shoes, sporting goods etc.	Well diffused, but brand names are critical	Labour intensive	Important
2.3	Assembly activities within vertically integrated production systems			
2.3a	Parts and component assembly: parts of electronic and electrical machinery, motor vehicle parts etc.	Mostly internal to MNEs	Initially labour intensive, but become skill intensive as the country move up the value chain	Extremely important
2.3a	Final assembly: computers, cameras, motor vehicles etc	Mostly internal to MNEs	Labour and skill intensive	Important mostly for countries with competitive advantage arising from large/expanding domestic markets or geographic proximity to final markets

Table 2: *MNE Affiliates and Manufactured Exports from Selected Developing Asian Countries: MNE Share in Total Manufactured Exports and Selected Export Performance Indicators*¹

Country	Period	MNE share in exports (%)	Export value \$ billion ²	World market Share (%) ²	Export growth (%) ²	Nature of export composition of MNE affiliates by the late 1990s (as per the typology in Table 1).
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Hong Kong	1970-74*	10.0	2.6	0.52	3.53	Mostly 2.3a and 2.3b, with the latter Increasing rapidly in recent years
	1980-84*	13.8	14.5	1.10	4.02	
	1985-89	16.0	23.1	1.19	4.20	
	1990-94	20.8	28.5	0.95	-0.04	
	1995-99*	26.5	25.6	0.59	-2.21	
South Korea	1970-74*	19.3	6.2	0.93	11.32	2.3a and 2.3b. with the latter increasing rapidly in recent years
	1975-79*	25.0	9.2	1.07	10.50	
	1980-84*	25.8	21.7	1.65	6.15	
	1985-89*	26.1	45.5	2.30	6.61	
Taiwan	1975-79	36.7	9.8	1.13	9.11	2.3a and 2.3b, with the latter Increasing rapidly in recent years
	1980-84	27.9	23.2	1.76	5.74	
	1985-89	23.1	48.6	2.46	6.81	
	1990-94	19.7	79.2	2.61	3.02	
	1995-99	14.4	119.5	2.72	2.87	
	2000	10.1		2.76		
Singapore	1970-74	70.0	5.1	0.78	9.34	2.3a and 2.3b. 2.3a still dominates, but there as been a continuing shift from 2.3a to 2.3b since about the mid-1980s
	1975-79	84.5	7.2	0.84	7.62	
	1980-84	74.9	17.7	1.35	5.09	
	1985-89	81.5	28.4	1.43	6.40	
	1990-94	85.2	66.3	2.16	6.92	
	1995-99	87.2	113.7	2.59	1.55	
China	1985-89	5.3	29.5	1.49	7.95	Predominantly 2.1, with some increase in 2.3a recently
	1990-94	24.3	75.2	2.44	8.25	
	1995-99	43.4	161.0	3.65	4.54	
	2000	50.5		4.74		
Indonesia	1990-94	28.5	18.9	0.62	7.39	Predominantly 2.1, with some increase in 2.3a recently
	1995-99	38.5	29.4	0.67	2.11	
	2000	45.3		0.68		
Malaysia	1975-79	65.2	3.4	0.40	7.62	Predominantly 2.3a, with some increase in 2.3b recent years.
	1980-84	72.4	6.7	0.51	4.32	
	1985-89	75.6	11.6	0.59	5.97	

	1990-94	78.1	34.2	1.11	9.46	
	1995-99	82.2	69.4	1.58	3.45	
	2000	85.5		1.67		
Philippines	1985-89*	49.9	3.2	0.16	3.73	Predominantly 2.3a, with a small and diminishing share of 2.2
	1990-94*	47.6	6.1	0.21	4.59	
	1995-99	76.8	23.9	0.54	13.01	
	2000	85.7		0.07		
Thailand	1970-74*	11.4	1.7	0.15	6.235	2.1, 2.2, 2.3a and 2.3b, with the latter two increasing rapidly in recent years.
	1975-79*	16.7	2.0	0.24	7.23	
	1980-84*	13.5	4.3	0.33	3.98	
	1985-89*	15.0	9.6	0.47	10.41	
	1990-94*	50.4	28.0	0.91	7.71	
	1995-99*	62.6	49.0	1.11	2.49	
Vietnam	1990-94	12.0	1.6	0.05	14.57	Predominantly 2.1 (mostly sea food) and 2.2, with a small, but increasing, share of (2.3a)
	1995-99	39.2	5.4	0.12	9.47	
	2000	56.8		0.16		
India	1970-74	5.0	3.7	0.50	3.65	A wide range of 1, with some increase in 2..2 and .2.3a recently.
	1975-79	7.9	3.9	0.47	4.96	
	1980-84	8.7	5.2	0.40	1.46	
	1985-89	5.7	8.8	0.46	6.95	
	1990-94	4.6	16.0	0.53	4.33	
	1995-99	3.5	26.2	0.61	2.38	
	2000	4.4		0.63		
Sri Lanka	1975-79*	25.7	0.1	0.01	8.66	Predominantly 2.2, and some 1 (mostly ceramics and rubber goods) and 2.3a
	1980-84	42.8	0.4	0.03	5.93	
	1985-89	53.6	0.7	0.04	3.49	
	1990-94	63.5	1.7	0.05	9.36	
	1995-99	49.0	3.0	0.07	3.31	
	2000	47.2		0.08		
	2000	10.1		2.76		

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 an asterisk are for a single year or some years falling within the given five year period. For details see Appendix.

Source: Sources of data on MNE export share (Column 1) and data limitations are discussed in Appendix. Export data (columns 2-4) were compiled from UN Comtrade database.

Table 3: *Determinants of Export Market Penetration: Regression Results*
 (Dependent variable: country share in world manufacturing trade, *WMSH*)

Variable	Equation 1	Equation 2
Constant	- 3.31 (2.67)***	-2.45 (2.19)**
MNE share in exports (<i>MNEXS</i>)	+0.96 (4.88)***	+1.13 (6.91)***
World income (<i>WY</i>)	+ 0.59 (4.53)***	+0.47 (4.25)***
Real exchange rate (<i>RER</i>)	+0.19 (0.66)	+0.05 (0.29)
<i>N</i>	51	38
$\overline{R^2}$	0.86	0.90
<i>F</i>	25.11	34.46
<i>RESET</i> - χ^2 (1)	1.66	2.78
<i>JBN</i> , χ^2 - (2)	0.55	2.77
<i>BPHET</i> , χ^2 - (3)	2.85	0.57

Notes

- 1 The equations have been estimated using ordinary least squares (OLS). The figure in parentheses underneath each coefficient is the t-ratio of the coefficient computed using White-corrected standard errors. The level of statistical significance is denoted as: * = 10%, ** = 5% and *** = 1%.
2. Country intercept dummies are not reported.

Test Statistics

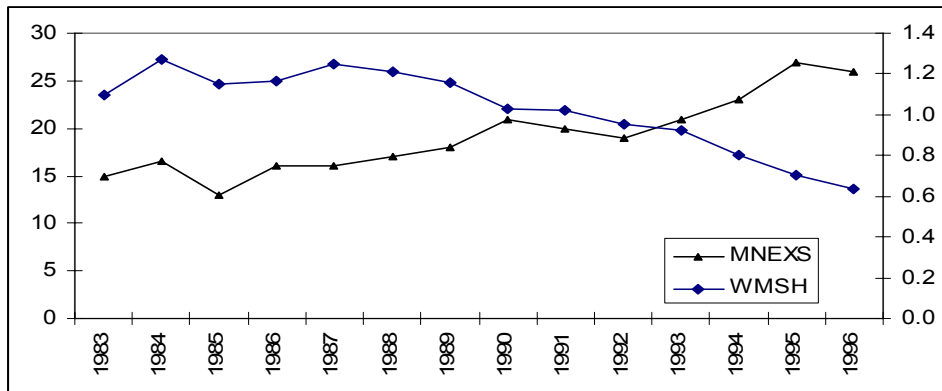
RESET Ramsey test for functional form mis-specification.

JBN Jarque-Bera test for the normality of residuals.

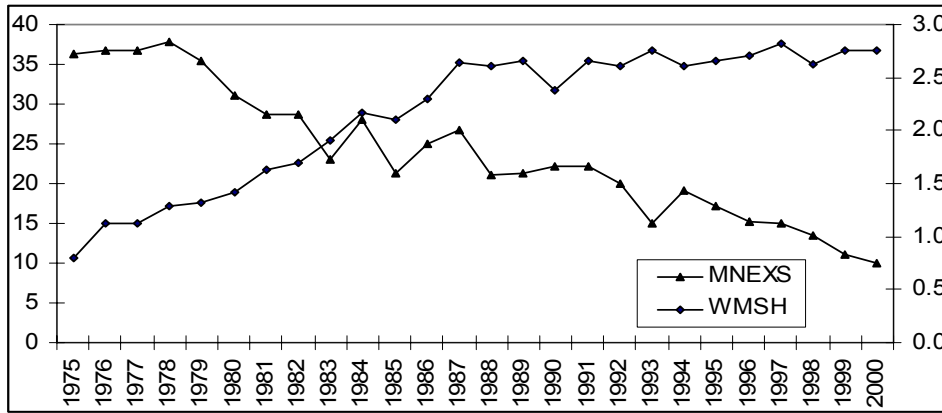
HET Breusch-Pagan test for heteroscedasticity.

Figure 1: The Share of MNE Affiliates (MNEXS, left scale) and world market share (WMSH, right scale) in Manufactured Exports in Selected Asian Countries (%)

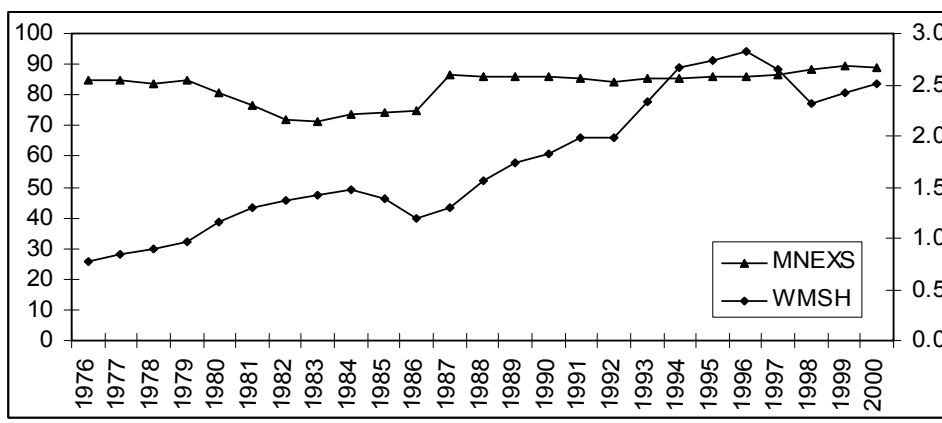
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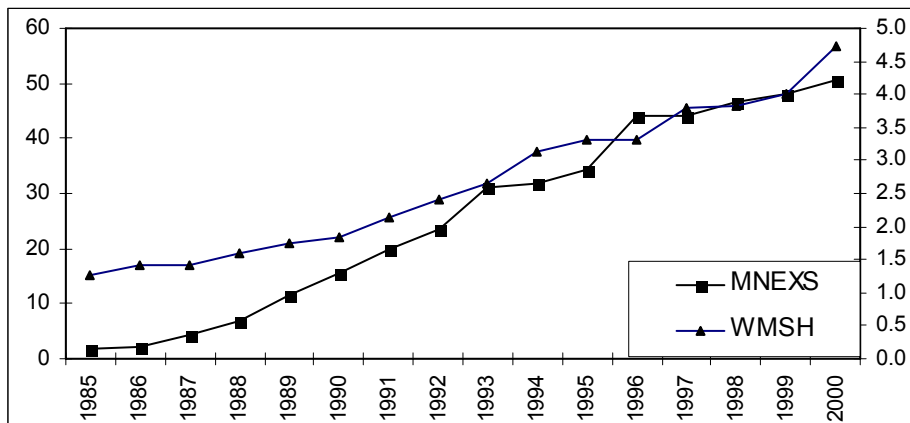
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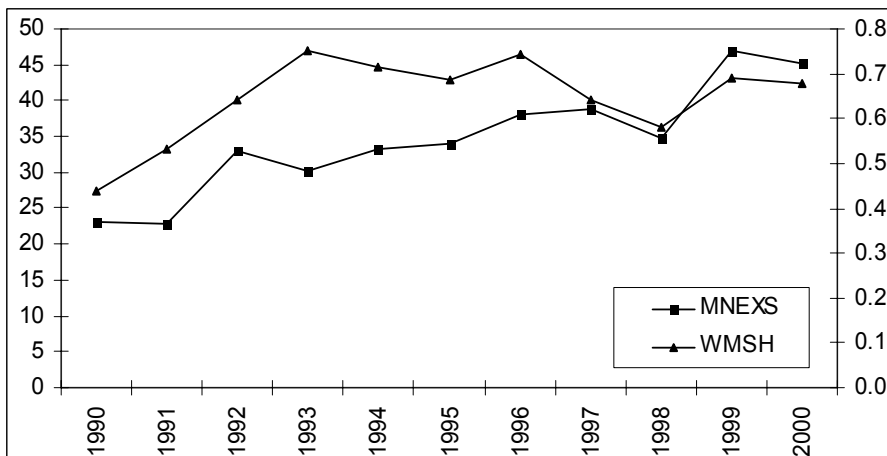
Singapore



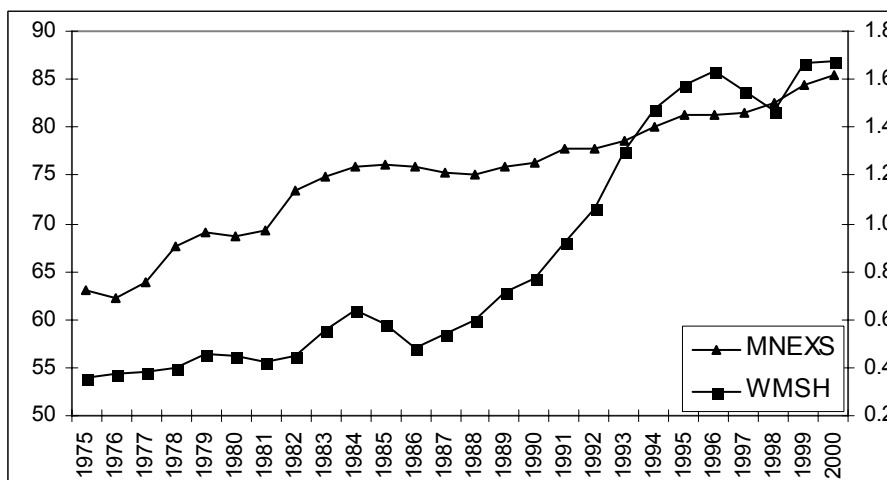
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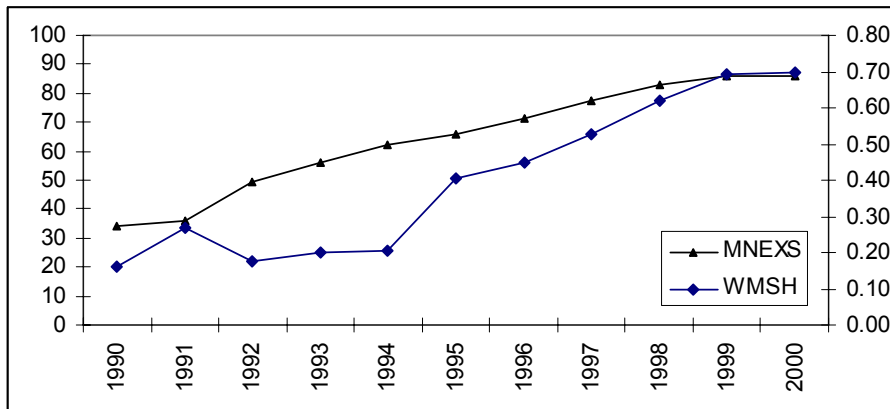
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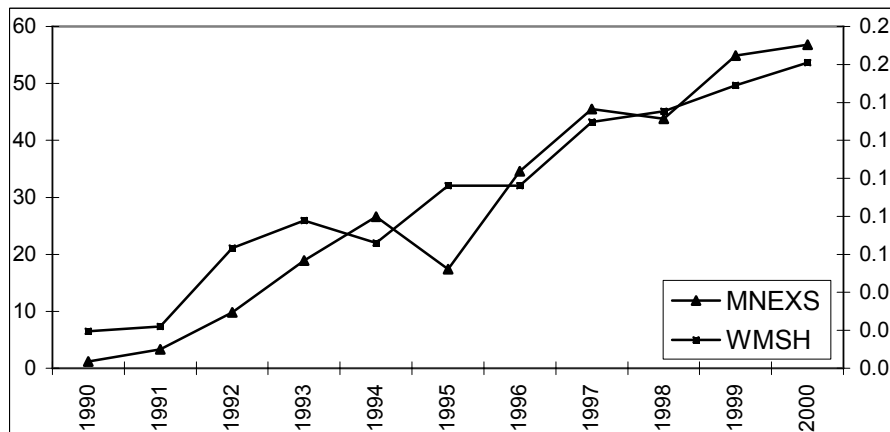
Malaysia



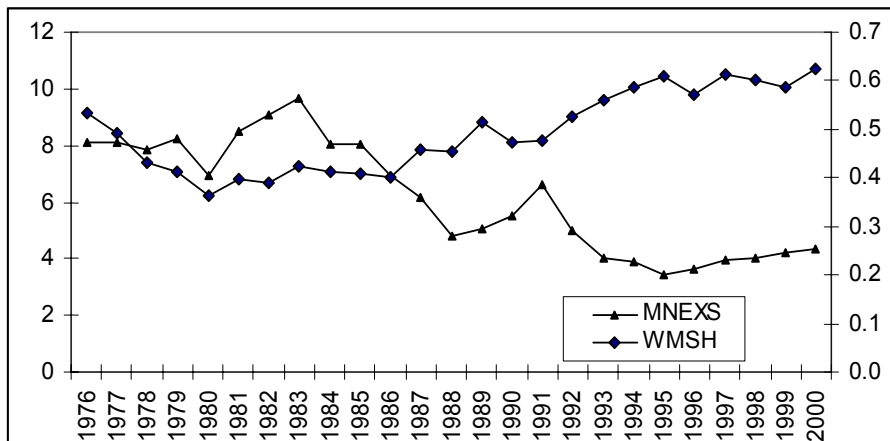
Philippines



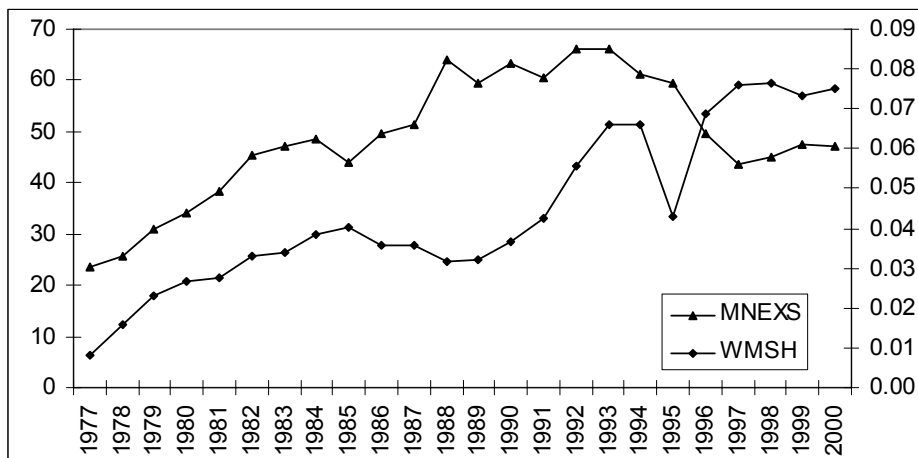
Vietnam



India



Sri Lanka



Note: The correlation coefficient between MNEXS and WMSH:
 Hong Kong - 0.91; Taiwan - 0.82; Singapore + 0.40; China + 0.98; Indonesia
 + 0.70; Malaysia + 0.86; Philippines + 91; Vietnam + 0.96; India -0.32; Sri
 Lanka + 0.90

Source: See Appendix

Appendix

Data Sources on MNE Share in Manufactured Exports

Country	Time coverage	Source	Ownership criterion used in identifying MNE affiliates
Hong Kong	1981-96	Ramstetter (1999)	All firms with FDI
South Korea	1971	Nayyar (1978)	10% < FDI in share capital
	1974, 1975	Koo (1985)	
	1977, 1986	Ramstetter (1993)	
Taiwan	1973-89	Wang (1999), based on <i>Survey of Foreign Direct Investment and Analysis of its Contribution to Taiwan's Economic Development</i> , various years (in Chinese)	All firms with FDI
	1990-2000	Extended using the same data source	
Singapore	1973-99	Singapore Development Board, <i>Report on the Census of Industrial Production</i> (various years since 1973)	50% < FDI in share capital
China	1985-2000	Compiled using data on exports of foreign-invested firms from China Statistical Publishing House, <i>Statistical Yearbook</i> (various years), and export data from International Economic Data Base (IEDB), Australian National University.	All firms with FDI
Indonesia	1990-2000	Estimated from unpublished data from the Annual Survey of Manufacturing, Indonesian Bureau of Statistics	All firms with FDI
Malaysia	1975-2000	Estimated using export data from Bank Negara Malaysia, <i>Monthly Bulletin of Statistics</i> and data on foreign share in total sales from the Survey of Manufacturing (Malaysian Department of Statistics), assuming that MNE export share in a given product category is proportionate to output share. ¹	50% < FDI in share capital
Philippines	1980 and 1983	ITC (1987)	12.5% < FDI in share capital All firms with FDI
	1985, 1990-2000	Estimated using data reported in Hill (2003)	
Thailand ²	1974, 1975	Tambunlertchai and Ramstetter (1991)	All firms with FDI (firms approved by the Board of Investment)
	1979, 1986, 1986, 1990	Ramstetter (1997)	
	1994, 1995,	Dollar and Hallward-Driemeier (2000): based on a survey of 1200 randomly chosen plants in five industries – auto parts, electronics, food	

	1996	products and textiles.	
Vietnam	1990-2000	Athukorala (2002) (based on official records of Ministry of Investment and Planning, Vietnam)	All firms with FDI
India	1975/6– 1999/2000 ³	Compiled using exports by MNE affiliates from Athreye and Kapur (2001) (1975/6 – 1994/5) and the data base of Research Information Systems, Delhi (1994/5-1999/2000) (based on the <i>Survey of Public Limited Companies</i> conducted by the Reserve Bank of India) and export data from International Economic Data Base (IEDB), Australian National University.	Public limited Liability companies with FDI
Sri Lanka	1975, 1977, 1978-93 1994-2000	Athukorala and Rajapatirana (2000) Athukorala (2004)	All firms with FDI

Note

1. This procedure is likely to result in an underestimation of MNE share in exports because MNE affiliates generally tend to be more export-oriented than local firms. However, the bias is likely to be rather small because over 80% of manufacturing exports originate in fully foreign-owned industries.

2. The estimates for Thailand are based on returns to a periodic survey conducted by the Thai Board of Investment (BOI) of the BOI approved firms only. Since there is no legal requirement in Thailand for foreign investors to obtain BOI approval, these estimates are likely to understate the contribution of MNE affiliates to export expansion (Ramstetter 1997).

3. The original data on export by MNEs are based on the Indian fiscal year (from 1 April in the stated (reported) calendar year to 31 March in the next year).