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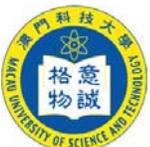
Integration of small and medium-sized enterprises in international production networks:

the automotive industry in Asia

by

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INTEGRATION OF SMALL AND MEDIUM-SIZED ENTERPRISES IN INTERNATIONAL PRODUCTION NETWORKS: THE AUTOMOTIVE INDUSTRY IN ASIA

By Biswajit Nag and Debdeep De

Introduction

The formation of international production networks is widely recognized as one of the most important growth drivers in East Asia and South-East Asia. A global value chain (GVC) and associated production networks are emerging as the organizing framework for production, investment and trade in an expanding range of product groups such as garments, agro-industry, furniture, automobiles and automotive parts, consumer electronics, telecommunications, and information and communications technology (ICT) as well as various services. International production networks in this region are quite distinct compared to other parts of the world, in that:

- (a) Their significance in each economy is high;
- (b) They cover large number of countries in the region;
- (c) Sophistication level of intra-firm transactions are high.

There has been a drastic shift in the trade pattern in the region from one-way trade to intra-industry trade, especially in East Asia and, to some extent, South-East Asia. This has also been reflected in the growing importance of regional production networks. Ahearne and others (2006) argued that this phenomenon was a by-product of the “flying geese” pattern of development led by Japanese investment. According to this idea, as production costs in the first-tier countries and areas (for example, Republic of Korea and Taiwan Province of China) increase, investment flows to other developing countries for the production of parts and components. This pattern finally gives rise to a country such as China, which moves into the product space vacated by the first and second tier economies with greater integration of trade across the region in production networks. However, Bernard and Ravenhill (1995) argued that whether the phenomena was due to the “flying geese” pattern or not, greater focus was required in order to understand the changing production relationship between local and transnational firms to demystify the dynamics of production network. In this context, Bernard and Ravenhill mentioned the production network of microelectronics. Tung (2003) also pointed out that the “flying geese” pattern might not hold good while analysing the development pattern in different industries. Kojima (2000) considered that the shortening of the product life cycle was one more reason to force firms to fragment their production process by locating them in different countries; this approach not only reduces production costs but also helps firms to launch new products simultaneously in different countries in order to gain quicker access to the consumer base.

The fragmentation of production and the corresponding firm specialization in tasks is leading towards the development of a new paradigm for international trade (Grossman and Rossi-Hansberg, 2006). Although many large multinational enterprises continue to provide a variety of products and services on global markets, they now increasingly purchase inputs and components from smaller companies in widely dispersed locations that serve particular industry niches. As a result, the stake of small and medium-sized enterprises (SMEs) in

international trade is increasing, and the efficiency level of such firms in delivering goods and services has improved significantly.

Policies and incentives towards SMEs in many countries help them to become more efficient, which, in turn, assists firms to become effective players in the international supply chain. Although Japanese investment in the early years initiated the process, the high technology absorption skills of many SMEs has pushed them up in the value chain, which is one of the targets of these highly-integrated players. In this context, many companies – particularly smaller enterprises – are finding that success and value creation may be achieved through specialization in a limited set of activities, outputs and market niches. For example, even simple components such as hubcaps can be produced for regional and global markets by a supplier in the production networks of Toyota Motor Corporation or Ford Motor Company. Therefore, as the international production system evolves, the key role of GVCs and international production networks (IPNs) in a growing number of industries provides an increasingly effective mechanism for SMEs to access global and regional markets as suppliers. However, in order to participate in such value chains and networks, firms must be able to deliver a specified product, in the right quantity, with the required quality and at the right time. In addition, those firms must be able to meet an expanding range of increasingly stringent global market standards, for example on labour conditions and the environment.

Against this background, this chapter attempts to understand the economic environment that allows production networks to grow and how firms increase their efficiency to become part of the global value chain. This study highlights the experience of the automobile sector in different countries of Asia. Since IPNs include trade in parts and components, a data analysis of international trade in automotive components has also been carried out.

From the 1950s onwards, various developing countries used import substitution industrialization policies to promote the development of their domestic automotive industries. By the early 1990s, there were substantial self-contained vehicle industries in Asia with limited imports of vehicles and components and limited exports. Trade liberalization began to change this situation in the 1990s. Quantitative restrictions were phased out and tariffs reduced, while at the same time the global production and sales strategies of leading multinational automotive companies were shifting and developing countries were becoming more integral to their plans. Nag and others (2007)¹ showed that average MFN duties on various automotive components came down significantly between 2001 and 2005 in major Asian automotive-producing countries compared with full vehicles. Countries such as China, India, Indonesia and Thailand are currently focusing more on the indigenous automotive industries by liberalizing trade in parts and components while protecting the final products. In 2005, average duties on components were close to 10 per cent while for full vehicles duties remained as high as 54 per cent in India, 43 per cent in Thailand and 30 per cent in Indonesia.

This chapter argues that while changes were most evident in the assembly sector, even more significant changes were taking place in components production, driven as much by the alterations in the nature of value chain relationships between assemblers and suppliers as by the industry's globalization and dynamic shift in consumer choices across countries. These changes have had a profound effect on the structure and characteristics of the automotive industry in developing countries. Consideration is given to the implications for the policy options open to the Governments of developing countries, and to the types of policies that

¹ See table 22 on page 38.

will be adequate for creating viable automotive industries in the new environment of lower levels of protection and increasingly globalized production systems.

A. Economic environment to link global value chains and international production networks

A value chain refers to the full range of value-added activities required to bring a product from its conception, through design, sourcing raw materials and intermediate inputs, production, marketing, distribution and support to the final consumer. It presents a set of key activities related to the production, exchange, distribution and after-sales support for a given product or service. Value chains become global when their component activities are geographically dispersed across borders to multiple country locations. In general, the proportion of products conceived, manufactured and consumed entirely within the geographic boundaries of a single country is shrinking. Even services such as financial, consulting and customer support services are becoming mobile across borders. A value chain spanning enterprises in a subregional or regional grouping of economies such as GMS or ASEAN, and the global economy constitutes a GVC.

Traditionally, a basic organizational or management challenge for an enterprise is the coordination of its activities in the value chain (for example, sourcing, design, production, distribution and service), particularly when such activities cross borders. The big firm – together with subsidiaries, affiliates and joint ventures used to retain ownership and control of inputs, components and products, as they are transformed along the value chain. But increases in competitive and cost pressures are leading hierarchical, vertically integrated firms to reorganize and focus on a few selected core activities through the shedding of what are seen as non-productive assets. Advances in ICT are reducing the need for ownership or equity-based control of activities in the value chain, enabling lead firms to ask much more of their suppliers in terms of rapid response, design collaboration and lower costs; in addition, they provide for closer product and process monitoring. At the same time, the rising competence of suppliers enables them to take on added responsibilities. As a consequence, firms are increasingly focusing on activities that they see themselves doing well and that enable them to capture higher returns, while outsourcing non-core activities. Given technological and logistical advances, suppliers need not be located in the same vicinity or even in the same country, adding relocation or off-shoring to the strategic options for firms. This is transforming vertically integrated hierarchical firms in a variety of industries into networks.

Global buyers increasingly want more information and indirect control, with regard to their suppliers, further and further back in the value chain. This requirement is driven by a number of factors. Competitive pressures are forcing firms to eliminate stocks to lower costs and risks, and improve flexibility. At the same time, final product markets are increasingly characterized by simultaneous consumer demands for higher quality, lower prices and adherence to increasingly stringent global standards. Therefore, in industries as diverse as electronics, computers, apparel and fresh vegetables, the trend is away from “arms length” market-based transactions to some form of linkage or alliance among firms along the value chain, which is the basis of production networks.

An IPN represents linkages within or among a group of selected firms in a particular GVC for producing specific products such as computers, mobile phones or cars. It is representative of how lead firms in such a network (such as Toyota, Cisco and Nike) organize their particular networks of subsidiaries, affiliates or suppliers to produce a given product. An

IPN involves the distribution and coordination of geographically dispersed activities in multiple country locations. An IPN is sustainable even without a continuous value creation, which may be considered as a low-level production network. In this network, bottom firms remain naive and do not learn or move up the value chain. They remain a supplier of tiny components to bigger firms that, in turn, supply slightly more complicated components to firms positioned at a higher level in the GVC. However, if firms learn and add value at their level, they are not only in a position to supply goods efficiently but will also find new buyers and gradually start producing diversified products. Hence, such firms progressively move up to the next level of the supply chain. In this type of situation, there is a tendency for fresh investment to be made in the sectors for value addition. Perhaps a “flying geese” pattern is visible in this kind of situation where firms of one country will start investing in those firms in lower tier countries that can add value to that level and send efficiently produced goods to the higher tier country. So product space vacated by tier 1 countries is filled by firms in tier 2 countries, with the majority of these products comprising only parts and components.

In addition, during the process, several firms will emerge as coordinating firms and add value by integrating several manufacturing firms. These will be firms that have never owned production facilities and the basic role of which – and the basis for their competitive advantage – involves coordinating and integrating activities along a given value chain. Because they own fewer assets and use the resources of partner companies, these firms generally require less capital; they also often generate higher revenues than traditional firms, under both expanding and adverse market conditions, in a growing range of product markets (Hacki and Lighton, 2001). Global suppliers, in particular, support lead firms in a variety of industries by organizing the supplier process, especially in GVCs. For successful IPNs, the emergence of these types of firms is also very important.

Continuous innovation and upgrading throughout the value chain is becoming a requirement in an increasingly wide range of product groups. This is the consequence of the growing intensity of global competition, shortening of product life cycles and the falling of barriers to entry in some industries. Innovation and upgrading by a given firm can allow it to reposition itself, and improve its pricing power and competitive position within a given network or value chain.

The key issue is that value creation can occur anywhere in the value chain. It is not necessarily associated only with high-end activities such as design or branding. Key innovations can also be the source of competitive advantage for a given production network as a whole within a GVC. For example, product innovation by Toyota can strengthen the competitive position of the set of firms in the Toyota-led production network – including its lower-tier automotive parts suppliers – against other such networks (for example, that of Ford) within the automobile industry. In general, there are four ways for a firm to improve its position or create additional value through innovation and upgrading:

- (a) Process innovation – increasing efficiencies in the production process, for example through improvements in production technology or labour productivity;
- (b) Product innovation – improving existing products or developing new products;
- (c) Functional innovation – changing the mix of value chain activities undertaken by a supplier (for example, by moving upstream from manufacturing to product design);
- (d) Chain innovation – using existing capabilities to upgrade to a new and more attractive value chain (for example, the shift of some firms in Taiwan Province of China away from producing microwaves to higher value personal computers).

Product and process standards are increasingly shaping production, especially within the framework of GVCs. There is growing pressure in key markets, such as the United States of America and the European Union, for global producers to adjust their operations to reflect not only profitability but also social and environmental objectives (for example, corporate social responsibility requirements). In addition, within the framework of GVCs, standards play the key role in ensuring product and process consistency and reliability along the chain. Therefore, producers wishing to participate within GVCs increasingly have to meet stringent requirements of a growing multiplicity of standards in a wide range of industries (for example, wood furniture, automobiles and electronics).

B. Small and medium-sized enterprises in international production networks

Leading firms in an increasing number of industries are reconfiguring their strategies and reorganizing their production networks; in the process, they are placing lead suppliers in a key role within such networks. This is particularly evident in two important industries, electronics and automobiles. Lead firms in those industries are becoming increasingly reliant on global suppliers, often based close to home but supported by subcontractors globally. These lead firms are surrounded by an increasing number of preferred first tier or global suppliers who, in turn, are surrounded by lower-tier suppliers of parts, components and other inputs. These lower-tier suppliers, further back in the network, are often SMEs doing low-skill, low value-added activities, producing relatively simple outputs and competing on the basis of low cost, and which have limited capacity and options for upgrading. However, this is likely to be an unstable position for a firm since it is easier to be replaced by another lower-cost supplier. The challenge therefore for an SME is to enter the chain as higher-tier supplier or alternatively as a lower-tier supplier but with the opportunity to upgrade – to move up the value chain and increase the value content of activities.

From the perspective of SMEs, the organization of production networks may be seen as an implicit agreement between the lead firm and SME suppliers. The lead firm provides market and technical information with the expectation that lower-tier suppliers will perform to meet global standards set by the lead firm. Supplier SMEs, on the other hand, invest in equipment and specialization with the expectation that the lead firms will continue to use their outputs and ideally, over time, provide opportunities for the firms to upgrade within the network. The key questions for SMEs in this context include:

- (a) What does it take to become a supplier with the opportunity to upgrade in a particular GVC?
- (b) How stable is this implicit bargain likely to be for a specific SME in a given network?

This spreads the risks and lowers the costs of doing business for lead firms. Global suppliers, in turn, are reorganizing networks within value chains, redefining the role and relationships of lower-level suppliers/producers further back in the chain. In this context, lead firms and their supporting global suppliers are increasingly looking for firms that already have the requisite production capabilities, not firms that need to be brought up to required standards – thus posing new challenges to the enterprises. This reorganization of networks is most pronounced in the automobile industry. As a consequence, global suppliers are emerging as key global investors, with significant influence on the export competitiveness of host countries and on the fortunes of SMEs. For SMEs, success depends on how fast they can

start working on the four innovations (as discussed in the previous section) and how much flexibility they have in improving their position in the value chain.

C. Global value chain of the automobile industry

The automobile industry comprises a complex mixture of firms of different sizes and types that are producing an enormous variety of products, from very simple parts to technologically very complex systems. Organizationally, it was originally characterized by a high degree of vertical integration within major producers within the industry. The situation changed dramatically in the 1970s with the emergence of highly efficient, cost-competitive Japanese automakers as global players. The key change that revolutionized the competitive structure and dynamics of the industry was the displacement of Ford's mass production by Toyota's lean production innovation.² The major strategic move of the big players, which cascades down to the lowest tiers in their production networks, has been getting the right part or process, in the right numbers, to the right place at the right time and the right cost, with a minimum of inventories in process or in transit. As a result, the automobile GVC has evolved towards a complex, multi-tiered global supplier structure that has, along the way, transformed the key participants and relationships within the automobile industry's GVC.

Japanese automakers such as Toyota have long been known for their extensive reliance on multi-tiered supplier networks and high outsourcing levels. Ultimately, during the 1980s, because the United States and European automakers came under increasing competitive pressure – primarily from their Japanese competitors – they began to import finished vehicles from lower-cost locations (for example, Mexico, Canada and Spain) within the context of regional agreements/groups such as the North American Free Trade Agreement and the European Union. This was followed, in the 1990s, by a new wave of assembly and supplier plant construction in emerging markets such as Brazil, China, India, Mexico, Thailand and Viet Nam as well as in Eastern and Central Europe (Humphrey and Memedovic, 2003). In addition to supplier-driven factors, a key reason for this relocation was changes in demand patterns – an increasingly maturing market in developed countries and a projected growth market in emerging economies, particularly in Asia.

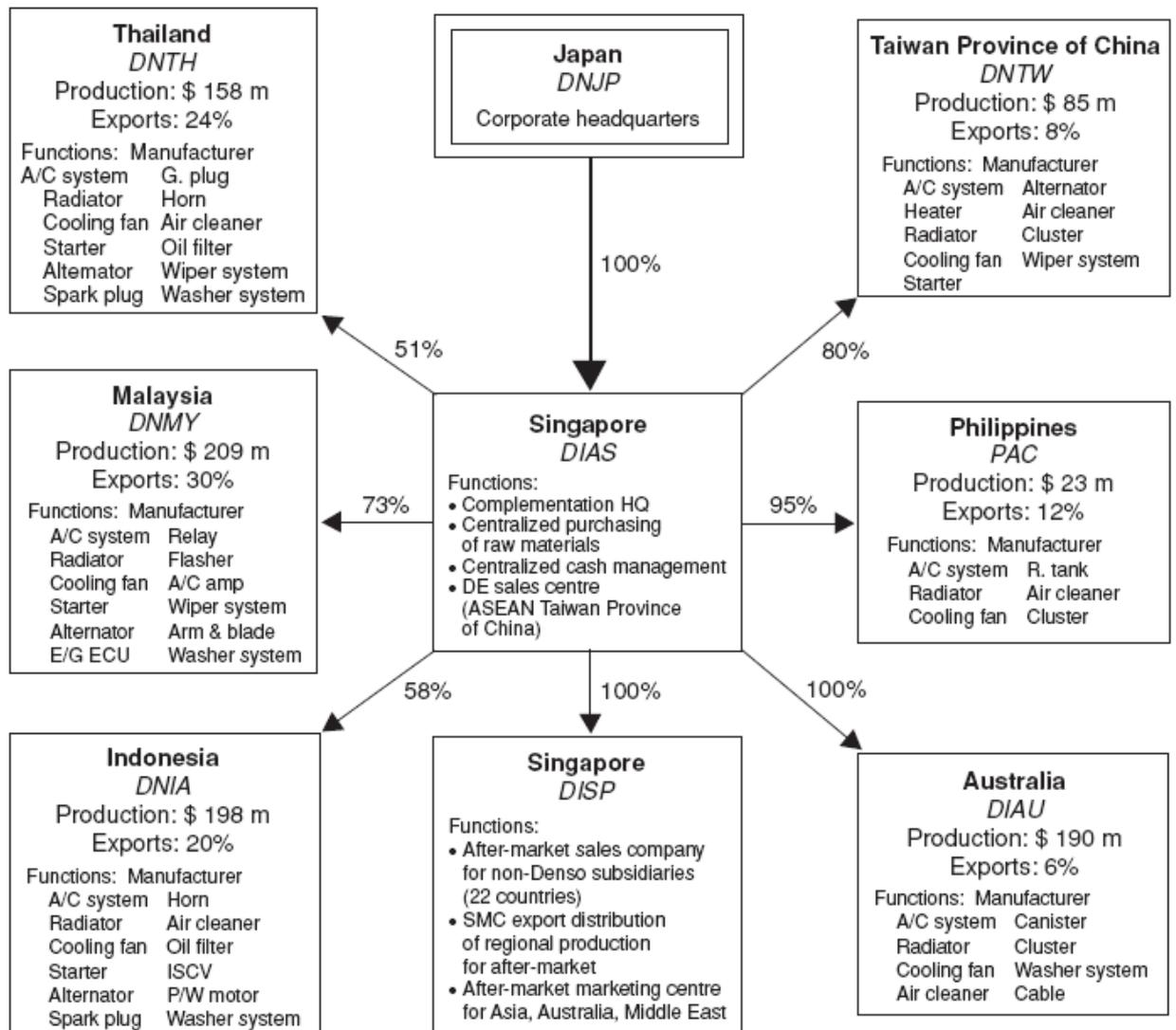
Consequently, the strategies of lead firms are evolving in different directions. They are offloading increasing responsibilities to their top tier suppliers, expecting considerably more in return in terms of activities along the value chain and geographic scope. The new demands on suppliers go well beyond excellence in manufacturing performance and low costs, which are becoming widely available. The international trade dynamics are quite interesting in the automobile sector. Firms from the United States and the European Union have been relocating their production plants and importing vehicles from those plants. On the other hand, Japanese players have not only been relocating their plants but also importing parts and components into the third country through an integrated international production network. The Japanese relocate their plants to increase their global exports from those countries (for example, Thailand). In addition, some tier 1 suppliers also move to different countries (mainly close to Assemblers' new location) so that they can supply OEMs quickly.

The value chain system of the Japanese company Denso Corporation is a good example. Denso Corporation is the one of the largest automotive component manufacturers. It

² Toyota lean production includes the system of production where the designs are customized to meet orders by individual customers together with mass production models and designs for a common customer base.

has a broad portfolio of automotive products related to thermal systems, power train control systems, electronic and electrical systems. It has its subsidiaries and affiliates in Japan, North America, Europe and India. Denso relies heavily on a geographically distributed and coordinated production network, primarily in Asia. Figure 1 shows how Denso's plants in different countries are integrated.

Figure 1. Denso Corporation regional production network in South-East Asia

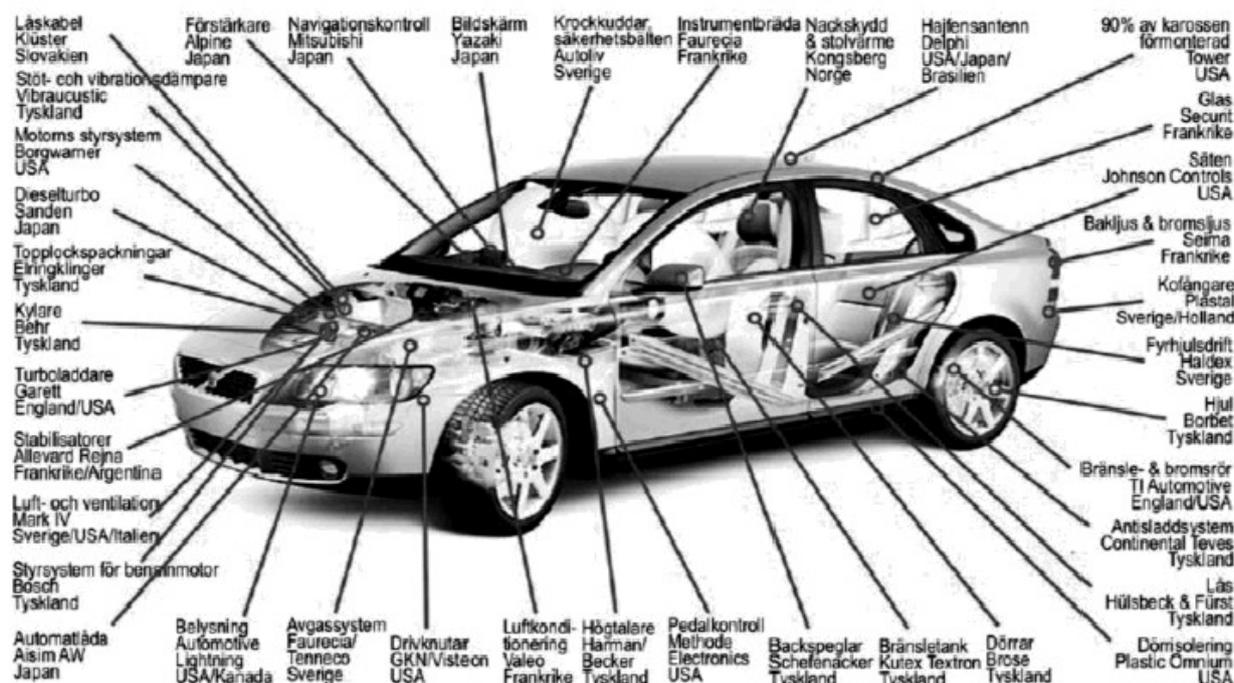


Source: Dicken, 2003.

Baldwin and Thornton (2008) argued that stages of manufacturing that used to be performed in a single nation are now often geographically unbundled in an effort to boost efficiency. Supply chains spread across many borders. Unbundling, which has accelerated since the 1990s, is the most important new element in the regionalism debate. Today's supply chain, especially in case of automobiles, is extremely complex. Figure 2 provides an example from Volvo to explain how different components produced in different countries are put together to produce the complete car. One of the major objectives of the assembler in today's world is to manage the supply chain very efficiently. The entire concept generates enormous potentiality of intra-industry trade in which developed and developing countries are actively participating.

Figure 2. Underleverantörer till Volvo S40

Underleverantörer till Volvo S40



Source: Baldwin and Thornton (2008), taken from a presentation by Ericsson Chairman Michael Treschow.

The table below provides a picture of the international trade patterns in the automobile industry considering the major auto producing countries. For example, United States and European Union automakers have expanded their production capacities in regional and global markets. On average, United States automakers have higher productivity compared with European producers but less than the Japanese (Warf, 1990).

Comparative statistics of automobile trade by major automotive producing and Asian countries

(Unit: US\$ billion)

	Description	Exports					Imports				
		1995	2000	2004	2005	2006	1995	2000	2004	2005	2006
France	Auto components	10.32	12.19	15.79	15.72	17.35	5.73	6.83	12.73	13.04	13.86
	Vehicles	21.05	24.68	44.94	43.01	40.40	21.76	22.68	35.80	37.78	40.03
Germany	Auto components	12.56	15.95	31.71	34.11	38.36	7.25	9.80	18.66	21.63	23.60
	Vehicles	61.21	73.24	121.81	133.74	143.95	31.25	29.24	46.04	46.17	53.44
Italy	Auto components	6.05	7.17	11.95	12.56	13.25	2.48	3.46	5.35	5.70	6.74
	Vehicles	12.99	12.28	15.92	15.65	18.65	16.33	22.46	37.10	37.53	39.51
United Kingdom	Auto components	5.24	7.30	7.81	7.70	7.84	9.27	9.60	14.43	14.58	16.62
	Vehicles	13.13	16.59	26.24	27.96	27.84	19.18	26.60	42.94	43.60	44.86
Japan	Auto components	19.66	17.44	24.15	25.90	26.45	1.45	2.04	3.50	3.81	4.51
	Vehicles	58.42	70.85	92.20	97.51	113.43	11.09	8.19	9.92	9.89	9.58

Republic of Korea	Auto components	0.67	1.79	5.33	7.79	9.50	1.30	1.21	1.97	2.20	2.55
	Vehicles	9.45	13.64	26.63	29.52	32.92	0.61	0.35	1.39	1.77	2.50
United States	Auto components	23.28	30.50	29.39	29.72	31.77	21.16	29.22	39.11	42.25	45.50
	Vehicles	24.23	26.37	35.26	41.54	52.05	81.48	135.25	151.86	153.82	169.77
China	Auto components	0.38	1.13	4.43	6.63	8.93	0.90	2.13	7.34	6.73	9.04
	Vehicles	2.32	5.44	11.92	15.09	18.53	1.79	1.46	5.68	5.48	7.90
India	Auto components	0.28	0.36	0.75	1.25	1.38	0.38	0.28	0.66	0.77	1.01
	Vehicles	0.60	0.55	1.49	1.83	2.10	0.07	0.04	0.14	0.25	0.36
Thailand	Auto components	0.14	0.51	1.42	2.13	2.51	3.02	1.44	2.84	3.02	2.85
	Vehicles	0.58	1.99	4.31	5.99	7.54	2.22	0.53	0.71	0.83	0.81

Source: Calculated by the authors from the WITS database.

Notes: Data are as per SITC Rev3. For automotive components, code 784 has been considered.

Asian countries (mainly Thailand, China and India) are coming up fast in the automobile trade. A large portion of their trade is concentrated on the component segments. Body parts, brakes, gear boxes and other non-critical components are now mainly produced in these countries, and are being traded within and outside Asia. According to the WITS database, in 2006, China alone exported more than US\$ 7 billion of small parts (SITC 78432 and 78439). For India and China, this figure was close to US\$ 1 billion and US\$ 2 billion, respectively. China's exports of brakes, parts and gear boxes were worth more than US\$ 2 billion in 2006, while for Thailand and India, the export value in this category was around US\$ 1.25 billion. Interestingly, exports by these countries of critical components such as in engines are still negligible.

As the number of locations has multiplied, automakers have streamlined their operations on a global scale, focusing on vehicle design and component sourcing. General Motors and Ford, historically the most vertically integrated automakers, have increasingly spun off internal parts subsidiaries, shifting to outside suppliers. The trend of automakers performing far fewer functions with their assembly facilities than in the past changes the nature of the relationship between lead firms and their first tier suppliers. Higher-tier suppliers are moving into module design, lower-tier component sourcing and the provision of local content in newer markets. This involves a more centralized global sourcing, tighter coordination of global design efforts and consolidation of project management in core regional locations. At the same time, the need to respond to unique market demands has created pressure to localize designs to cater to local consumer tastes. The growing need to provide automakers with modules on a global basis is driving expansion of first tier suppliers, who are the entry deciders, to GVCs for lower-tier, smaller suppliers (Kaplinsky and Readman, 2001).

There is an increasing preference among automakers for working with a smaller number of larger suppliers, at least for key components, and to transfer a greater degree of responsibility for aspects of design and engineering to preferred suppliers. In this context, consolidation within supplier networks has involved first tier suppliers embarking on a wave of vertical integration (for example, mergers, acquisitions and joint ventures) and the building of stable links with their preferred lower-tier (for example, second tier) suppliers. This has important implications for lower-tier suppliers whose participation and upgrading in GVCs increasingly depends on a fewer number of larger and more demanding higher-level suppliers. For example, the big three United States automakers (General Motors, Ford and Chrysler) have merged, and in some cases established commercial strategic partnerships, with European and Japanese automobile manufacturers. The Chrysler Daimler-Benz merger was initiated by the European automaker in order to strengthen its position in the United States market. Today, all leading Japanese car producers as well as BMW, Mercedes Benz, General Motors, Ford, Volvo and Peugeot assemble cars in Thailand alongside their legions of

suppliers. Overall, there has been a trend among the world automakers to expand by merging with other giant automotive companies in overseas markets (Nag and others, 2007).

Creation of regional assets through international production networks: the case of Toyota in Thailand

Since the 1960s, Thailand has become the hub of South-East Asia's automotive industry. There are a large number of car manufacturers operating in the region, surrounded by a considerable number of first tier suppliers, as well lower tiers, 50 per cent of which are fully or partly foreign-owned. The State plays an important role in coupling the regional assets with the strategic needs of global companies and their networks. In anticipation of a potentially large market after the completion of an Asian Free Trade Agreement (AFTA), the rationale for production in Asia was mainly to avoid existing tariff and non-tariff trade barriers as well as to integrate the region into an international production network.

Toyota is one of the largest carmakers in the world. During the past few years, cost factors and excess capacity in traditional home markets became major factors that influenced decisions to shift production to Thailand. In addition to the arrival of global car suppliers in the market, some global suppliers also entered the Thai market. Consequently, local component suppliers that were mainly SMEs had to restructure their businesses to compete for the new opportunities. Realizing that the company's success depended to a considerable extent on a strong network of quality suppliers, Toyota Thailand played an active role in this restructuring process. As a part of this effort, Toyota Thailand has successfully developed long-term relationships with local suppliers that benefit both Toyota and the local industries. Toyota Thailand has undertaken commercial transactions with some 134 suppliers that can be categorized into five different groups: (a) independently operating Thai firms; (b) Thai companies that receive technical assistance from overseas; (c) local joint ventures with Japan; (d) joint ventures abroad; and (e) independent overseas suppliers.

Toyota's suppliers excel in quality, cost, delivery, engineering (including technology) and management. In addition, suppliers build and maintain a strong position regarding unique designs or special technologies while also being cost-competitive. They follow and monitor trends in information technology and are able to harmoniously amalgamate state-of-the-art technology with their business organization. However, the transfer of expertise to domestic suppliers is still rather limited. Once a critical mass is reached, Toyota will not only be able to attract additional foreign suppliers to the region, but will also be more likely to invest further in upgrading and developing local suppliers that the company might use in the future.

Toyota is assisting its suppliers, but it cannot solely develop the SMEs. Targeted government intervention is needed in terms of policies and support measures for SMEs. The Thai automotive institution acts as a key facilitator between SMEs and government departments to ensure the implementation of more coherent policies that are consistent with suppliers' demands. Government departments relevant to the automobile industry are expected to cooperate and interact more closely in defining national strategy and regulations.

To achieve the goal of upgrading, a number of adjustments are needed in order to facilitate a positive strategic coupling process between global production networks and regional assets. These include efforts by the Government of Thailand to create regional institutions that help to transform and enhance the regional assets, especially in the field of education and vocational training, and cross-border negotiations to pave the way towards an integrated production system with the global forces of multinational companies and economic policy arrangements which may lead to greater regional development.

Source: Jeffrey Liker and Michael Hoseus, 2008.

D. Constraints on the growth of small and medium-sized enterprises in the automobile industry

The automobile sector in most developing countries still faces a very restrictive environment. An extra burden of taxes (such as luxury tax), quotas etc. sometimes act as general barrier to the growth of the indigenous automobile as well as component sectors. Sometimes, when fully assembled cars enter a cross-border market with a lower price tag, it becomes quite a significant blow to the SMEs in the domestic component sector. The lack of effort to harmonize technical standards of the sector acts as barrier to SMEs. Those same technical standards help SMEs to produce their products for many clients.

Because of their size and isolation, individual SMEs are constrained from achieving economies of scale while purchasing inputs such as equipment, raw materials etc. and accessing other services such as finance, and consulting services. SMEs are often unable to identify potential markets or take advantage of market opportunities that require large volumes, consistent quality and homogenous standards, and a regular supply. Small size is also acts as a constraint on accessing functions such as training, market intelligence, logistics and technology, making it difficult for SMEs to access global markets; it also limits their performance in increasingly open, competitive domestic markets.

Entering into a supplier relationship with larger enterprises in GVCs can mean a larger and more stable market for SME outputs, allowing such firms to better organize their production and improve their technology. However, GVCs also define a more demanding environment, requiring SMEs to work in a more formal manner and to upgrade not only their production methods, but also their management practices. SMEs are thus under additional pressure to innovate in upgrading their operations in order to participate in international markets. However, they often lack the resources to do so. Thus, small firms face constraints on their access to key business development services that large firms either have internally, or can purchase. In addition, a lack of investment restrictions prevents SMEs from expanding beyond borders and thus from gaining entry to new markets. Hence, they need to remain satisfied with a protected and sometimes inefficient domestic automotive market. This is noteworthy from the perspective of the consumer, who wants to receive high-quality products at reasonable prices.

Regionalism enhances growth in the component trade in East Asia and South-East Asia by maintaining barriers against non-members (while allowing free trade among members); however, it hinders the natural expansion of fragmentation-based specialization across countries, especially in South Asia. Rules of origin in trade agreements (free trade agreements or preferential trade agreements) can be more binding in the case of fragmented trade compared with trading in conventional final products. Since value added at each stage of production is normally relatively little, component trade presumably is more sensitive to trade costs and delays arising from rules of origin compliance.

E. Recommendations for supporting small and medium-sized enterprise participation in global value chains

1. Empowering small and medium-sized enterprises

Initiatives at different levels involving Governments and the private sector are necessary for facilitating the operation of SMEs in GVCs. Therefore, a public-private partnership is needed that can address the issues specific to SMEs (USAID, 2005). This should include development of the basic infrastructure and logistics systems as well as the policies, rules and regulations related to exports and imports, channelling of funds to SMEs, streamlining foreign direct investment etc.

For example, some economies see high taxation of the automotive industry as a means of raising revenue to meet fiscal requirements. Government policymakers may avoid the distorting impact of a high level of taxation. Also, policymakers would like to facilitate easy availability of finance that may help the industry to grow and, in turn, help the component sector to flourish.

Since automotive investment requires the commitment of a large amount of capital for a lengthy period, investors will only want to get involved when the associated risks are minimized; this, however, can only be promoted by Governments.

Improvement of the automobile infrastructure, such as roads, parking lots and complementary public transportation, and an appropriate balance between automotive infrastructure and public transport investment should be sought. Good infrastructure provides an incentive and thus attracts investments in setting up an automobile industry as well as end users.

In addition, high inflation in an economy results in the reduction of consumer purchasing power and confidence, thus negatively affecting growth of the industry. Potential investors must also have a very clear picture of the investment rules and a strong knowledge of the competitive business environment in order to make sound business decisions. In addition, customs policy needs to be simplified together with the full utilization of the electronic media in order to facilitate a faster flow of information, which will, in turn, boost integrity and business confidence necessary for an entrepreneur to achieve success.

2. Facilitating participation of small and medium-sized enterprises in global value chains

Facilitating the SMEs in GVCs requires:

- (a) Strengthening vertical linkages of domestic producers to GVCs, which at the top of the chain involves strengthening linkages between relatively large national exporters and international buyers/global suppliers. At the bottom of the chain, this involves strengthening linkages between higher-tier suppliers/buyers (foreign and domestic) linked to GVCs, and lower-tier suppliers (SMEs);
- (b) SMEs require a wide range of assistance to meet the challenges of an increasingly competitive and complex international business environment in general, and for participating in GVCs in particular. Herein lies the business development services (BDS), the scope of which includes:³

³ See Committee of Donor Agencies for Small Enterprise Development, 2001.

- (i) Training in general business management, entrepreneurship and specific business skills such as marketing, accounting and finance;
 - (ii) Counselling and advice, often on a firm-by-firm basis and, where particularly effective, as a follow-up to training;
 - (iii) Technology development and transfer, involving the adaptation, design and development of technologies and their dissemination to SMEs;
 - (iv) Information on markets, buyers, technology that are increasingly available through ICT-based facilities as well through traditional mechanisms such as trade fairs, exhibitions and visits/tours;
 - (v) Business linkages involving the development and strengthening of commercial linkages between SMEs and large firms (e.g., subcontracting) and among SMEs (e.g., development of “enterprise clusters”);
 - (vi) Financing aimed at channelling funds to SMEs, either directly (e.g., special purpose financial institutions such as SME banks) or indirectly (e.g., through special windows of commercial banks), perhaps at preferential rates.
- (c) Cooperation through enterprise clusters can help SMEs improve their capabilities and bargaining power in accessing and upgrading within GVCs. Small firms generally find it hard on their own to overcome constraints on competing in global markets, and individually may be of limited interest to globally buyers and suppliers given the transactions costs involved. However, targeted cooperation among SMEs, as well as between SMEs and institutions in their surrounding environment (for example, industry associations, Government agencies and training institutions) can provide the basis for an effective response to competitive pressures, including the demands of membership in GVCs;
- (d) Achieving economies of scale beyond the reach of individual small firms in the purchase of inputs including technology as well as creating a pool of skilled workers, the use of state-of-the-art machinery, and the pooling of production capacity to meet large volume orders from global buyers. Cooperation in clusters can lead to collective efficiency based on scale. SME networks are groups of firms that (i) complement each other, (ii) are involved in different parts of the same value chain, and (iii) cooperate to achieve collective efficiency through specialization (for example, for gaining access to global markets and GVCs beyond the reach of individual SMEs). Although Thailand, for example, is an automobile hub, this status is under threat from rising labour and land costs. However, over time, this could provide opportunities for neighbouring countries to enter a GVC through a subregionally coordinated strategy of production relocation and integration. This would be consistent with the increasing complementation of production in South-East Asia being organized by global suppliers such as Denso. For example, Cambodia offers a rubber supply and relatively good quality processing, which could provide the foundations for the production of selected components;⁴
- (e) SME clusters and networks are often characterized by market failures and high levels of complexity. Consequently, the provision of such networks is likely to require both inter-firm and business-government cooperation, and may also require the establishment of new institutions or the strengthening of existing institutions, especially at the industry and local levels. For example, within the Association of Southeast Asian Nations, Thailand has emerged as the major focus

⁴ Thailand Automotive Institute; available at www.thaiauto.or.th/index_eng.asp.

of automobile and component production among Japanese and Western automotive companies; it is now a regional export hub for components and the third largest exporter of automotive products in South-East Asia and East Asia after Japan and the Republic of Korea. The Government of Thailand has invested heavily in cluster development and strengthening for the industry, particularly in Rayong and Samut Prakan provinces, south of Bangkok.

F. Conclusion

The development of a regional industry based on open market principles tends to lower manufacturing costs, and maximizes available facilities and resources by increasing the scale of production and promoting competition. This can lead to higher levels of efficiency, more affordable products and more consumer choice. Such integration makes the region much more attractive to global investors. Intraregional trade in parts (see the chapter by Aminian and others in this publication) and components is rising in East Asia, and the automotive components sector will follow this trend. This is a similar situation to that prevailing in Mexico's automotive industry, which has moved from being a high-cost, relatively inefficient production base, to a world-class competitive industry that is now completely integrated.

The entire phenomenon has placed new issues in front of the policymakers. As per Lawton (1999), traditionally industrial policies look into issues related to particular industries or sectors. Now the focus is getting shifted to 'functional' approach. Policymakers need to look into the comparative advantage of a set of "functions" under the production process from which a new level of efficiency can be derived. As per Porter's (1985) value chain model, the "functional" approach looks into issues in operations, logistics or research and development rather than specific industry sectors such as semiconductors or aerospace. Lawton and Michaels (2000) claimed that Taiwanese policies were aimed at increasing competitiveness through the improvement of support services, including the transportation sector. They noted this was in contrast to sectoral policies such as those in United States or Japan that opened the way for the proliferation of SMEs in component production and the improvement of their position in the value chain. Added to this has been the investment in ICT, which has integrated fragmented production across Taiwan Province of China.

To improve the position of firms across the value chain, a three-pronged strategy may be pursued. First, an attempt should be made to increase efficiency within the existing national component of the value chain. Mapping the domestic chain will help policymakers to determine what type of trade support services should be provided, by which institution and where. A commitment towards improvement of efficiency may be made through a public-private participation approach that can attract more foreign buyers and investors, thereby increasing the overall export performance of the sector and the expansion of the production network beyond the national borders.

Second, an approach may be developed to extend the national value chain. For example, local suppliers may be developed in such a way that they can replace foreign suppliers in the long term. Steps may also be taken to create value-addition links, such as grading, product finishing or packaging, which will help foreign buyers to identify quality local suppliers.

Third, a strategy may be taken to build up a new value chain. For example, a battery producer can produce batteries of different types that may be in demand among toys sector

manufacturers, or laptop, mobile phones and even automobile producers. Similarly, byproducts can be commercially sold, which might generate a new value chain altogether (International Trade Centre, 2003).

Last but not least, as SMEs are significantly involved in the trading of parts and components in Asia, trade costs and other barriers need to be lowered for this sector. As mentioned above, components are mainly low value-added products, and a small decrease in tariff rates and the relaxation of non-tariffs and other barriers will give a major boost to SMEs. In addition, Government initiatives in providing incentives, protecting intellectual property rights and so forth will help SMEs to move up the value chain. This chapter shows that the involvement of efficient SMEs in a production network can also be driven by multinational corporations (MNCs) as in case of the automobile sector in Asia. Hence, in today's world, the development of public policies concerning international production networks requires a balancing strategy that links the requirement of SMEs and MNCs.

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