Asia-Pacific Economic Cooperation

SMEs' Participation in Global Production Chains

Issues Paper No.3

APEC Policy Support Unit

February 2013

Advancing Free Trade for Asia-Pacific Prosperity

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APEC#213-SE-01.3

The authors would like to Azul Ogazon Gomez for her research support, and Dr. Denis Hew and Aveline Low for their comments on earlier draft. The views expressed in this document are those of the authors and do not necessarily represent those of the APEC Secretariat or APEC Member Economies.

EXECUTIVE SUMMARY

Rising globalization and economic integration has enabled SMEs to increase their contributions to the region's development through greater participation in GPCs. In the APEC region, in recent years, reduction in trade barriers and transport costs, as well as the prevalence of Information and Communications Technology (ICT) has connected enterprises of various sizes into global value chains and production networks, leading to more fragmented and complex production processes. The phenomenon is especially apparent in industries such as garment, agro-industry, furniture, automobile/ automotive, consumer electronics, telecommunications and ICT, as well as services. More and more SMEs are engaged in activities that link up with multi-national corporations (MNCs), providing intermediate goods or services that are used to build the final products. MNCs hence have become the major players in coordinating and integrating activities of the entire production process, managing the global production chains.

The evolution of GPCs has also shaped the business landscape for SMEs. Some SMEs still keep to their traditional practices and are constrained to serve the local markets. Increasingly, they are feeling the competitive pressure, and struggle to maintain their foothold. At the same time, another group of SMEs have been aggressively seeking to participate in GPCs, to become suppliers of MNCs and to grow together with the expansion of MNCs. Although also experiencing various challenges along the process, they have emerged stronger and more competitive.

SMEs' participation in GPCs yields substantial benefits. For MNCs, the benefits are evident since they are the ones that initiate and design the GPCs to gain better access to resources at lower costs.

On a micro level, the benefits of participating in GPCs for SMEs are fourfold. First, participating in GPCs enhances the technical capacity of SMEs. Second, being a supplier of MNCs or GPCs means increased demand for existing products and services of SMEs, and this leads to greater utilization of operation capacity and enhancement of production efficiency. Third, cooperating with firms upstream and downstream along GPCs will build the prestige and credibility of SMEs, making it easier to access finance, attract investors as well as human resources. Fourth, GPCs provide SMEs a gradual and sustainable way to internationalize.

At the macro level, SMEs' participation in GPCs brings benefits to the local economy in four ways. First, a stronger SME sector is positively linked with economic growth as it is considered as one of the characteristics of fast-growing economies. Second, SMEs' participation in GPCs brings along job opportunities in the local economy. Third, GPCs allow domestic SMEs to export together with the MNCs, which increases the export value and builds up foreign reserves for the local economy. Fourth, it provides a means to transform the local economy and business.

However, to participate in GPCs is not an easy task for SMEs. SMEs need to overcome challenges at different stages to become strong players along the chain. Before entry into GPCs, SMEs need a sound financial base to make upfront investment, so that they could establish productive and organizational capacity to meet international standards. At this stage, SMEs mostly need external finance, but due to the

lack of credit record and relatively higher risk profile, SMEs find themselves in a dilemma to gain external funding. Furthermore, once SMEs gain the foothold in GPCs, SMEs face the challenges of maintaining and sustaining their businesses. Access to finance is still a barrier, as well as accessing and maintaining high-caliber human resources. In addition, SMEs also need to put in constant efforts to cope with the increasingly complex requirements of standards and the emerging international business practices.

SMEs need to be supported by governments in order to overcome various challenges. APEC governments could consider the following areas to facilitate the gainful participation of SMEs in GPCs: (i) Provide an enabling business environment for SMEs; (ii) Improve access to financing for SMEs; (iii) Strengthen (global) cooperation and network among SMEs as well as between MNCs and SMEs; and (iv) Increase knowledge of SMEs about FTAs.

Ultimately, as UNESCAP (2009) also noted, the ability to become a participant in the global production chains depends on the capacity of indigenous SMEs to overcome the constraints of smallness and newness, and to continuously innovate productively as they grow.

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CHAPTER 1 INTRODUCTION

In 2011, APEC has identified three 'next generation' trade and investment issues that would contribute to a Free Trade Area of the Asia-Pacific (FTAAP). They are facilitating global supply chains; enhancing small and medium-sized enterprises' (SMEs) participation in global production chains (GPCs); and promoting effective, non-discriminatory, and market-driven innovation policy[1].

Recent Free Trade Agreements (FTAs) have begun to include chapters or provisions on cooperation and addressing the development of SMEs, which support SMEs to strengthen capacity in their production processes. However, further efforts could be made to foster the participation of SMEs in GPCs through pro-SME policies and next generation trade agreements. This will facilitate the development of SMEs as supporting enterprises for business-efficient GPCs.

This issues paper will provide examples of case studies at the sector level where successful SMEs' participation in GPCs has been recorded. As will be further discussed, key success factors for SMEs' participation and upgrading process could be and tend to be product-specific, and need to be considered in the context of the local economies and clusters. As such, any policy interventions will need to first understand the particular product supply chain structure.

1. Definitions of SME and GPC

Rising globalization and economic integration has enabled SMEs to increase their contributions to the region's development through greater participation in GPCs. In the APEC region, SMEs generally account for over 90 percent of all enterprises and employ over half of the workforce, pervading virtually all socio-economic activities across urban and peri-urban areas.

Nevertheless, according to a study by the APEC Policy Support Unit (PSU) in 2010, there is no region-wide accepted definition of SMEs. Definitions vary across members and are based on several different criteria, including number of employees and maximum levels of capital, assets, or sales, which may again vary according to industry/ sector. Table 1 below shows different criteria adopted by APEC members on defining SMEs, where the criteria could be single or multiple. The detailed definitions of SMEs in APEC economies are provided in appendix I. These varied definitions of SMEs also reflect the variety of firms and enterprises belonged to the definitions and consequently their characteristics and business practices, most notably between different economies[2]. Kushnir (2010) noted that there is both a technical and a conceptual problem with seeking a universal definition of Micro, Small, and Medium Enterprises (MSMEs) and economies have diverse structural, cultural and political reasons to adopt different definitions of MSMEs.

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[1] APEC, *Enhancing Small and Medium-Sized Enterprises Participation in Global Production Chains*, the Third Senior Officials Meeting (SOM3), document number 2011/SOM3/044, September 2011

[2] Kaplinsky and Morris (2000) stress that methodologically, in each value chain study it is important to bear in mind that: (a) size is a relative concept, and can best be understood in relation to the nature of each value chain; (b) size may be reflected in the number of employees, the turnover, or the value of fixed capital or a combination of these.

Table 1 SME Definition Criteria

	Number of Employees	Sales / Revenue	Assets	Capital / Investment	Sector
Australia	X				
Brunei Darussalam	X				
Canada	X	X			X
Chile	X	X			
China	X	X	X		X
Hong Kong, China	X				X
Indonesia	X	X	X		
Japan	X			X	X
Korea	X	X		X	X
Malaysia	X	X			
Mexico	X				X
New Zealand	X				
Papua New Guinea				X	
Peru	X	X			
Philippines	X		X		
Russia	X	X			
Singapore	X		X		X
Chinese Taipei	X	X		X	X
Thailand	X		X		X
United States	X	X			X
Viet Nam	X			X	

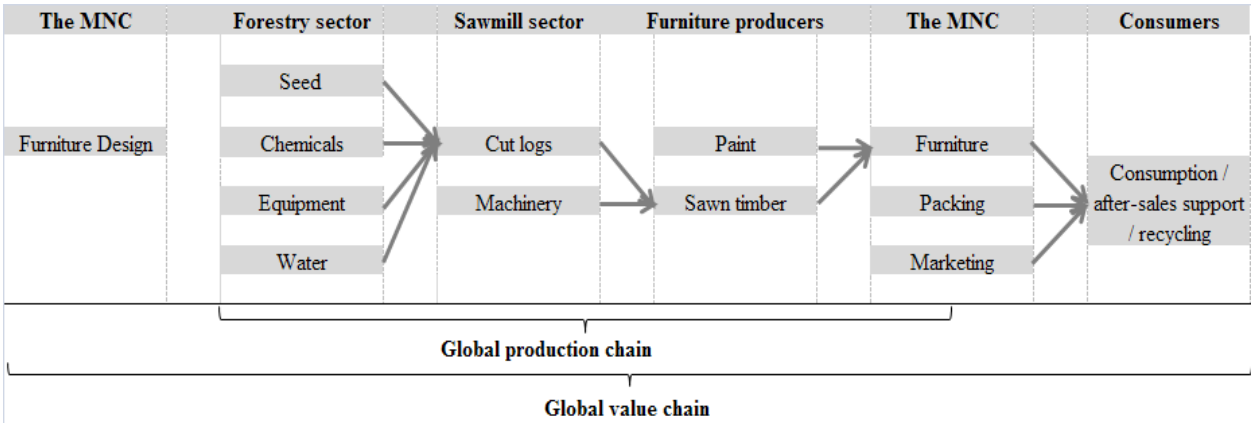
Source: APEC, 2010.

In recent years, reduction in trade barriers and transport costs, as well as the prevalence of Information and Communications Technology (ICT) has connected enterprises of various sizes into global value chains and production networks, leading to more fragmented and complex production processes. This also explains an increasing share of trade in intermediate goods. According to the calculation by Koopman and Wang (2012), the world average export value of intermediate goods has reached 48 percent of total gross exports (see also appendix II).

The phenomenon is especially apparent in industries such as garment, agro-industry, furniture, automobile/ automotive, consumer electronics, telecommunications and ICT, as well as services. More and more SMEs are engaged in activities that link up with multi-national corporations (MNCs), providing intermediate goods or services that are used to build the final products. MNCs hence have become the major players in coordinating and integrating activities of the entire production process, managing the global production chains.

A global production chain (GPC) refers to the linkages within or among a group of geographically dispersed firms in a particular global value chain (GVC) for producing specific products, such as particular types of computers, furniture and automobiles. GPCs are inseparable from global value chains (GVCs), which covers the full spectrum 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 final consumers. GVCs stretch longer than GPCs, since GPCs typically end at the point after the goods and services have been produced for the MNCs, and do not cover the activities beyond the production (Figure 1).

Figure 1 GPC and GVC for Wood Furniture Products



Note: Elements in the chains are inputs into different stages of production or value creation.
Source: Raphael and Jeff, 2001.

2. Trends of GPCs

The origin of GPCs can be traced back to the early 1990s when production networks began to develop in ASEAN and East Asia (Hank and Fukunari, 2009). Consequently, regional trade has also evolved from export and import of final products to intermediate goods. These production networks were initially owned entirely by the MNCs, which was known as 'vertical integration'. Over time, as technology advances and transportation and communication infrastructure improves, the vertical integration structure becomes fragmented, and GPCs emerge to take advantage of trade and investment liberalization to access natural resources, labor, technology and capital at a lower cost. Hence, GPCs strengthened the competitiveness of MNCs in both domestic and foreign markets. Through reorganization and relocation of the production process, GPCs enable task-related specialization and enhance business efficiency.

a. Different types of GVCs/ GPCs

Due to intensifying competition nationally and internationally, as well as improved supply chain connectivity to ship goods and services, MNCs have been constantly optimizing the GPCs and hence improving the GVCs. Given the nature and feature of different industries, GVCs evolve in different directions, so do the GPCs. Currently, three main types of GVCs/GPCs co-exist across different industries (Gereffi, 1999 and Abonyi, 2005). The producer-driven chain is where manufacturing MNCs play a central role and is common in automobiles, ICT and semiconductor industry. The buyer-driven chain has international retailers and brands play the leading role and usually focus on consumer goods industries, such as apparel, footwear, agri-industry and consumer electronics. The multi-polar chain is less common, with multiple power centers but no overall dominant lead firm to shape the final product, such as computers and medical devices; in which intellectual property plays an important role.

b. Forces that transform GPCs

Two main forces drive the structural transformation of the GPCs. Externally, the GPCs are currently facing the increasing operating costs and congestion, especially in Asia - which dampens the profit margin of MNCs. Production costs have increased substantially along GPCs due to difficulties in securing labor, land and other factors of production. Particularly, labor-intensive and land-intensive production is under pressure due to ageing population (in several economies) and inflated property prices. Differences in location advantages (such as factor prices) between developed economies and existing GPC-

participating developing economies are narrowing and are forcing MNCs to seek other competitive niches, such as efficient transportation, customized services, and improved product quality, etc. MNCs have the option to explore business opportunities in the less developed economies, but they are also apprehensive about the set up cost and service link cost as well as business and policy environment in these economies.

Internally, especially after the 2008-09 global financial crises, GPCs are experiencing a consolidation process with a strengthened role for large suppliers. On the one hand, instead of sourcing products from a broad range of smaller suppliers, more and more MNCs now prefer to work with larger, more capable, and globally-oriented suppliers. On the other hand, some large retailers have bypassed the lead firms (MNCs) and began to source directly from large suppliers.

The evolution of GPCs has also shaped the business landscape for SMEs. Some SMEs still keep to their traditional practices and are constrained to serve the local markets. Increasingly, they are feeling the competitive pressure, and struggle to maintain their foothold. At the same time, another group of SMEs have been aggressively seeking to participate in GPCs, to become suppliers of MNCs and to grow together with the expansion of MNCs. Although also experiencing various challenges along the process, they have emerged stronger and more competitive.

3. Impacts of SMEs' involvement in GPCs

SMEs' participation in GPCs yields substantial benefits. For MNCs, the benefits are evident since they are the ones that initiate and design the GPCs to gain better access to resources at lower costs. The issues paper will specially focus on benefits to SMEs (micro level) and to the local economy (macro level). Correspondingly, the drawbacks of the SMEs' involvement in GPCs will also be discussed.

a. Benefits to SMEs

On a micro level, the benefits of participating in GPCs for SMEs are fourfold.

First, participating in GPCs enhances the technical capacity of SMEs. SMEs learn new production methods, management know-how and technology from MNCs, which help them to stay at the frontier of newly introduced products and processes. SME employers could also upgrade their skills through training and intra-industry transfer of talented workers, so that the product quality and service standards could meet the requirement of international markets. These SMEs also have access to MNCs' technical staff and knowledge, which provides SMEs the opportunity of continuous learning and upgrading their production techniques. Building technical capacity is of vital importance to the sustainability of a business.

Second, being a supplier of MNCs or GPCs means increased demand for existing products and services of SMEs, and this leads to greater utilization of operation capacity and enhancement of production efficiency. It also allows SMEs to spread business risks across different markets, which is especially important during times of crisis.

Third, cooperating with firms upstream and downstream along GPCs will build the prestige and credibility of SMEs, making it easier to access finance, attract investors as well as human resources. Financial stability will also allow SMEs to invest in new facilities, research and development, as well as higher value-added new business, all of which could potentially expand the current business.

Fourth, GPCs provide SMEs a gradual and sustainable way to internationalize. Through GPCs, SMEs are engaged in indirect exporting activities. Through this indirect involvement, SMEs gain experience and

exposure of international markets with minimized costs and risks, build up capacity to meet international standards and also to process international market information. Once new niches for supplying products and services emerge, SMEs could take advantage of their own flexibility and position themselves quickly; if needed to further explore new business opportunities with different MNCs or within different GPCs altogether.

b. Benefits to the local economy

At the macro level, SMEs' participation in GPCs brings benefits to the local economy in four ways:

First, a stronger SME sector is positively linked with economic growth as it is considered as one of the characteristics of fast-growing economies. The size of the SME sector does appear to be associated with the growth of gross domestic product (GDP) per capita in the same direction in many economies (UNESCP, 2009). In addition, the so-called 'New Development Strategies' also claim that participation in international production/ distribution networks is the key to accelerating economic development in an era of globalization (Hank and Fukunari, 2009).

Second, SMEs' participation in GPCs brings along job opportunities in the local economy. SMEs in GPCs usually absorb the surplus labor from the traditional sectors, thus there is a clear recognition of the importance of SMEs in job creation. Employment opportunity in GPCs is also a key dimension of the development process, particularly in the lagging economies of Asia and the Pacific.

Third, GPCs allow domestic SMEs to export together with the MNCs, which increases the export value and builds up foreign reserves for the local economy. Over time, if SMEs could move to higher value-added exports, they will contribute even further to the export and development of the domestic economy.

Fourth, it provides a means to transform the local economy and business. Some of the more innovative and dynamic SMEs can serve as catalysts in transforming low-income traditional economy to modern economy in various structural ways. Specialization in manufacturing or services for a particular market raises productivity and strengthens competitiveness of the economy where SMEs operate.

c. Drawbacks to SMEs' participation in GPCs

There are substantial gains from SME's participation in GPCs. However, all these benefits could only be realized on suitable premises, and participating in GPCs is not without its drawbacks. SMEs need to face up to the dominant position of MNCs, where the lead firm tends to impose their strategies and decisions on suppliers along the chain, which, at times, may contradict with the strategies and decisions of SMEs. Moreover, due to limited experience and capacity in managing technical know-how and in-house patent, SMEs may lose protection of its own intellectual property to MNCs.

The most severe risk is the crisis transmission mechanism along GPCs. During economic crisis, MNCs will dramatically reduce or stop their purchases due to lack of demand in the crisis markets, and this will be aggravated when the reduced purchases pass on to lower- tier SMEs. Many SMEs may not be able to maintain sufficient capital to survive or have access to finance from banks, and face the risks of liquidation or bankruptcy. Thus a crisis may lead to a domino effect, which could affect not only large enterprises as first-tier suppliers, but also SMEs as the second- or third-tier suppliers. While MNCs could very much survive due to their wider financial access, the disruption could bring more serious and permanent consequences to SMEs.

Indeed, some governments have introduced ad hoc measures to support domestic SMEs to overcome the negative consequences brought about by a crisis. For example, UNCTAD (2010) has noted how the Mexican Government initiated a public purchases program where at least 20 per cent of the total annual purchases of the Federal Government and its dependents will be bought from domestic SMEs. It also put in place a Productive Chains Program to prevent Mexican enterprises from being dropped from GVCs because of their financial weaknesses.

CHAPTER 2 SMES' PARTICIPATION IN GPCS

1. Current situation

Currently, the level of SMEs' participation in the GPCs is considered to be generally low. It is difficult to get the exact figures to indicate the level of SMEs' participation within the existing GPCs. Nevertheless, a recent study by Wignaraja (2012) covering five Asian economies shows that SMEs are minor players in production networks as only 22 percent of SMEs participate within the production networks. Large firms are the major players in these networks with a participation ratio of 72.1 percent.

Table 2 Role of SMEs and Large Firms in Production Networks (PN)

	All Economies	Malaysia	Thailand	Philippines	Indonesia	Viet Nam
Number of firms in PN	2203	646	619	352	206	380
PN firms as % of all firms	37.3	59.7	59.3	26.9	14.5	36.4
SMEs in PN as % of all SMEs	22	46.2	29.6	20.1	6.3	21.4
Large firms in PN as % of all large firms	72.1	82.4	91.1	51.1	52	64.6

Note: SME is defined as firms with 1 to 99 employees.
Source: Wignaraja (2012)

Another data from the World Bank's Enterprise Surveys provided more or less similar conclusion. The percentage of firms exporting directly or indirectly tends to be less, as the size of firms gets smaller (table 3). Using sales figures, smaller-sized firms also tend to export less as compared to large firms (appendix III).

Table 3 Percentage of Firms Exporting Directly or Indirectly

Economy	Percent of firms exporting directly or indirectly (at least 1% of sales)	Economy	Percent of firms exporting directly or indirectly (at least 1% of sales)
Chile (2010) - S	4.4	Indonesia (2009) - S	1.6
Chile (2010) - M	12.4	Indonesia (2009) - M	14.2
Chile (2010) - L	33.5	Indonesia (2009) - L	55.3
Korea (2005) - S	7.4	Mexico (2010) - S	2.8
Korea (2005) - M	33.3	Mexico (2010) - M	14.4
Korea (2005) - L	52.9	Mexico (2010) - L	29.1
Malaysia (2007) - S	30	Peru (2010) - S	3.8
Malaysia (2007) - M	54.5	Peru (2010) - M	21.4
Malaysia (2007) - L	82.7	Peru (2010) - L	46.5
Philippines (2009) - S	5	Russia (2012) - S	9.1
Philippines (2009) - M	16.5	Russia (2012) - M	14.6
Philippines (2009) - L	29.8	Russia (2012) - L	23.6
Thailand (2006) - S	40.7	Vietnam (2009) - S	5.1
Thailand (2006) - M	58.3	Vietnam (2009) - M	23.2
Thailand (2006) - L	89.5	Vietnam (2009) - L	53.3

Note: Small firms (S): 5–49 employees; medium (M): 50–199 employees; large (L): above 200 employees. The indicators are computed using data from manufacturing firms only.

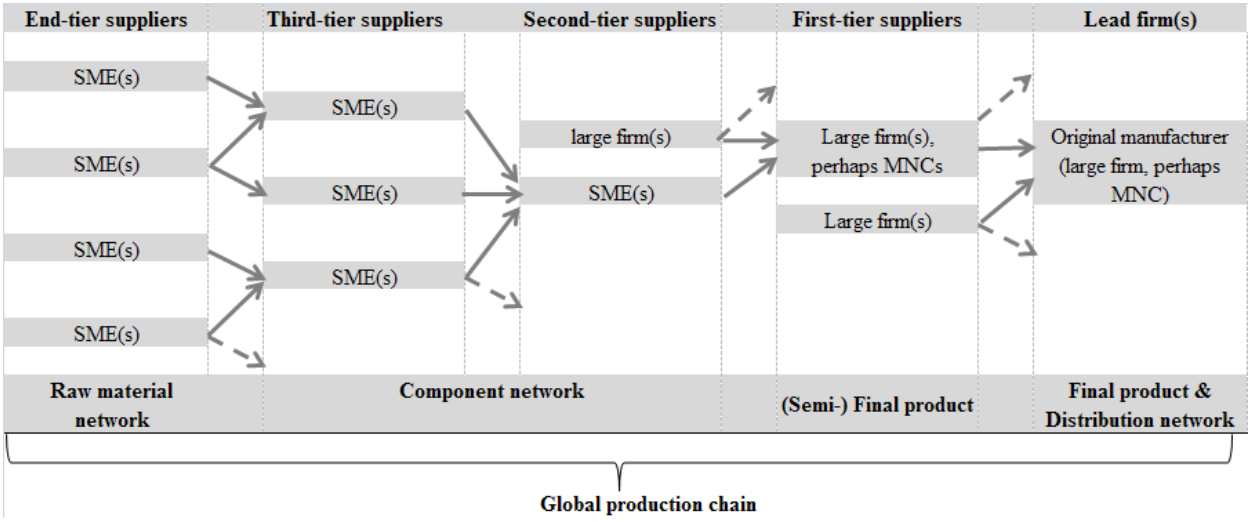
Source: The World Bank, Enterprise Surveys (http://www.enterprisesurveys.org).

a. Positions of SMEs within GPCs

Generally, SMEs participate in GPCs as subcontractors or peripheral suppliers although the level of participation varies among SMEs due to varied sophistication of their skills and technology. Mostly, SMEs are seen as second- or third-tier suppliers in GPCs.

Figure 2 below shows an abstraction of how SMEs are positioned within a manufacturing GPC[3]. The main role is played by a lead firm, usually the original manufacturer of the final product, that has extended responsibilities to manage the production procedures and set product standards along the chain. Large firms provide semi-final products as first-tier suppliers, and they are supported by other large firms and SMEs as second-tier suppliers. The second-tier SMEs could then be supported by a web of other lower-tier SMEs. It would be easier to enter a GPC as a lower-tier supplier of parts and components, but these positions tend to be unstable as they can be easily replaced by other competing SMEs. Thus one challenge for SMEs in GPCs is to move up the tiers by increasing the value-added content of their activities.

Figure 2 SMEs' Role in GPCs



Source: UNIDO 2001

Japanese machinery and automobile industries are good examples of this case. The lead of the GPCs typically consists of large MNCs, such as Sony, Panasonic, Honda, and Toyota. They are assemblers of electric appliances and automobiles, and manufacturers of complete products. The first tier is occupied by mostly large electric or automobile component factories; they source materials from second-tier medium to large firms. Further down the chain, micro, small and medium enterprises make up the lower tiers. A 2009 study noted that, for the Toyota production chain, more than 30,000 firms have indirect links with the lead firm Toyota, while Toyota itself only transacts directly with hundreds of them.

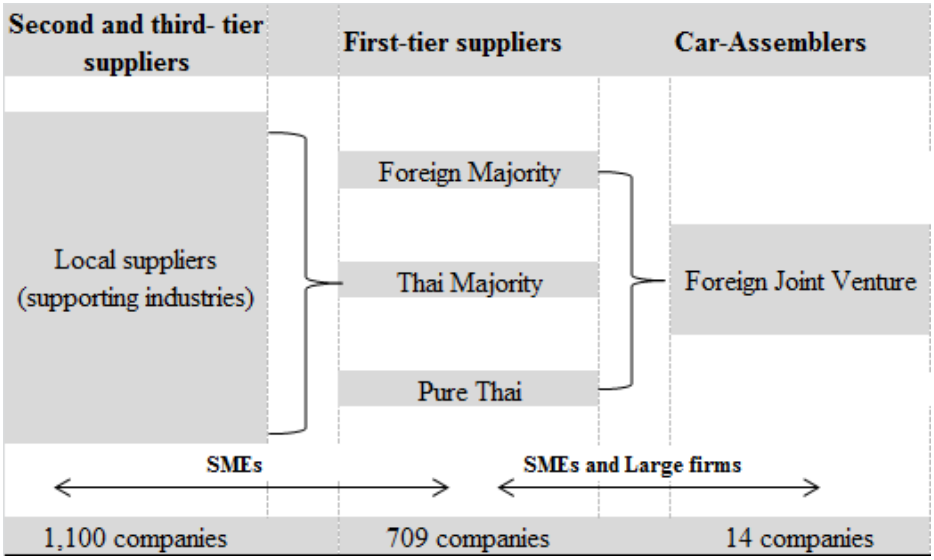
[3] Due to intangibility and variability of services, it is very difficult to capture the exact structure of global production chain of services.

b. Upgrading of SMEs along GPCs

GPCs are constantly evolving, and so does the position of SMEs along the chains. There are successful cases where a lower-tier SME enters a GPC as an end-tier supplier, takes advantage of new opportunities offered by globalization, upgrades its products and production processes, expands the domestic market shares, and eventually becomes a higher-tier SME or even a large firm.

The Thai automobile industry is a good example (Figure 3). There are fourteen foreign joint ventures assemble cars that are ready for the markets; and they are supported by around 1,800 other firms, majority of which are SMEs. Some local SMEs (shown as Pure Thai) are able to compete with foreign ventures (shown as Foreign Majority), because of successful upgrading to meet international market standards. Among SMEs in the APEC region, there are always an elite few that make the leap 'from garage to great', such as Microsoft, Apple, Foxconn, HTC, etc. A small but significant number of SMEs in Japan, Korea and Chinese Taipei have also expanded their operations abroad (Charles, 2010).

Figure 3 Structure of GPC in Thai Automobile Industry



Source: Punyasavatsut, 2007

c. Value added of SMEs in GPCs

Although SMEs make up the majority of participants in GPCs, the overall value contributed by SMEs is in fact small. To examine the value added by enterprises at different tiers will require a mapping of the value chain of the GPC, which can be very difficult due to sensitivity of firm-level financial information.

A recent study by UNCTAD on the Colombia automobile industry shows that the largest value-added originates from car assembly (performed by the automotive lead firm), which generates over 60 percent of total output value; while the overwhelmingly large number of SMEs, manufacturing all the components, only account for less than 40 percent of the total value (UNCTAD, 2010). A study on the iPod value chain also confirmed that although the number of component suppliers providing low-value parts is quite large, the value added accredited to them is only a small share. In addition, these component suppliers typically compete with close substitutes, which eliminates the potential for above-normal profits (Jason, Kenneth and Greg, 2008).

Across different industries, a major part of value added along the GPCs stems from innovation, design and branding, as well as the organization and management of the GPCs, and these activities are controlled by large enterprises or MNCs, leaving SMEs with a limited share of value added and thus limited capital to grow.

2. Barriers to SMEs' participation in GPCs

Although there are substantial benefits of SMEs' participation in GPCs, the process itself is not a smooth ride. UNCTAD (2009) noted that the competitive performance of Asia-Pacific SMEs has been constrained by a range of well-known and studied factors such as higher costs in purchasing inputs; lower scale and/or bargaining power; limited managerial capacity and skills; lower ability to obtain information on potential markets and buyers; limited capabilities to respond to market opportunities in terms of meeting demands for large volumes, standards and certification, and regularity of supply; and constraints in accessing factors and support services such as training and skill development, market intelligence, logistics, technology and financing. In the issues paper, discussion is focused on four key challenges: global standards, finance, human resources, and changing business practices.

a. Global standards

While meeting the standards of MNCs is the prerequisite to enter into and stay in the GPCs, these standards never stay static. Therefore adapting to the evolving standards poses a challenge for SMEs to maintain their position in the chain. Recent experience shows that the GPC standard systems are getting more complex. Besides international agreed standards, there are industry specific standards, region specific standards, firm specific standards, as well as environmental and labor standards (UNESCAP, 2007). SMEs need to continuously enhance their technical knowledge and capabilities to meet these standards to gain a strong foothold in GPCs.

Box 1 Standards in Agribusiness

For agribusiness, product and process standards play an important role in shaping GPCs. A recent phenomenon is that global retailers and supermarkets are increasingly bypassing wholesale distributors (traditional lead firm) and going directly to a smaller number of preferred first-tier suppliers. These suppliers are selected based on their capacity to meet product and process specific standards. Figure 4 provides an illustrative example of standards that govern a food GPC.

With a growing number of enterprises in developing economies being able to meet strict health and environmental standards, the food processing activities are migrating from developed to developing economies, together with some technically sophisticated tasks such as barcoding and labeling. In addition, as part of their competitive strategy, more and more MNC(s) are introducing private standards to improve product quality and company brand. Examples are Carrefour's product standards, EurepGAP's production standards (now GLOBALGAP), EUREP's processing standards on fresh produce, etc.

More and more standards in the agribusiness means that SMEs that support the first-tier suppliers need to invest in machinery and facilities for better quality, quantity and storage, which are often beyond SMEs' technical capacity and financial capabilities.

Figure 4 Food Safety and Quality Standards in GPC

Producer	-GLOBALGAP quality control by packing -Code of practice		-Control of compliance with codes of practice
Packing station/ exporter	-Hazard Analysis and critical points -Selection packing -Quality control		
Point of departure	-Governental sanitary and phytosanitary/ veterinary control -Quality control -Maximum residue limit control		
Transport	-Temperature and humidity check		
Point of entry	-Governental sanitary and phytosanitary/ veterinary control -Quality control		
Importer	-Private specifications/ protocols	-Control of compliance with economy-specific retail consortium	
Retailer	-Private specifications/ protocols		

Source: UNESCAP, 2009.

b. Finance

Lack of finance, as a barrier of SME development, occurs before and also after SMEs' entry into GPCs. Before becoming a supplier or an affiliate of an MNC, SMEs need to make potentially large up-front investments to get the production process ready and to meet strict standards. The up-front investments are also usually highly specific to the product requirements of MNCs and could put SMEs in a lock-in position to a particular international buyer, and a potentially disadvantaged negotiation position.

Once in the chain, due to power imbalance between MNCs and SMEs, SMEs need to accept many 'unfavorable' terms to stay in business, one of which is late payments. Late payments harm the cash flows

within these small enterprises and increase the cost of operating capital. If managed poorly, the situation could get worse, and it could even cause the business to fail. Besides, SMEs have a limited range of financial resources and access compared to larger enterprises. Given the nature of being small, banks tend to impose tighter lending conditions and stringent risk controls on SMEs, and limit SMEs' access to relatively sophisticated credit options, such as factoring. Investors, both foreign and domestic, also hesitate to invest in SMEs due to their limited capacity to ensure information transparency. In addition, financial illiteracy restricts SMEs' access to finance and compliance with existing finance facilities.

The World Bank's Enterprise Surveys data shows that access to finance is within the top three business environment constraints for firms. Other obstacles include labor regulations, inadequately educated workforce, practices of the informal sector, and tax rates. Comparing with the world average figure of 31.7 percent (which means 31.7 percent of firms surveyed around the world considered finance as a constraint on their businesses). SMEs in some APEC economies face more severe constraints in gaining access to finance, especially for the category of 'small firms' (5-19 employees). Access to finance is less of a barrier for larger firms; most of the large-firm figures for APEC economies fall below the world average of 31.7 percent (appendix IV).

Box 2 Finance Constrains for SMEs to Grow in Automotive GPCs, Mexico

Automotive is one of the competitive industries in the APEC region. Several big lead firms have their GPCs spread across many member economies. The first-tier suppliers vertically integrate their preferred lower-tier suppliers with location considerations, so as to form a delivery model on a global basis. This industry is featured with the Just in Time (JIT) production strategy – getting the right part or process, in the right number, to the right place, at the right time, at the right cost, with the minimum of inventories in process or in transit. Any SME that wishes to participate in the automotive industry will need to adapt to this fast-paced production, invest constantly in machinery and human capital, which requires a sound financial base.

A study on the earlier Volkswagen's production chain in Mexico gave evidence that lower-tier SMEs used to be constrained financially to leverage on the links with MNCs as a springboard to grow. The ability of these SMEs to finance the internationalization process was quite limited, and they had not built up any specific competitive advantage in terms of technology. Also due to lack of financing options, these SMEs were unable to obtain skilled labor, invest in advanced infrastructure, and undertake necessary upgrading to keep pace with the business strategy of Volkswagen as well as changing customer demand. This case also showed that barriers to SMEs' participation in GPCs do not stand alone; their inter-locked nature aggravates the negative effects.

Source: UNCTAD, 2010.

c. Human resources

On human resources, it has always been difficult for SMEs to attract, retain, and motivate high quality human capital. Compared to the organized and structured human resource strategy of MNCs, SMEs tend to face high staff turnover, low motivation among employees, and difficulties in building human capital. There is a general concern about the career structures of SMEs, which have no guarantee on promotion and training, thus making attracting and retaining high caliber human resources very costly. Lack of qualified staff thus weakens SME's competitiveness and hinders their development.

d. Changing international business practices

Besides standards, trends in international business practices can significantly affect SMEs and potentially could alter their growth paths. Across a wide range of industries, anticipated delivery cycles are getting remarkably shorter, thus meeting tight deadlines becomes a test for SMEs to survive. In addition, more and more attention is drawn to business operations that reflect social and environmental objectives, such as corporate social responsibilities, where SMEs together with MNCs could play a bigger role in mutually beneficial partnership (see Box 3). Especially in GPCs that supply advanced markets, SMEs increasingly struggle with the confusion between adopting these 'best practices' and maintaining a competitive advantage in costs, even though corporate social responsibility could yield significant benefits for SMEs in the long run.

Box 3 Mexico: Implementing Corporate Social Responsibility in SMEs

Corporate social responsibility (CSR), defined in terms of the responsiveness of business to stakeholders' legal, ethical, social and environmental expectations, is an outcome of societal concern on environmental pollution, human rights abuses, and exploitation of labor in production chains. So far, CSR initiatives have tended to focus on large enterprises and MNCs, yet they are also highly relevant to SMEs. SMEs have a closer connection to the community and are more innovative and creative in the social arena, and can potentially have a huge impact on social welfare as well. Thus it is crucial to ensure SMEs participate in the CSR initiatives in a positive way, while at the same time the CSR initiatives support, and do not undermine, the growth of SMEs in the development of GPCs.

Among APEC economies, Mexico has implemented a pilot project, IDEARSE, to motivate SMEs in MNCs' value chains to implement CSR, and to showcase the positive impact of successful CSR initiatives. Ten large enterprises were selected to participate in the project, including CEMEX, the largest cement producer in Mexico and the third largest in the world. CEMEX's success is built on its deep commitment to the community and sustainable development.

Ten of CEMEX's small and medium suppliers were included in the program, and CEMEX allied with them in reinforcing the implementation of CSR measures, and served as mentors sharing knowledge and information. A complete CSR diagnosis was carried out among the SMEs, and together with them, CEMEX transferred its CSR priority areas to these SMEs through specific plans that met the requirements in social, ethical and environmental aspects. Support was provided on overcoming barriers that impeded CSR efforts, such as improving understanding of CSR, addressing conflict of interests in allocating time and other scarce resources, explaining the medium-to-long term nature of social returns, etc.

The project yielded gratifying results:

- Large MNCs could be an effective means to motivate SMEs in the production chains to implement CSR measures. This approach is also more systematic and sustainable than engaging SMEs in CSR in a sporadic, unstructured way.
- Responsible value chains can lead to a better relationship between MNCs and SMEs, and improve their public reputation as well as risk management policy.
- By embedding CSR practices in their daily operations and strategies, SME could achieve competitiveness and sustainability in the long run.
- When more SMEs are motivated to act accordingly and achieve direct benefits, more small enterprises would likely become convinced of its effect on their businesses and thus interested in implementing CSR measures, and generating a virtuous circle as a result.

Source: Laura, 2007.

CHAPTER 3 ADDRESSING BARRIERS TO PARTICIPATING IN GPCS

Barriers to SMEs' participation in GPCs are neither uniform nor constant. As analyzed in the previous chapter, SMEs that have yet to participate in GPCs are challenged by the upfront investments to establish the requisite production capacity to meet the basic standards of MNCs; SMEs that already participate in GPCs need to overcome obstacles to sustain their positions and grow by being involved in more sophisticated and high-valued functions (such as retail, marketing or product development) or by expanding their business network to other GPCs. Based on literatures, the following four actions are identified to address the barriers to participating in GPCs.

1. Creating an enabling environment

To facilitate SMEs' participation in GPCs, government could start off by building an enabling environment, featured as clusters[4] or networks with open access to markets, clear recognition of property rights, transparent legal and regulatory systems, suitable infrastructure, and sufficient human resources. Clusters or networks can facilitate peer learning among SMEs, transferring of knowledge and skilled labor, joint investment in R&D, adaption and application of new technology, specialization and optimization, and ultimately achieve economies of scale and scope. In addition, government can also provide targeted marketing assistance and business development services to SMEs in the clusters or networks, so as to build up the capacity of SMEs and encourage SMEs to participate in GPCs.

In this section, two successful cases will be presented to show how some APEC economies have created an enabling environment for local SMEs to participate in GPCs.

[4] Enterprise clusters could be defined as groups of enterprises in the same or related value chains who cooperate to compete (UNESCAP 2009).

a. The case of electronics industry in Penang, Malaysia

Box 4 Building Electronics Enterprise Clusters in Penang, Malaysia

Penang was Malaysia's first Free Industrial Zone to promote and facilitate the development of export-oriented electronics manufacturing. Through 35 years, various government initiatives have shaped Penang to be the 'Silicon Island of the East', attracting top ICT companies to invest in development, manufacture, provision and distribution of the industry's entire value chain of products and services.

The success of Penang is built on the cluster-based industrial development approach. The Penang electronics cluster, started in 1970s, produces a wide range of electronic components, such as consumer electronics, machine tools, hard-disk drives and components in personal computers. The government agencies played two critical roles in forging the electronics enterprise cluster. The first was to strengthen the capacity of local SMEs through skill and knowledge training, so that SMEs understand the requirements of becoming a supplier in a GPC. The second role was to bring together MNCs with potential domestic suppliers, as an information broker.

The Penang electronics cluster has formed linkages among companies through a dynamic supply chain system, including raw material suppliers, laboratories, equipment and systems producers, and software. A full scope of high technology activities takes place in the production chain, such as high value-added manufacturing, research and development, supply chain management, shared services, software development, and technical support and services.

The cluster has encouraged horizontal information sharing and skill formation, which made it possible for more big MNCs to locate higher-value added activities in Penang and for local SMEs to move to more complex high-value added activities. Some MNCs have set up operational headquarters, such as Siemens, General Electric, IBM and Sharp Electronics; and others have set up International Procurement Centers to serve the regional market, such as Matsushita, Sony, Hitachi, Sharp, Canon, Dell, etc. The presence of MNCs has boosted the development of local supporting industries to supply parts and specific services. As a consequence, Malaysian companies such as Globetronics Technology Bhd, Eng Technologi Sdn Bhd, Atlan Industries Sdn Bhd, and LKT Automation Sdn Bhd have expanded from small enterprises to become international players in their respective fields, moving up the GPCs and grow their own vendors.

Source: UNIDO, 2003.

Penang's case shows that by forming an enterprise cluster with appropriate supply of knowledge and skills, government could attract MNCs and their production chains, and hence integrate local businesses in their production process and allow local SMEs to grow and expand. Similar cases can be found in other APEC economies. For example, in China, SME clusters are formed along the more developed east coast areas, such as Guanlin cable cluster, Shengze textile cluster and Hengshan sewing machine cluster. In these clusters, SMEs cooperate on procurement and marketing as well as division of labor, thus achieving economies of scale and scope and allowing them to supply to various MNCs.

b. The case of automotive industry in Thailand

Box 5 Emergence of Thai Automobile Industry as a Global Player

The Thai automobile industry has been the biggest cluster of auto parts and materials in the region. It has shown robust growth in spite of the political turmoil in the country, retaining its position as the 'Detroit of Asia'. Government support to develop this industry could find its origin in the 1978 local content policy; though was sometimes termed as a protectionist model, it is the critical factor behind the growth of this sector. The policy generated opportunities for local firms to establish supporting industries, therefore, by 1990s, many automobile MNCs were attracted to Thailand by the extensive networks of local suppliers in auto parts.

Since 2000, the Thai Government has identified that networking and subcontracting with large enterprises and MNCs could provide a short-cut to enhancing SME competitiveness, and hence various policy measures were implemented to enable SMEs to reach international standards and to create a business environment where SMEs could thrive.

The first SME Promotion Plan (2002- 2006) worked on growing local SMEs, increasing SME workforce, strengthening financial capabilities, boosting export, establishing linkages of enterprises, as well as nurturing entrepreneurs. Under this Plan, industry of automobile parts, among the other three industries, was promoted. The second SME Promotion Plan (2007-2011), was aimed at enabling SMEs to grow with continuity, strength, and sustainability in terms of knowledge and skills, also prioritized support to the automobile parts sector.

In addition, the Thai Government ensures access to critical resources by local SMEs. The Small and Medium Enterprise Development Bank of Thailand was founded in 2002. It assists SMEs in securing sources of funds, preparing business plans and providing advice on business operations. SMEs could also gain access to finance through government designated specialized-financial institutes and state banks. As for technical and management consultancy measures, the New Entrepreneurs Creation Program (NEC) provides business counseling and training to resolve problems and further develop local enterprises.

Given the high degree of integration with automobile MNCs, many MNCs have made Thailand their production and export base; and the evolution of MNC's strategy also drive changes in the network of auto parts supplier system. Global sourcing and competitive bidding systems are set up in Thai auto sector, and MNCs demand their tier-1 suppliers in Thailand to provide a full component design and development capability, or at least to respond to engineering changes in the designs that might occur during the process prior to mass production. SMEs are also wary about the heightened technical requirements of automobile MNCs, thus they try to acquire technology from technology partners by, for example, striking joint venture deals or technical assistance agreements.

Source: Caiyuth, 2008.

The growth of Thai automobile sector is a good example of cluster-based industrial policy - by providing specific support to a priority industry, government could allocate resources more effectively to strengthen the competitiveness of the private sector, and even the whole economy.

While Malaysia and Thailand have policies that specifically aimed at facilitating SMEs to participate and grow in GPCs, policies in many other economies are designed to strengthen the capacity of SMEs in a broad manner. Although this type of comprehensive policies will increase chances for SMEs to become players in GPCs, they by and large also suffer from several common weaknesses, such as multiplicity of objectives (even contradictory ones), lack of coordination among different departments, and weak follow-up or evaluation (ADB, 2009). Therefore, policies to assist SMEs' participation in GPCs need to be more focused and if possible, be industry- specific.

2. Tackling SME financing barriers

Related with the barriers explained in the previous section, financing is seen as the most crucial barrier. SMEs have limited financing options. Traditionally SMEs are financed either by business owner or through retained profit, both of which are internal funding. When business grows, especially when GPCs present more growth opportunities, internal funding becomes insufficient, and SMEs need to turn to external sources of finance, such as bank loans, leasing, factoring, trade credits as well as venture capital and business angel investment. So far, bank loans are the most important and common source of external finance. However, due to the lack of track record or low credit rating, to obtain a bank loan is often beyond the reach of the majority of SMEs.

Leasing[5] (using an asset while making a series of regular payments) and factoring[6] (selling the accounts receivable) are better options in terms of financial management, but SMEs need to understand the provisions and risks attached to them. Trade credit is also useful for managing cash flow, but often it is more costly than other options. Venture capital and angel investment appear to be more flexible, while in reality, they are more stringent, because they expect a higher return and would affect SMEs' operations.

The financial obstacles basically prevent SMEs from building up capacity to meet the standards of MNCs. SMEs need to acquire or develop superior production technologies, efficient logistics systems, necessary human capital, as well as effective quality control to meet the required standards. Government can help to facilitate SMEs' access to finance through ensuring that regulatory framework, especially banking regulations and supervision, support SME finance, or co-financing SME growth with the banking sector or private investors to reduce the credit risk or perceived risk of lending to the SMEs.

Besides external financing, effective management of internal finance can also free up some locked capital in accounts and allow more flexibility in re-investment. Government could provide knowledge and tools to help SMEs better manage their finances. Programs on financial literacy and financial savviness could help SMEs to utilize their capital in a more efficient and effective way, thereby cutting the cost of operating capital.

[5] IFC (2011: 20) mentioned that "A potential advantage of leasing lies in the fact that it focuses on the firm's ability to generate cash flows from business operations to service the leasing payment, rather than on its credit history or ability to pledge collateral.

[6] Klapper (2006: 1) noted that "Factoring can be a powerful tool in providing financing to high-risk, informationally opaque sellers. Factoring's key virtue is that underwriting is based on the risk of the receivables (i.e. the buyer) rather than the risk of the seller. Therefore, factoring may be particularly well suited for financing receivables from large or foreign firms when those receivables are obligations of buyers who are more creditworthy than the sellers themselves".

In addition, taxation usually functions like a double-edged sword. On the one hand, policymakers can use it as an incentive to promote entrepreneurship and to assist SMEs to grow; on the other hand, complex and inequitable tax regimes have a distortionary effect on the development of SMEs. In this regard, government should ensure the consistency and predictability of the tax regime and its enforcement, which would then reduce the potential burden of tax compliance.

Box 6 SME Financing Schemes in Singapore

Ninety–nine percent of enterprises in Singapore are SMEs (including micro enterprises). They employ over 60 percent of the total workforce and contribute about 50 percent of total value added.

The Singapore Government, working closely with private sector partners, plays a catalytic role in SME financing, especially when there are gaps in SME finance. Local SMEs are classified into three groups based on their stages of development. Startups are firms that are completing or have completed product development and initial marketing, and have some revenue and are building a customer base. However, these firms are not yet profitable, and require funding to sustain their development. Growth companies are profitable businesses with a stable customer base, but still require more capital to support growing sales. Internationalizing companies have a track record of profitability and are successful in the local market. They need additional finance to explore overseas opportunities through joint ventures, mergers and acquisitions, and strategic alliances with overseas partners.

Different funding schemes are tailored to specific development stages of SMEs. By studying the needs of the SME and weighing various options, the Singapore Government will help SMEs to choose the right financing option. For example, for Singapore-based early-stage companies, the Singapore Government will co-finance with experienced angel investors to nurture their growth. If the startup is able to attract investment interest or commitment from business angel funds, the SPRING SEEDS capital would match the intended investment dollar-for-dollar, up to a maximum of SGD 1.5 million. If SMEs plan to acquire productive assets to upgrade or expand their business, they can turn to the Local Enterprise Finance Scheme. The full set of financing schemes thus ensures that SMEs are free from hurdles to access funds.

Table 4 Overview of Financing Schemes for SMEs, Singapore

	Startups	Growth Companies	Internationalizing Companies
Government Schemes	Microloan	Loan Insurance Scheme (LIS)	
	SPRING SEEDS	Growth Financiing Programme	
	Enterprise Investment Incentive	Local Enterprise Finance Scheme	Internationalisation Finance Scheme
			Trade Credit Insurance programme
	Business Angel Scheme		The Enterprise Fund
Private Sector		Over-the-Counter (OTC) Capital	
		Catalist	
		Mezzanine Financing for Larger Transactions	
	Unsecrured Line of Credit		
Supporting Environment	Business Toolkit	SME Credit Bureau	Financial Guide Book
	Deal Flow Connection	Finance Fair/Seminars	

Source: George, 2009.

Besides these general schemes offered to all SMEs, there are also industry specific schemes, such as Biomedical Science Accelerator, Technology Enterprise Commercialization Scheme, etc.

In addition, the Government also provides taxation benefits to SMEs, i.e. tax exemption schemes, carry-back relief system (allow carrying back unutilized losses and capital allowances to the immediate preceding year of assessment), and a high exemption threshold for GST registration.

Source: George, 2009; Inland Revenue Authority of Singapore, 2007; SPRING Singapore 2007 and 2012

3. Supporting SMEs' upgrading along GPCs

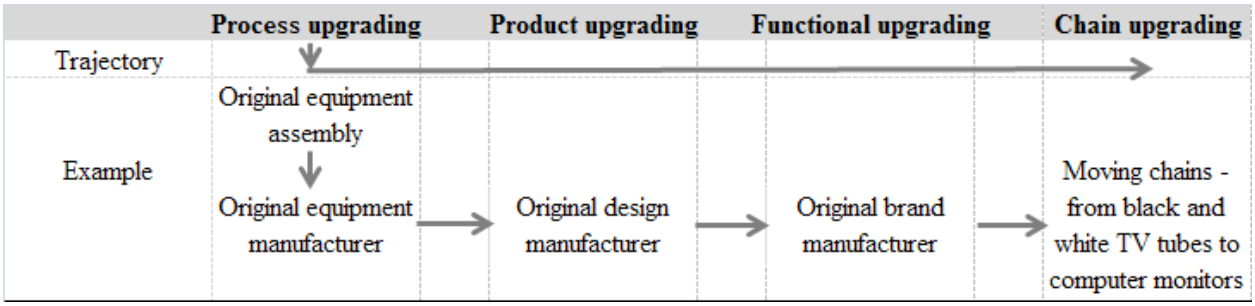
Once being a participant in GPCs, SMEs will need to move up the chain so as to maintain competitiveness and sustain the business. Moving up the chain means that SMEs need to add more value to the chains by being more efficient or being more involved in higher value-added activities, so as to gain a stronger negotiation power and become less replaceable in GPCs. In fact, moving up the chains has broader economic significance because once local SMEs lose competitiveness, MNC buyers may turn to alternative locations or economies that could produce and operate in a more competitive manner. The reversal of GPCs is very costly for the local economy, cutting growth prospects and losing job opportunities. Thus government should hold the stake to help SMEs to move up technology ladders and upgrade operational competencies. To this end, SMEs need assistance to overcome internal barriers of financial and human resource management, as well as to cope with external challenges from increasingly complex standards and involving new business practices.

Based on previous experiences, literatures have provided four trajectories for firms to move up along GVCs (Raphael and Jeff, 2001):

- Process upgrading is to increase the efficiency of internal production processes, such as increasing inventory turns, lowering scrap, reducing on-time deliveries, etc.
- Product upgrading is to introduce new products or to improve old products, for example, changing the new product development processes.
- Functional upgrading is to increase value added by changing the mix of activities conducted within the firm, such as expanding to logistics or quality-check functions; or to move to other parts of the value chain, such as moving from manufacturing to design.
- Chain upgrading is to move to a new value chain, for example moving from the manufacture of transistor radios to calculators, to TVs, to computer monitors, laptops, etc.

Figure 5 shows how these four trajectories work in the case of the Asian electronics industry. Several Asian electronics manufacturers started with original equipment assembly for global electronics brands, and then they moved on to become original equipment manufacturer (OEM), which is the first step - process upgrading. In the following steps, from OEM, Asian manufacturers started to get involved in the design of new products and upgrading of old products. They then have their own brands, and finally they switched to a different value/ production chain, from being original producers of TV tubes to later manufacturers of computer monitors.

Figure 5 The Hierarchy of Upgrading - the Asian Electronics Industry



Source: Raphael and Jeff, 2001

The four trajectories have significant implications on pro-SME policies. Government could assist SMEs on their upgrading processes. Upgrading relies on SME's core competence, which is derived from the quality of human resources; hence government could support or provide vocational training to SME staff to enhance their managerial and practical knowledge on business operations. As SMEs have limited capacity on market research, business strategy consulting and advising by the government would fill in the knowledge gap that SMEs need to overcome in identifying upgrading opportunities. In addition, growing and increasingly complex standards confuse SMEs and hold them back from upgrading; hence government could help to unify different standards to facilitate the upgrading process. Lastly, attracting foreign direct investment into local economy would provide more chances for SMEs to participate in GPCs as well as to become familiar with international business practices, which could facilitate the upgrading process.

Additionally, it may be too costly to deliver policy support to individual SME, whereas it is cost-effective to provide policy assistance to an industry or to a cluster. Government could facilitate communication and learning among SMEs in the same cluster, encourage production sharing and division of labor, so as to achieve collective efficiency through cooperation. This could also create a virtuous upgrading process to lift the sector/ cluster business value, and to some extent, lift economic development. The case study below demonstrates how the government policy and institutions drove the upgrading of the Chilean salmon farming industry.

Box 7 Upgrading of the Chilean Salmon Farming Industry

From 1980s to 2000s, Chile has grown from being a learner and follower of salmon farming to being a major producer and global player in salmon production. The stellar performance of Chilean salmon industry can be attributed to a combination of natural and policy-enabled factors, and a successful upgrading process that took place through the years. Favorable natural surroundings, such as unpolluted water and natural light, provide optimal conditions for salmon farming. Sound education system encourages entrepreneurship in the society and produces trained and specialized professionals needed by the industry. A series of systematically-devised supporting policies lays the foundation for the industry to develop, and a coherent institutional framework creates a benign business environment.

Since the mid-1980s, the Chilean Government began to play a bigger role in health, commercialization, and technology transfer in the salmon industry. At the initial stage, the government supported the industry through activities of a public-private institution, such as setting up the experimental fish farm, development of licensing regulations and sanitary standards, and supporting research and development activities.

Many large MNCs entered into Chilean salmon industry and stimulated interest among local firms in the commercial viability of the industry, so more and more local firms became vertically integrated with these MNCs. With the maturity of the salmon cluster, specialization emerged as SMEs began to undertake different aspects of salmon production, such as fish processing, logistics marketing, as well as human resource development.

The production of salmon can be divided into three main phases: aquaculture and hatchery, farming and harvesting, and processing and distribution. The hatchery stage involves the artificial fertilization and hatching of eggs, and rearing of the young salmon until they are ready to go to the salty ocean water. Farming and harvesting refers to rearing the young salmon until they reach marketable size and then harvesting them. Through processing, harvested salmon will be made into different products, such as boneless, smoked and fresh salmon according to different requirements of different markets. Transportation and logistics are an integral part of the salmon farming industry, because feed, medical supplies, international standards of germ control, temperature control, and various other elements, all need to be synchronized in the production chain.

Table 5 shows how the Chilean Government supported the upgrading process of the salmon farming cluster, which made the cluster now a big success. The upgrade took place in each stage of the salmon production. Except for functional upgrading, each trajectory shows government involvement in promoting the salmon sector and supporting the progress. Diffusion of knowledge and skills to a wider business community was the first step to initiate the upgrading. Collective forms of R&D, cooperation with university and governmental institutions, lowered the risk of R&D investment and encouraged R&D activities. Public subsidies and other forms of support on upgrading provided critical resources allow firms to translate upgrading ideas into real business activities. Besides the assistance listed in table 5, the Chilean Government also developed and improved supporting facilities for the salmon farming industry, such as road transportation, banking and insurance, consultancy, and engineering.

Table 5 Upgrading Process of Chilean Salmon Cluster

Upgrade	Practices	Leadership	Impact/results
Process upgrading			
Hatcheries	Acquiring national eggs	IFOP, Fundacion Chile, Universities	Reduced external dependency
Farming	Photo- and thermal- period management	University-supported business and subsidies for R&D	Improved management of harvest seasons
Fattening nurseries	Introducing automatic feeders	Individual firms	Increased yield
Processing plants	HACCP certification, ISO 9000	Firms with institutional support	Product quality assurance; market placement
Product upgrading			
Hatcheries	Selection of eggs and breeds; increased value added of products	Institional and private R&D with subsidies form firms	Improvement of standards
Processing plants	R&D in feed	Individual or individual with public subsidies for R&D	Increased operational margins; increased yield
Direct providers	Vaccine development		Reduced losses due to fish mortality
Functional upgrading			
Along the chain	Integration of various production phases	Larger farming enterprises	Economies of scale in logistics; maintains specialization and separation of functions
Toward commercialization	Alliances between firms and commercialization channels	Individual firms	Better use of market niches; optimization of mix of products to be marketed
Chain upgrading			
Biotechnology industry	Development of national solutions (vaccines, diagnostics kit, etc.)	private and University R&D supported with public subsidies	Solving problems that affect only the Chilean cluster, ability to introduce new improvements
Fish-farming facilities industry	Products: floating cages, premises, storerooms	Private R&D supported with public funds	Development of solutions tailored to national industry

Source: Claudio 2006, UNCTAD 2006.

4. Preparing SMEs for changing environment

The nature of GPCs is constantly shifting and evolving, thus SMEs need to be equipped with the right tools to move along, adapt and develop with the trends. Policymakers and development agencies also need to devise pro-SME policies that are up-to-date, forward- looking, specific, and effective.

As identified by PSU (2012), several key external forces will continue to drive changes in GVCs in the coming years, affecting the operation of GPCs.

The development of emerging markets will have significant implications on the structure of GPCs. The past decade saw increased outsourcing and offshoring towards emerging markets. China has emerged as the center of GPCs for labor-intensive and resource-intensive sectors. However, as China shifts its growth model away from reliance on exports towards domestic consumption, factor prices such as labor and land will rise. This will lead to restructuring and re-organization of existing GPCs, forcing MNCs and SMEs in the region to re-position themselves.

Energy and nature-resource related costs are likely to rise further as fossil fuels become scarce and emphasis on environmental issues grows. Correspondingly, the associated transportation cost will rise, and MNCs will need to balance the cost-efficient production with transport-efficient production. SMEs will also need to factor transportation costs changes into their operation and long-term planning as well.

Technological advances will promote new business models and platforms, helping MNCs and SMEs to tap the potential of GPCs. For example, cloud computing will make supply chains more dynamic, more scalable, and more capable to support financial objectives. This will allow more and more SMEs to be integrated in the GPCs, provided that they meet the standards of MNCs.

Another trend would be the increasing trend of ‘trade in tasks’ relatively to ‘trade in goods’. This implies the burgeoning of services trade between economies as well as trade in intermediate goods.

Other factors that may increasingly affect GPCs in the future include urbanization, ageing population, and information complexity. Government and SMEs need to understand these forces and be prepared for changes. Any SMEs who fail to adapt to the new environment are likely to be bypassed by MNCs and risked losing out in the global economy.

CHAPTER 4 APEC'S INVOLVEMENT IN SME ISSUES

Although enhancing SMEs' participation in GPCs as the next generation trade and investment issue is a recent initiative in APEC, APEC has long been involved in supporting SMEs to participate in global trade through building and improving the doing business environment in the region and initiating policies to enhance the capacity of SMEs.

Within the framework of GPCs, a central challenge of integrating production involves shipping different elements among geographically distributed production sites. It will be really difficult, even impossible, for local enterprises to participate and remain competitive in the GPCs, if there are cumbersome trade procedures, unreasonable clearance charges, etc. APEC has over the years, made substantial efforts to create a favorable business environment. On the ground, work has been done on reducing tariffs, dismantling non-tariff measures, streamlining trading procedures and establishing agreements to mutually recognize matching standards and certificates.

1. SME-related initiatives within APEC

APEC has set up a specific working group focusing on SMEs issues. In 1995, APEC established the SME Working Group (SMEWG) with the initial objective to assist SMEs to improve their competitiveness and to facilitate a more open trade and investment environment. The SMEWG works on fostering an enabling business environment for SMEs to grow and develop into export-ready (internationalized) firms, through the sharing of information on best practice initiatives and conducting capacity building activities.

In 2007, a joint OECD-APEC survey was carried out in the context of the study 'Removing Barriers to SME Access to International Markets'. The survey investigated the type and intensity of barriers in accessing international market perceived by SMEs. The results indicated that numerous internal and external obstacles hindered the SMEs' participation in globalization process. The top five barriers were in obtaining reliable foreign representation; identifying foreign business opportunities; limited information to locate/ analyze markets; maintaining control over foreign middleman; and inability to contact potential overseas customers.

Particularly on facilitating SME's participation in GPCs, in 2011 a discussion paper on Enhancing Small and Medium-Sized Enterprises Participation in Global Production Chains (2011/SOM3/044) was circulated at the APEC Committee on Trade and Investment (CTI) for consideration. In the same year, the Initiatives to Address the Top Barriers SMEs Face in Trading in the Region (2011/MRT-SMEMM/002) provided important groundwork to further explore possible avenues to foster SME's involvement as supporting industries of GPCs. The statement of the APEC Ministerial Meeting (AMM) in 2011 also indicated nine trade barriers which impeded SMEs' international trade, and that APEC members should make concrete actions to contribute to reducing those barriers (appendix V).

Additionally, The APEC STAR Database initiative (http://www.servicestradeforum.org) could also be useful to help SMEs to get more information about market access regulatory requirements across a range of services sectors as well as to take advantage of new export opportunities.

The SMEWG Strategic Plan for 2013-2016, endorsed by APEC Ministers in 2012, provides a roadmap to address critical issues and concerns pertaining to the growth of SMEs and micro enterprises (MEs) in the

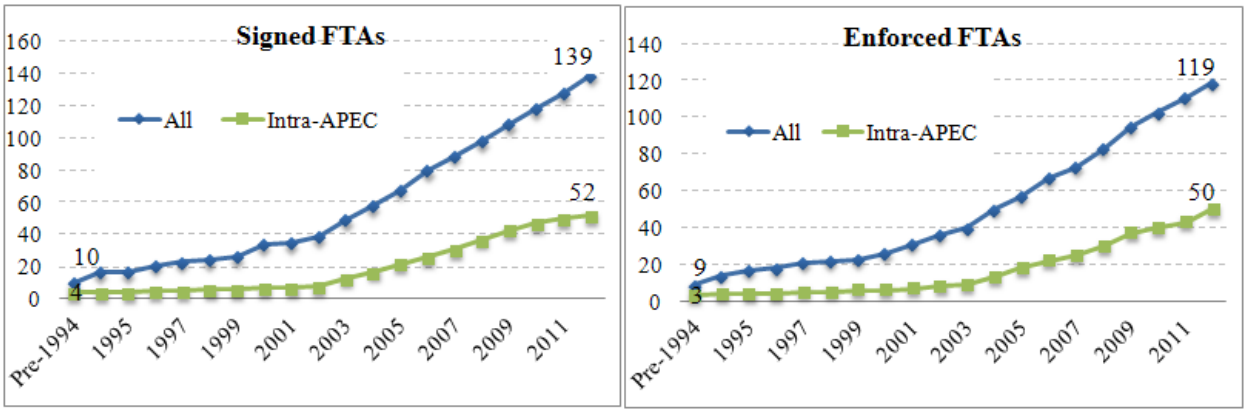
APEC region. Three priority areas for action are: (1) building management capability, entrepreneurship and innovation; (2) financing; and (3) business environment, market access and internationalization. In order to build the entrepreneurship and innovative capability as well as to support the internationalization of SMEs, APEC decided to further strengthen their previous initiatives in facilitating the participation of SMEs in GPCs.

Currently, APEC has started a process of mapping the regional supply and value chains of specific industries, which could provide a clearer picture on how these chains are working and how to help SMEs to plug into these chains and networks, based on identified chain-related opportunities, priorities and constraints.

2. Developing SMEs through FTAs

The APEC region saw a rapid proliferation of FTAs, especially after 2000 (Figure 6). The growing number of FTAs, on the one hand, is taken as an indication of the progress of trade and investment liberalization[7]; on the other hand, it brings up the concern of a 'spaghetti bowl' effect, especially on SMEs. By and large, the phenomenon can be attributed to the many benefits that accrue to firms in the region through their participation in international markets. However, studies have shown that large enterprises or MNCs are the main users and beneficiaries of FTAs. Although SMEs account for an overwhelming share of enterprises in the region, SMEs' direct utilization of FTAs has been quite low.

Figure 6 Signed and Enforced FTAs by APEC Members



Source: APEC PSU.

FTAs increase access to new markets, lower tariff rates, improve efficiency of customs procedures, establish mutual recognition of technical standards, all of which would facilitate import and export activities of SMEs, however, evidence confirms that SMEs still face different kinds of barriers to use FTAs directly. Using FTAs could imply large fixed costs on learning about FTA provisions, tailoring business plans to complex tariff schedules, and obtaining certificates of origin, among others. While there is a general lack of awareness and knowledge of FTAs among SMEs, complex and differing rules of origin also undermine SMEs' ability to take advantage of FTAs. Moreover, SMEs have limited access to government support and information on utilizing FTAs.

[7] WEF (2012b) has also noted the overall trend, for both developed and emerging economies, where an increase in RTAs is associated with a rise in manufacturing contribution to GDP.

Indeed, a survey by Kawai and Wignaraja (2011) in five Asian economies shows that a classic firm size effect is an underlying pattern of FTA preference use in those economies which suggests that using FTAs entails large fixed costs. Firms that utilize FTAs tend to be larger in size and more knowledgeable about FTA provisions (see appendix VI).

Enabling domestic SMEs to use FTAs for direct exportation seems far reaching; hence some SMEs choose to start with indirect approaches - trading via global production chains/ networks. By leveraging on the knowledge and capacity of MNCs or large enterprises, SMEs are able to take a share of the opportunities arising from FTAs. If SMEs are able to learn, to upgrade and to grow along the GPCs, eventually some SMEs will become large enterprises, even MNCs, i.e. adept players in international market places.

To move up the production chains and to participate gainfully in the global economy, it is necessary for SMEs to understand the operations of MNCs and international practices, therefore, SMEs should be knowledgeable about FTAs and their implications. Governments could provide awareness training on FTAs, publish information relating to rules of origin as well as administrative and other FTA procedures.

One of the identified barriers by APEC on SME's international trade is the 'difficulty in taking advantage of preferential tariff rates and other aspects of trade agreement'. To discuss about this particular barrier, the APEC Committee on Trade and Investment (CTI) held a workshop on 'Increasing FTA Utilization by SMEs' on August 7, 2012. At the workshop, experts and officials provided valuable information on the potential benefits which SMEs can enjoy from utilizing FTAs, and shared best practices in promoting policies on FTA utilization and SMEs' best cases in strategically utilizing current FTAs. For example, as part of their FTA outreach strategy, the customs office of both Korea and Singapore provided one-on-one consulting for firms and SMEs with customized advice for FTA utilization. Japan highlighted their efforts by setting up a website, publishing brochures and establishing a contact point in order to increase awareness of the EPA (Economic Partnership Agreement) systems.

On a different note, to further the understanding and provide assistance on SME development, governments have recently started to explore new ways of cooperation through FTAs. Several FTAs now cover some SME-related issues under the chapter on cooperation. Signed in August 2009 and enforced in January 2010, the Korea-India FTA has a provision on sharing best practices of SME development in the areas of skill development, supply chain linkages, access to financing, and technical assistance. In another example, the Australia-Malaysia FTA which was signed in May 2012 included SME development as one area of cooperation in Chapter 16 on Economic and Technical Cooperation (Scoles, 2012).

Under the Trans-Pacific Partnership (TPP) Agreement, a stand-alone chapter was concluded to address SME-related issues in 2012. The chapter modeled APEC's work to enhance/ promote SMEs, such as enhancing the ability to make use of opportunities across the production chains; improving human resource development and transparency of trade-related regulations; encouraging use of innovative technology to participate in supply chains; bettering understanding on how to acquire and protect intellectual property rights, and supporting use of FTAs through promotion seminars, online tools and references (Scoles, 2012).

CHAPTER 5 CONCLUSIONS AND RECOMMENDATIONS

Increasingly connected GPCs and GVCs have been the driving force for economic integration in the APEC region. This phenomenon is built on the trade and investment liberalization and facilitation efforts across APEC member economies. The global financial crisis and the consequent economic downturn have precipitated the restructuring of GPCs and made intra-regional trade an important means for recovery.

SMEs account for the majority of the enterprise population in the APEC region, and their businesses constitute a substantial portion of regional economic activities. Although not without its drawbacks, integrating SMEs into GPCs presents a broad range of opportunities and benefits. SMEs establish linkages with larger firms and MNCs, hence gain access to a series of critical resources, such as technology and knowledge, management skills, even improved chances of financing. SMEs will be able to upgrade production, improve productivity, and internationalize in a gradual and sustainable way. SMEs' participation in GPCs also helps the local economy to accelerate development in globalization, create employment opportunities, increase export and foreign reserves, and most importantly, transform the economy in structural ways.

However, to participate in GPCs is not an easy task for SMEs. SMEs need to overcome challenges at different stages to become strong players along the chain. Before entry into GPCs, SMEs need a sound financial base to make upfront investment, so that they could establish productive and organizational capacity to meet international standards. At this stage, SMEs mostly need external finance, but due to the lack of credit record and relatively higher risk profile, SMEs find themselves in a dilemma to gain external funding. Furthermore, once SMEs gain the foothold in GPCs, SMEs face the challenges of maintaining and sustaining their businesses. Access to finance is still a barrier, as well as accessing and maintaining high-caliber human resources. In addition, SMEs also need to put in constant efforts to cope with the increasingly complex requirements of standards and the emerging international business practices.

SMEs need to be supported by governments in order to overcome these challenges. In light of the discussions in this issues paper, APEC governments could consider the following areas to facilitate the gainful participation of SMEs in GPCs.

Provide an enabling business environment for SMEs

- On a broad level, governments need to ensure macroeconomic and financial stability, low inflation, currency convertibility, regulatory and policy consistency, as well as sound governance and transparency. This will create a favorable environment for SMEs to grow.

- Openness of local markets, strong property rights protection and contract enforcement, and equal treatment for both local and foreign enterprises will attract MNCs to set up business and operate their value/ production chains, which are the pre-conditions of SMEs' involvement in GPCs.

- Business development service (BDS) is an option to support SMEs already in GPCs. Specifically, business counseling and consulting will help SMEs to form strategies to succeed along GPCs; training on business-related skills will help SMEs to identify new opportunities and market trends

within the chain; business linkage service is a way for SMEs to expand customer base; and, technology development and transfer would allow SMEs to understand and adapt new technologies to improve productivity.

- Well developed and efficient logistics network that connects firms within and among clusters, both domestically and regionally, will support the establishment of international production networks that provides a quick response time for problem solving (Hiratsuka 2011).

Improve access to financing for SMEs

- Since financing has appeared at both the initial and early stages as a barrier, it is necessary for APEC economies to explore best practices or assistance programs to address this obstacle. In this respect, a comparative study on bank loans, leasing and factoring, trade credits, venture capital, and business angel investment could help to better the understanding of these options and the pros and cons of using them in the APEC context. The potential benefit of overcoming financial barriers is promising: while small firms are disproportionately handicapped by a lack of finance, they receive a stronger boost in growth than large firms if financing is provided (Dalberg 2011).

- As there are downsides to participating in GPCs, it may be necessary for APEC governments to put in place economic and financial safety nets for SMEs to prevent or cope with large scale macroeconomic disruptions.

Strengthen (global) cooperation and network among SMEs as well as between MNCs and SMEs

- Building cooperative networking and clustering among SMEs could be one of the successful strategies to be adopted in increasing and improving SMEs' participation within GPCs as these clustering and networking could overcome the common barriers that SMEs faced in addition to strengthening the innovation culture within SMEs and local entrepreneurs. Lim and Kimura (2009) noted that there have been minimal clustering and network forming among SMEs, most probably due to the inward-looking mentality especially typical among family enterprises, which account for a large proportion of the sector. Clustering will also secure the local economic impact brought about by the internationalization of SMEs (UNCTAD 2010).

- The Malaysia case study on electronic enterprise clusters has shown that government can facilitate cooperation among SMEs as a way to improve their capability for participating and upgrading in global production chains. Through the collective procurement of material inputs, development of technology, marketing and branding, as well as human resource training, SMEs in the cluster can achieve economies of scale and scope to meet the standards required by MNCs as well to innovate further. Furthermore, the cluster should not be constrained at the domestic level; across-economy clustering could also be explored.

- In addition, government can also work in partnership with MNCs and high-tier suppliers (large enterprises) to provide tailor- made programs to upgrade the skill sets of SMEs.

- As the CTI 2011 Discussion Paper has highlighted, the enhanced use of ICT is important, and APEC needs to enhance SMEs' understanding of how to utilize the ICT networks and other innovative technologies in order to participate in the global production chains.

Increase knowledge of SMEs about FTAs

- It is commonly agreed that overlapping FTAs lead to increased cost for international trade due to the noodle bowl effect, i.e. differences in exclusion lists, tariff rates, rules of origin, mutual recognition, etc. Policymakers need to minimize these distortions and facilitate the movement of goods and services across borders, which will further develop GPCs, and hence create more awareness and chances for SMEs to participate.

- For SMEs to grow into large enterprises or even MNCs, it is essential for them to understand and master international standards and business practices under the governance of various FTAs. Therefore governments could provide training on FTA provisions as well as dedicated websites and telephone help-lines to provide specific information on the utilization of FTAs.

- Inter-governmental cooperation on SME development has been penned in recent FTAs. To move forward, APEC can evaluate some pro-SME policies and develop model chapters on SME development as a reference for trade negotiators.

All of the above measures should be able to support SMEs in improving their competitiveness, both locally and globally. The examples of case studies provided in this paper (summarized in appendix 7) also shows that key success factors for SMEs' participation and upgrading process could be and tend to be product-specific, and need to be considered in the context of the local economies and clusters. As such, any policy interventions will need to first understand the particular product supply chain structure and dynamics.

Ultimately, as UNESCAP (2009) also noted, the ability to become a participant in the global production chains depends on the capacity of indigenous SMEs to overcome the constraints of smallness and newness, and to continuously innovate productively as they grow.[8]

[8] Black et al (2012) in APEC (2012) argue that new businesses tend to have lower survival rates than existing businesses. These differences are more marked for smaller businesses.

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APPENDICES

1. SME Definitions in APEC Economies

APEC Economy	SME size	Employees	Sales / Revenue	Assets	Capital / Investment	Sector
Australia[1]	Micro	< 5				
	Small	5-19				
	Medium	20-199				
Brunei Darussalam	Micro	1-5				
	Small	6-50				
	Medium	51-100				
Canada[2]	Micro	1-4				
	Small	5-99				Goods-producing
		5-49				Services-based
	Medium	100-499				Goods-producing
		50-499				Services-based
	SME	< 500	< CAD 50 million			
Chile[3]	Micro	1-9	< UF 2,400			
	Small	10-49	UF 2,400 – UF 25,000			
	Medium	50-199	UF 25,001 – UF 100,000			
China[4]	Small	< 300	< RMB 30 million	< RMB 40 million		Industry
		< 600	< RMB 30 million	< RMB 40 million		Construction
		< 100	< RMB 10 million			Retail
		< 100	< RMB 30 million			Wholesale
		< 500	< RMB 30 million			Transport
		< 400	< RMB 30 million			Postal Service
		< 400	< RMB 30 million			Hotel and Catering Service
	Medium	≤ 2000	≤ RMB 300 million	≤ RMB 400 million		Industry
		≤ 3000	≤ RMB 300 million	≤ RMB 400 million		Construction
		≤ 500	≤ RMB 150 million			Retail
		≤ 200	≤ RMB 300 million			Wholesale
		≤ 3000	≤ RMB 300 million			Transport
		≤ 1000	≤ RMB 300 million			Postal Service
		≤ 800	≤ RMB 150 million			Hotel and Catering Service
Hong Kong, China	SME	< 50				Non-manufacturing

APEC Economy	SME size	Employees	Sales / Revenue	Assets	Capital / Investment	Sector
		< 100				Manufacturing
Indonesia[5]	Micro	1-4	< IDR 300 million	< IDR 50 million		
	Small	5-19	< IDR 2.5 billion	< IDR 500 million		
	Medium	20-99	< IDR 50 billion	< IDR 10 billion		
Japan	SME	≤ 300			≤ JPY 300 million	Manufacturing, Construction, Transportation
		≤ 100			≤ JPY 100 million	Wholesale Trade
		≤ 100			≤ JPY 50 million	Service Industry
		≤ 50			≤ JPY 50 million	Retail Trade
Korea[6]	Micro	< 10				Manufacturing
		< 10				Mining, Construction, Transportation
		< 5				Selected Retail, ICT, Tourism, Entertainment
		< 5				Selected Extraction, Professional Services
		< 5				Selected Wholesale, Environmental Services
		< 5				Other Sectors
	Small	< 50				Manufacturing
		< 50				Mining, Construction, Transportation
		< 10				Selected Retail, ICT, Tourism, Entertainment
		< 10				Selected Extraction, Professional Services
		< 10				Selected Wholesale, Environmental Services
		< 10				Other Sectors
	SME	< 300			≤ USD 8 million	Manufacturing
		< 300			≤ USD 3 million	Mining, Construction, Transportation
		< 300	≤ USD 30 million			Selected Retail, ICT, Tourism, Entertainment
		< 200	≤ USD 20 million			Selected Extraction, Professional Services
		< 100	≤ USD 10 million			Selected Wholesale,

APEC Economy	SME size	Employees	Sales / Revenue	Assets	Capital / Investment	Sector
						Environmental Services
		< 50	≤ USD 5 million			Other Sectors
Malaysia[7]	Micro	< 5	< MYR 250,000			Manufacturing and related services, Agro-based
		< 5	< MYR 200,000			Services, Primary Agriculture, ICT
	Small	5-50	MYR 250,000 – < MYR 10 million			Manufacturing and related services, Agro-based
		5-19	MYR 200,000 – < MYR 1 million			Services, Primary Agriculture, ICT
	Medium	51-150	MYR 10 million – < MYR 25 million			Manufacturing and related services, Agro-based
		20-50	MYR 1 million – < MYR 5 Million			Services, Primary Agriculture, ICT
Mexico	Micro	0-10				Industry
		0-10				Trade
		0-10				Services
	Small	11-50				Industry
		11-30				Trade
		11-50				Services
	Medium	51-250				Industry
		31-100				Trade
		51-100				Services
New Zealand[8]	SME	≤ 19				
Papua New Guinea	SME				< PGK 100,000	
Peru[9]	Micro	≤ 10	≤ 150 UIT			
	Small	≤ 100	≤ 1,700 UIT			
Philippines[10]	Micro	1-9		≤ PHP 3 million		
	Small	10-99		> PHP 3 million – < PHP 15 million		
	Medium	100-199		> PHP 15 million – < PHP 100 million		
Russia	Micro	1-15	≤ RUB 60 million			
	Small	16-100	≤ RUB 400 million			
	Medium	101-250	≤ RUB 1 billion			
Singapore[11]	SME	≤ 200				Non-manufacturing
				≤ SGD 15 million		Manufacturing

APEC Economy	SME size	Employees	Sales / Revenue	Assets	Capital / Investment	Sector
Chinese Taipei[12]	Micro	< 5				
	SME	< 200			≤ TWD 80 million	Manufacturing, Construction, Mining, Quarrying
		< 100	≤ TWD 100 million			Other Sectors
Thailand[13]	Small	≤ 50		≤ THB 50 million		Manufacturing
		≤ 50		≤ THB 50 million		Services
		≤ 25		≤ THB 50 million		Wholesale
		≤ 15		≤ THB 30 million		Retail
	Medium	51-200		> THB 50 million – ≤ THB 200 million		Manufacturing
		51-200		> THB 50 million – ≤ THB 200 million		Services
		26-50		> THB 50 million – ≤ THB 100 million		Wholesale
		16-30		> THB 30 million – ≤ THB 60 million		Retail
United States[14]	SME	< 500				most Manufacturing and Mining industries
		< 100				all Wholesale Trade industries
			< USD 6.5 million			most Retail and Service industries
			< USD 31 million			most General and Heavy Construction industries
			< USD 13 million			all Special Trade Contractors
			< USD 0.75 million			most Agricultural industries
Viet Nam[15]	SME	< 300			< VND 10 billion	

Notes:

1. Non-employing businesses in Australia are sole proprietorships and partnerships without employees, and are considered as small businesses by the Australian Bureau of Statistics (ABS). The ABS also recognizes that an employment based sizing measure may not be applicable to businesses in certain sectors, such as agriculture, and therefore financial measures, based on turnover or asset holdings for example, may also be used to classify businesses as SMEs.
2. There is no unique definition of an SME in Canada. Industry Canada defines SMEs based on employment size and by sector. Statistics Canada defines an SME as any business establishment with fewer than 500 full-time-equivalent employees and less than CAD 50 million in gross annual revenue.
3. There is no unique definition of an SME in Chile. The Ministry of Planning and Cooperation (MIDEPLAN) defines SMEs based on the number of persons employed using data from the National Socio-economic Survey (CASEN), while the Ministry of Economy (MINECON) defines SMEs based on the level of

annual sales using data from the Internal Tax Service (SII). Unidades de Fomento (UF) is a unit of account indexed to the Consumer Price Index; the average of the daily values for 2009 of one UF was CLP 21,007.4.

4. For China, only SMEs in certain sectors are further defined based on total assets.

5. There is no unique definition of an SME in Indonesia. The State Ministry of Cooperatives and SMEs defines SMEs based on net assets, excluding land and buildings, and annual sales. Statistics Indonesia (BPS) defines SMEs based on employment.

6. SMEs in Korea are defined based on the number of workers and, depending on the sector, on either sales or capital. Selected Retail, ICT, Tourism, Entertainment includes Large general retail stores; Hotel, recreational, condominium operations; Communications; Information processing and other computer-related industries; Engineering services; Hospitals; Broadcasting. Selected Extraction, Professional Services includes Seed and seedling production; Fishing; Electrical, gas, waterworks; Medical and orthopaedic products wholesale; Fuel and related products wholesale; Mail order sales; Door-to-door sales; Tour agencies; Warehouses and transportation-related services; Professional, science, technology services; Business support services; Movie, amusement, theme park operations. Selected Wholesale, Environmental Services includes Wholesale and product intermediation; Machinery equipment rental for industrial use; R&D for natural sciences; Public performance; News provision; Botanical gardens, zoos, natural parks; Waste water treatment; Waste disposal and cleaning related services.

7. SMEs in Malaysia can be defined based on either total annual sales or revenue or on the number of full time employees.

8. There is no unique definition of an SME in New Zealand. The Ministry of Economic Development (MED) defines SMEs based on the number of employees. Other agencies define SMEs based on annual turnover, taxes on employee salaries or wages, or an employment classification different to that of MED.

9. There is currently no definition of medium enterprises in Peru. UIT is the tributary tax unit and is equivalent to PEN 3,600 for the year 2010.

10. SMEs in the Philippines can be defined based on either total assets, excluding land, or on the number of employees.

11. SMEs in Singapore are defined based on either the number of employees or net fixed assets depending on the sector. Non-manufacturing includes Services-producing industries; Construction; Utilities and other goods industries, including agriculture, fishing and quarrying.

12. SMEs in Chinese Taipei are defined based on either sales revenue or paid-in capital depending on the sector. Agencies may also define SMEs based on the number of regular employees. Other Sectors includes Agriculture, forestry, fisheries, animal husbandry; Water, electricity, gas; Wholesale and retail; Transportation; Warehousing and communications; Hotel and restaurant operations; Finance and insurance; Real estate and leasing; Industrial and commercial services; Social and personal services.

13. For Thailand, fixed assets, excluding land and property, are used.

14. SMEs in the United States are defined based on either the number of employees or average annual revenue depending on the sector, with specific size standards for all for-profit industries. Size standards based on the number of employees range from 100 to 1,500 employees and size standards based on average annual revenue range from USD 0.75 million to USD 32.5 million The size standards shown in the table apply to three-fourths of the total industries. SMEs can also be defined more generally as firms with fewer than 500 employees, with small businesses having fewer than 100 employees.

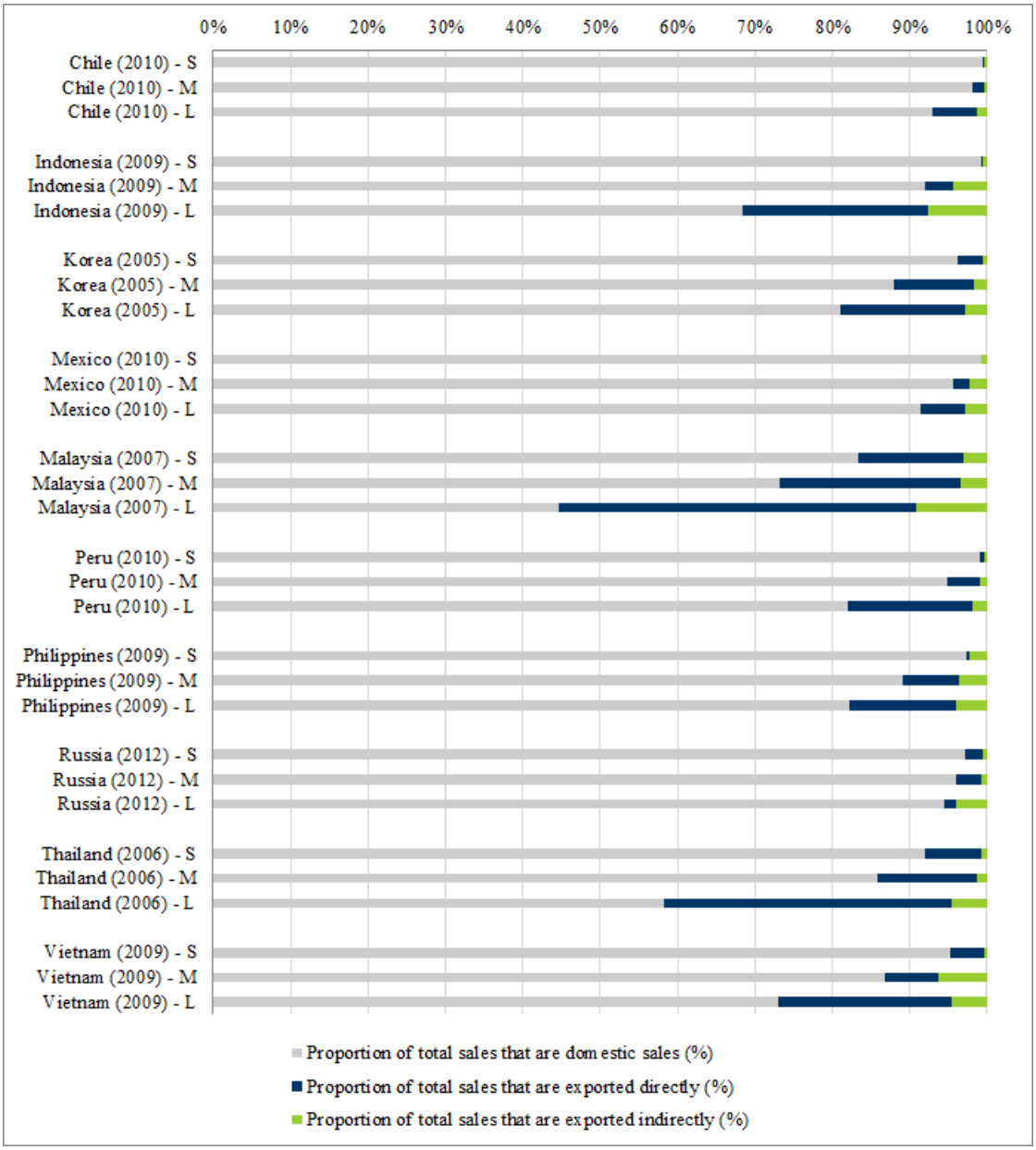
15. SMEs in Viet Nam are defined based on registered capital at business registration agencies and/or on the average number of annual permanent employees.

2. Decomposition of Gross Exports, APEC Economies, 2007

		Value-added exports			*Double counting*		
Economy	Gross exports (Billions U.S. Dollars)	Direct exports of final goods	Interme-diates absorbed by direct importer	Re-exports to third countries	Dome-stic content returns home	VS share (HIY)	Total
Australia	189.1	22.3	54.4	10.7	0.7	11.9	100.0
Canada	415.5	21.4	47.7	4.6	1.5	24.8	100.0
China	1,167.2	35.2	26.0	5.1	1.0	32.7	100.0
Hong Kong	143.3	25.9	38.5	7.7	0.5	27.4	100.0
Indonesia	127.7	17.5	54.2	10.6	0.6	17.2	100.0
Japan	742.1	35.0	34.1	10.9	2.2	17.9	100.0
Korea	405.5	25.7	28.7	9.8	1.0	34.8	100.0
Malaysia	194.6	16.6	33.6	8.5	0.8	40.4	100.0
Mexico	272.9	29.9	31.6	3.9	0.5	34.1	100.0
Philippines	72.3	16.0	30.6	13.5	0.3	39.5	100.0
Russia	309.4	10.6	71.8	8.1	1.0	8.5	100.0
Singapore	205.4	14.0	26.1	6.4	0.5	53.0	100.0
Chinese Taipei	278.4	15.6	28.0	13.3	0.8	42.2	100.0
Thailand	175.1	28.1	27.3	7.8	0.4	36.4	100.0
United States	1,363.4	31.1	38.3	5.4	9.4	15.8	100.0
Vietnam	53.0	26.5	26.2	4.5	0.3	42.5	100.0
World average	11,412.5	26.8	41.6	6.4	3.5	21.7	100.0

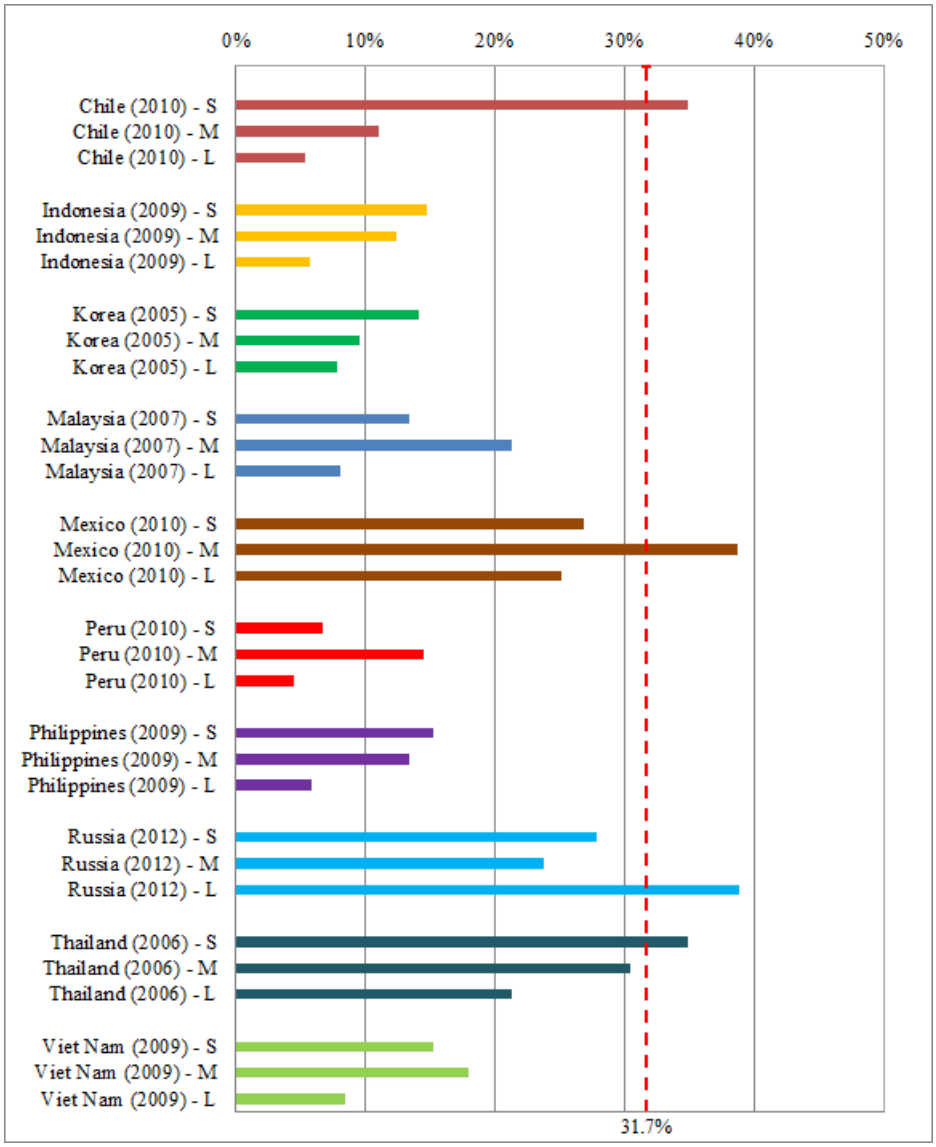
Note: All columns are expressed as a share of total gross exports. VS share (HIY): vertical specialization based on Hummels or HIY (2001) method.
Source: Koopman and Wang (2012).

3. Export Orientation of Enterprises, APEC Economies



Note: Small firms (S): 5–49 employees; medium (M): 50–199 employees; large (L): above 200 employees. The indicators are computed using data from manufacturing firms only.
Source: The World Bank, Enterprise Surveys (http://www.enterprisesurveys.org).

4. Percentage of Firms Identifying Access to Finance as a Major Constraint



Note: Small firms (S): 5–49 employees; medium (M): 50–199 employees; large (L): above 200 employees. The indicators are computed using data from manufacturing firms only.
Source: The World Bank, Enterprise Surveys (http://www.enterprisesurveys.org).

5. Nine Barriers on SMEs' International Trade and Actions to Address Barriers

In the statement of the APEC Ministerial Meeting (AMM) in 2011, it was agreed that there are nine trade barriers which impede SMEs' international trade, and APEC members should make concrete actions to contribute to reducing those barriers.

Nine barriers on SMEs' international trade:

1. Lack of access to financing: Access to financing is critical for SME exporters since purchasers often look for vendors that can extend credit. SMEs' ability to access financing can also be hindered by unique borrowing requirements, like the need for longer repayment periods.

2. Lack of capacity to internationalize and difficulty in identifying foreign business opportunities: Providing effective resources to educate SMEs about how to access global markets and actively identify business opportunities in other markets is fundamental to encouraging SMEs to export.

3. Need for open and transparent business environments: An open and transparent business environment lowers the cost of doing business and increases predictability, which is critical for SMEs that lack the resources to address issues related to corruption.

4. High transportation and related costs: High transportation and related costs have a greater impact on SMEs because they have difficulty taking advantage of economies of scale and have difficulty identifying less costly alternatives.

5. Customs clearance delays due to difficulties in navigating overly complex customs requirements and documentation: Customs clearance delays can more significantly affect SMEs because of their lower inventory volumes, their role as a provider of goods or services in larger supply chains, and other factors common to SMEs.

6. Problems navigating differing legal, regulatory, and technical requirements: These varying requirements can be particularly challenging for SMEs to meet given challenges they may face in obtaining information and demonstrating conformance in a reliable and accurate manner.

7. Difficulty with intellectual property acquisition, protection, and enforcement: The lack of knowledge and resources to acquire, protect, and enforce intellectual property rights in foreign markets are major obstacles to small business owners who are deciding whether to export. Increasing the awareness of SME exporters on issues associated with emerging technologies is also an important goal.

8. Inadequate policy and regulatory frameworks to support cross-border electronic commerce: Electronic commerce is a powerful enabler for the internationalization of SMEs. Critical to the ability of SMEs to conduct this type of trade are enabling policy and regulatory frameworks in APEC economies.

9. Difficulty in taking advantage of preferential tariff rates and other aspects of trade agreements: Improving the understanding of how to utilize regional free trade agreements will make it easier for SMEs to benefit from these agreements, which will lower their overall cost when exporting and, in turn, increase their competitiveness.

Actions agreed by APEC members to address barriers:

- Share information between economies on top export financing approaches for SMEs and identify best practices for export credit agencies to improve SMEs' access to financing;
- Develop best practices to assist SMEs in internationalizing operations and identifying foreign business opportunities;
- Endorse principles for voluntary codes of business ethics in the construction and engineering, medical devices, and biopharmaceutical sectors to ensure open and transparent business environments;
- Promote the use of new technologies to increase operational efficiencies to lower the impact of high transportation costs and make information about logistics market dynamics more accessible;
- Develop an APEC Website containing links to economies' customs websites with basic customs information in domestic languages and English, and promote the use of SME-relevant resources on economies' customs Websites to assist in the navigation of customs procedures and documentation requirements;
- Expand the APEC Services Trade Access Requirements (STAR) Database to improve access to differing legal, regulatory, and technical requirements for SME services exporters;
- Ease access to basic information on how to register intellectual property (IP), including relevant websites, for each economy on an APEC Website in domestic languages and English where possible, promote the use of single windows to facilitate IP registration in economies, and improve access to related educational materials to make it easier to register IP;
- Update the *1998 Blueprint for Action on Electronic Commerce* to keep pace with developments in technology and innovations in business models in a way that accounts for the significant role that electronic commerce plays in expanding SME access to global markets; and
- Enhance access to information on the benefits of FTAs through summaries of relevant chapters on the APEC Website on Tariffs and Rules of Origin in domestic languages and English in the future, identify economies' best practices to promote FTA utilization, and prepare a guidebook to assist SMEs in using FTAs to expand their export opportunities.

6. Firm Characteristics of Users and Non-users of FTAs

Firm characteristics	China		Japan		Philippines		Singapore		Thailand	
	User	Non-user	User	Non-user	User	Non-user	User	Non-user	User	Non-user
Number of full-time employees	3,542	2,226	30,104	7,020	395	269	1,098	142	591	291
Number of years since establishment	17	17	51	55	17	13	31	22	22	19
% foreign owned	36	41	36	4	58	66	54	50	61	40
% knowledgeable about FTA provisions	9	2	64	11	7	2	46	10	49	36
% changed/may change business plans	41	27	46	15	45	29	46	21	80	51

Source: Kawai and Wignaraja (2011)

7. Summary of Case Studies

Industry	Focus area	Key findings
Automotive GPCs	Finance Constraints for SMEs	The ability of these SMEs to finance the internationalization process was quite limited, and they had not built up any specific competitive advantage in terms of technology. Also due to lack of financing options, these SMEs were unable to obtain skilled labor, invest in advanced infrastructure, and undertake necessary upgrading to keep pace with the business strategy of MNC as well as changing customer demand.
Agribusiness	Food Safety and Quality Standards in GPC	More and more standards in the agribusiness means that SMEs that support the first-tier suppliers need to invest in machinery and facilities for better quality, quantity and storage, which are often beyond SMEs' technical capacity and financial capabilities.
Cement industry	Corporate social responsibility	Large MNCs could be an effective means to motivate SMEs in the production chains to implement CSR measures.
Electronics industry	Cluster-based industrial development approach	The cluster has encouraged horizontal information sharing and skill formation, which made it possible for more big MNCs to locate higher-value added activities and for local SMEs to move to more complex high-value added activities.
Automobile Industry	Clustering and networking	Networking and subcontracting with large enterprises and MNCs could provide a short-cut to enhancing SME competitiveness, and hence it is important to enable SMEs to reach international standards and to create a business environment where SMEs could thrive.
General	Different funding schemes for SMEs	Different funding schemes are tailored to specific development stages of SMEs. By studying the needs of the SME and weighing various options, Government could help SMEs to choose the right financing option. The full set of financing schemes thus ensures that SMEs are free from hurdles to access funds.
Agribusiness	Successful upgrading process	Favorable natural surroundings, sound education system that encourages entrepreneurship in the society and produces trained and specialized professionals needed by the industry and a series of systematically-devised supporting policies lays the foundation for a globally competitive industry.