Chapter 8

Integrating SMEs into East Asia Production Networks: Thailand

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This paper examines barriers facing Thai SMEs, and identifies success factors for better participation in production networks. It utilizes information from a recent enterprise survey in 2009 covering clothing, automotive and electronics industries. Overall, SMEs perceived external barriers - business environment and tax, tariff and nontariff- as the most significant barriers. Key barriers for SMEs in the networks are difficulties in meeting product quality and standards, and in matching competitors' prices, and lack of personnel for market expansion. Salient characteristics among SMEs participating actively in networks are their strong technological capabilities and proximity to ports or location within industrial estates. Strengthening absorptive capacities of SMEs, with special attention paid to technological development and its dissemination to SMEs, should be given higher priority.

1. Introduction

Rapid advancements of global production networks (GPNs) have attracted considerable attention from both academics and practitioners in recent decades. Theoretical literature on this subject postulates many advantages of participating in networks, ranging from better access to external business resources and knowledge diffusion, to achieving economies of scale. Empirical studies began to provide more understanding of the drivers and mechanics of GPNs through country-case studies. The majority of these studies focused on the development of GPNs with emphasis on the role of MNEs in nurturing their networks. However, studies relating to the participation of SMEs in production networks are rather limited.

Understanding how to integrate SMEs into GPNs is clearly important and complex. Assisting SMEs through networking and subcontracting with large enterprises/MNEs could provide a short cut to enhancing SME competitiveness, as proposed by previous studies (Wattanapruttipaisan 2002; UNCTAD 2001; Berry 1997). Wattanapruttipaisan (2002) presented various parameters of SME capabilities and competitiveness to indicate their potential readiness as suppliers to large enterprises. Ernst and Kim (2002) argued that continual upgrading of SMEs' business capabilities is important for them to stay in GPNs. Most SMEs, which form lower-tier suppliers, can be easily replaced by foreign-affiliated firms or downgraded to a lower tier, as in the case of the Thai automotive and parts industry. However, forming and deepening linkages with large firms are also subject to their practices and preferences, suggesting opportunities for some governmental roles. Thus, knowledge of successful characteristics and shared weaknesses of SMEs participating in the production networks provides insight for formulating industrial and development policies.

This paper aims to gain better understanding of the characteristics of, and barriers facing SMEs participating in the production networks. To achieve this goal, the paper examines barriers facing Thai SMEs and identifies success factors for better participation in the production networks. The study utilizes information from a recent enterprise survey conducted in 2009. It also provides assessments of current government support in terms of its effectiveness as perceived by SMEs.

This paper is organized as follows: Section 2 provides background information on Thai SMEs and the recent status of production networks in three industries: clothing, automotive and parts, and electronics. Section 3 analyzes perceived barriers to SMEs joining production networks. Section 4 explores characteristics of successful SMEs in production networks. Section 5 gives some brief SME policies regarding networking, and some assessment of current government support programs geared towards SMEs. The final section concludes and gives policy recommendations.

2. SMEs and Production Networks in Thailand

2.1. Definition and Significance of Manufacturing SMEs

Thailand is a lower middle-income country and a reasonably open economy. In the 1980s and much of the 1990s, Thailand was one of the fastest growing economies in the world. During the boom period from 1987 to 1996, real GDP grew by 9.5%. During the 1997-1998 financial crisis, real GDP growth fell to below zero. Since then, Thailand began to recover and grew by an average of 4.7% until 2007. However, real GDP growth in 2008 slowed to 2.6%, due the global financial crisis and domestic political uncertainty.

Thai Manufacturing SMEs are defined as firms with less than 200 employees and 200 million Baht of fixed assets, equivalent to 5.6 million USD. In 2008, the number of registered establishments in the manufacturing sector was 544,762, a decrease from 691,926 in 2004. Manufacturing SME accounted for 19.3% of the total. In 2008, manufacturing SMEs generated 33.7% of manufacturing value added. They employed around 3.46 million workers, accounting for 38.9% of total SME employment or 64.3%of manufacturing employment in 2007. SME value added in manufacturing GDP rose 8% on average during the period 2002-2006.

In terms of sectoral composition, sectors with the top-three highest share of SME value-added are Food Products and Beverages (ISIC15), Furniture (ISIC 36) and Chemicals and chemical products (ISIC24). SME value-added shares in total

Manufacturing in wearing apparel (ISIC18) and motor vehicles and parts (ISIC34) accounted for only 7.9% and 0.8% in 2008, respectively.

In terms of exports, the value of exports by SMEs in 2008 was 50,693.8 million USD, an increase of 11.2% from the 2007 figure. Share of SME exports to total exports was 28.9%, and accounted for 49.1% of GDP generated by SMEs. Share of SME imports to total imports was 26.3% in 2008.

2.2. The Roles of Production Networks

The roles of production networks in Thailand can be seen especially in three industries: clothing, automotive and parts, and electronics. The clothing industry provides an interesting case for MNE-SME linkage via buyer-chains, global production networks, or a global value chain as defined by Gereffi and Memedovic (2003). This type of network involves the role of lead firms in setting up production networks in many exporting developing countries to optimize the effectiveness of the total value chain. The buyer-chain networks involve simple products where innovation is strong in terms of both product design and global marketing.

The Thai automotive and electronics industries were chosen for cases of producer-driven chains, which are dominated by MNE or large manufacturing enterprises. These producer-chain networks deal with complex structures of cross-border linked networks (Ernst and Kim 2002). Technology and manufacturing know-how in these networks are their companies' core competencies, and need to be developed in-house. The Thai automotive industry was chosen because it is now considered to be part of the regional and global production networks of Japanese firms, which have strong production network in ASEAN. The Thai electronics industry, one of the important export sectors, has become one of the largest production bases for hard disk drive manufacturing, enjoying 42% of world production in 2005. It has also been promoted as an Asian electronics hub by recent Thai government policy.

This section provides a summary of evidence of inter-firm networking and subcontracting between SMEs and MNEs among these production networks.

2.2.1. Clothing Industry

Many previous studies argued that integration of SMEs into the global production networks of MNEs provides a short cut to export success in the clothing industry (Gereffi 1999; UNCTAD 2000; Memedovic 2004). The main benefits of these networks are that they lower the cost of entering foreign markets, and gain some export spillover. MNEs have better information on consumer tastes, distribution and marketing channels, and trade regulations. Local firms, as subcontractors, could then potentially acquire knowledge about production technology and market information from the MNEs. Thus, involvement between local firms and MNE buyers can create significant contribution to international market penetration and product upgrading.

In the case of Thailand, knowledge about existing linkages between SMEs and MNE networks in the clothing industry is still limited. Based on firm interviews, Kohpaiboon (2008) indicated that linking with MNEs could contribute to technological improvement of local suppliers since there is continual pressure on local suppliers to keep improving their productivity. However, involvement with MNEs is still limited in this industry as many SMEs want to keep their business flexibility. Evidence showed a stronger degree of MNE involvement in Thai clothing exports. Regardless of firm size, involvement with MNEs seems necessary for SMEs to become internationalized and successful in exporting. As a subcontractor, the large and medium local suppliers, who can provide full-package services to international traders and marketers, reported considerable benefits from their networking with MNEs. This type of network generates substantial backward linkage in the local market because subcontractors are expected to develop reliable local supply sources.

However, the same opportunities for technological and managerial learning from MNEs are not evident for small suppliers or second and third-tier suppliers. Evidence from interviews also indicated that SMEs were not well aware of the potential benefits of globalization. They preferred working independently to working as a subcontractor. And surprisingly, horizontal networking among local SME suppliers was found to be weak, despite facing more global competition.

2.2.2. Automotive Industry

The Thai automotive industry began in 1961. Its production began to increase rapidly in the 1990s after the appreciation of the Yen and the Thai government's liberalization policy. The local content requirement was abolished in 2000. After the recovery from the 1997 Asian financial crisis, the production and production capacity has accelerated again. Many car assemblers use Thailand as part of their global production network. In 2006, almost 0.5 million cars were exported, most of which were one-ton pick-ups. The Thai automotive industry is now becoming export-oriented, and a part of the ASEAN global production base.

As a regional hub, MNE automakers need to modernize local parts suppliers. They place higher demand on their local partners. In this process, Japanese car makers induce their home-based suppliers to relocate to Thailand. As a result, many parts suppliers are foreign affiliated and joint-venture firms. Inefficient indigenous or wholly Thai-owned suppliers were replaced or crowded out. There are now only a dozen Thai firms which are first-tier suppliers for less knowledge-intensive parts. Most of them are second or third-tier suppliers of raw materials.

Yet, evidence from interviews showed that parts suppliers provided technical know-how and service to existing lower-tier firms so as to meet their demands in terms of quality and management (Techakanont 2008). The extents to which technological and managerial transfers occurred, besides the corporate strategy of large enterprises, were also related to lower-tier suppliers' absorptive capacities and their commitment to product upgrading. For example, there is evidence that Japanese car assemblers have intensified linkages with local suppliers. They invested in some important activities to improve the standard of their production networks in Thailand. Some local production networks were found to help in facilitating knowledge sharing among suppliers through supplier associations, knowledge transfer consultants and small group-learning teams (Poapongsakorn and Techakanont 2008).

Participating in the automotive global production network provides Thailand both macro and firm-level benefits. Poapongsakorn and Techakanont (2008) indicated that major firm benefits were productivity improvement, economies of scale, and reducing

defect rate, while the macro benefits were increased production volume and exports, trade surplus and lower car prices.

Firms in the Thai automotive industry have been found to be geographically concentrated more in the industrial estates in Bangkok and the eastern regions alongside rising production networks. Poapongsakorn and Techakanont (2008) argued that automotive firms located in industrial estates seem to enjoy greater benefits from good public utility services, convenient transportation, and close proximity to their customers, rather than agglomeration economies. Surprisingly, their study found no agglomeration economies from the labor and input markets among firms in the same industrial estates. In addition, the distance between firms and their input suppliers had little impact on their capability.

Focusing on SMEs' participation in networking, Punyasavatsut (2008) found that, compared to the past, linkages and spillovers between first-tier and lower tier suppliers in the automobile and parts industry had significantly improved. Based on firm interviews, he also found that networking among lower-tier local suppliers becomes intensified if they are members of a current global production network.

2.2.3. Electronics Industry

Thailand's electronics industry ranks very highly in terms of export values. In 2005, Thailand became one of the largest production bases for hard disk drive (HDD) manufacturing, enjoying 42% of world production. In 2006, the Thai government began to promote the country as an Asian electronics hub, competing with Singapore, Malaysia and China.

The Thai electronics industry has been dominated by foreign MNE subsidiaries which do not conduct extensive and sophisticated technological activities such as R&D and design in Thailand. Early development of this industry showed relatively low linkages with local manufacturers and other institutions such as universities or research institutions (AIT 2004). In the HDD industry, the local supplier base and supporting industries were still very shallow. Most firms were linked, to some extent, into a vertical supply chain, sharing information about new products and related issues. But innovation-related vertical links were weak. Moreover, even fewer firms established

horizontal linkages to universities and specialized institutions, indicating weak innovation-related horizontal links.

In 2003, the National Science and Technology Development Agency (NSTDA) initiated a plan to strengthen the hard-disk drive cluster in Thailand. The plan aims to upgrade the technological capability of workforces, to keep up with rapid and constant changes in technology found in this sector. Hobday and Rush (2007) indicated that upgrading the technological capabilities of local Thai electronics subsidiaries differed in rates and patterns, depending on the technology strategy of the global value chain's leader or parent company.

A recent study by Kohpaiboon (2009) indicated that Thailand will need to keep improving the quality of its science and technology workforce and standards, in order to enhance technological capabilities in the HDD industry. Based on firm interviews, his findings showed that important entry barriers facing SMEs were a cascading tariff structures, and the business culture of the SMEs.

In summary, literature on inter-firm networking and subcontracting between large and small firms in the production networks indicated that (a) in Thailand; there were evidence supporting positive linkages and spillovers among local small firms through networking with MNEs and first-tier suppliers. The network helps local firms to gain better access to technology and marketing information, and to move up the quality ladder; (b) In contrast to vertical linkages and networking, horizontal networking among lower-tier SMEs was found to be weak; (c) Barriers facing lower-tier supplier to joining the networks are the technological capability gap (higher cost of learning) and loss of flexibility in running their business; (d) Major reported barriers to transferring technology to SMEs are lack of effective and motivated SMEs, and gaps in technology between first and lower tiers.

3. Barriers to SME Growth

Understanding barriers to SME growth generally will help when designing appropriate policies and supporting programs. Policy makers often considered internal

barriers facing SMEs to be the most important, rather than external barriers. OECD (2008) indicated that barriers are not constant and not uniform for all SMEs. External barriers, like the business environment, are underestimated by firms that are not yet active exporters, while internal barriers, such as financial issues and access, are overstated. This could lead to reduced effectiveness of government supporting programs if true barriers facing SMEs are not identified.

3.1. Survey and Data Description

The survey was designed to obtain SMEs' perceptions of the most important barriers to exporting/joining production networks. The survey lists 38 known barriers and asks SMEs to assess the importance of each barrier using a five-point Likert scale, ranging from "extremely significant" (1) to "not significant" (5). The 38 known barriers are classified into 8 groups: informational barriers; functional barriers; product and price behaviors; distribution, logistics and promotion barriers, procedural barriers; business environment barriers; tax, tariff and non-tariff barriers; and other barriers. SMEs were then asked to rank these 8 groups of barriers in terms of importance. Details of the questionnaire are presented in the appendix.

The firm survey was conducted from September to November 2009. A list of 1,084 firms was sampled from 3 industries: clothing, automotive and parts, and electronics. These samples were drawn from the database of the Office of Industrial Economics, Ministry of Industry, focusing only on SMEs. Questionnaires were mailed to company owners or managing directors and were then followed up by face-to-face or phone interview. To ensure the accuracy of data from the survey, additional data on sales and cost structure were obtained from the Department of Business Development, Ministry of Commerce.

In total, data from 77 firms were obtained, after excluding incomplete answers and inappropriate firm characteristics. The effective response rate was about 7.1%. The proportions of responding firms categorized by size and types of business are shown in Table 1(a). About 40% of responding firms were from the clothing industry, 33% from the automotive and parts industry, and 21% from the electronics industry. Of all firms, 83% were classified as small or medium enterprises.

Table 1(b) shows the distribution of responding firms which were actively participating in a production network. Of all 77 samples, 36 firms or 47% were classified as firms participating in a global production network. The percentage of responding firms involved in the network was higher in the automotive and electronics industry, and somewhat lower in clothing industry. More than two-thirds of sample firms in the automotive and parts, and electronics industries were participating in a production network. Only 10% of clothing firms participated in a production network.

Table 1(a). Distribution of Responding Firms by Firm Size and Types of Business

Types	Numbers of Employees					Total
	1-5	6-49	50-99	100-199	>200	
Clothing	1	9	5	12	3	30
(percent)	-3.3	-30	-16.7	-40	-10	-100
Automotives	1	4	4	9	8	26
(percent)	-3.8	-15.4	-15.4	-34.6	-30.8	-100
Electronics	0	5	8	6	2	21
(percent)	0	-23.8	-38.1	-28.6	-9.5	-100

Source: ERIA SME Survey 2009.

Table 1(b). Distribution of Responding Firms by Production Network and Types of Business

Type \ Employees	In Production Network					Total
	1-5	6-49	50-99	100-199	>200	
Clothing	0	0	2	1	0	3
Automotives	0	2	4	7	6	19
Electronics	0	5	4	3	2	14
Total	0	7	10	11	8	36

Source: ERIA SME Survey 2009.

3.1.1. Firms' Characteristics

Table 2 shows the main characteristics of the sample firms in terms of firm age in 2009, ownership structure, sales revenues, net profit, sources of finance, sources of inputs, plant locations, and sales patterns. The responding firms have been in operation

for about 20, 15, and 22 years in clothing, automotive, and electronics, respectively. The industry with the highest share of foreign ownership is automotive, followed by electronics and clothing. About 53% of the responding firms are engaged in exporting their products.

Table 2.

Firm Characteristics	Clothing	Automotives	Electronics
Numbers of firms	30	26	21
Age	20.1	15.4	21.7
Ownership			
Domestic (%)	91.46	58.82	86.83
Foreign (%)	8.54	41.12	13.16
Sales			
growth in 2007	3.4	133.4	5.54
growth in 2008	-10.21	36.34	59.29
Profit			
2007	-1.05	3.56	1.4
2008	-1.58	5.07	2.42
Cost Structure 2008			
Labor cost	37.22	16.87	15.58
Raw materials	40.11	47.85	58.02
Utility	2.73	8.5	4.25
Interest	1.96	2.07	0.76
Others	17.98	22.95	21.25
Employee Education			
% tertiary	5.55	18.01	22.23
% Vocational	11.73	18.65	15.31
% high school or less	82.89	63.97	61.17
Source of Working Capital			
Retained Earning	8.36	35.5	32.8
Bank	7.63	16.61	17.36
Other financial institutions	0	0.04	0
Others	71.58	45.93	50.17
Average Borrowing cost	7.12	5.55	6.13
Source of Inputs			
Domestic (%)	88.9	67.1	87.9
Imports (%)	11.1	29.9	12.1
Output destinations			
Domestic (%)	76.6	78.1	74.4
Exports (%)	23.4	21.9	28.6
Firm Location			
Distance from ports	48.3	63.3	31.5
Distance from industrial zone	35.6	36.4	55.6

Source: ERIA SME Survey 2009.

3.1.2. Business Capability

Table 3(a) summarizes business capabilities of the sample firms. Business capabilities indicated firms' efforts to improve their business's processes or organization, or to adopting new production methods in the past 3 years. The survey showed that more than 80% of the responding firms in the automotive industry have met an international standard. Only about one-third of clothing firms and a half of electronics firms have met an international standard. More than 60% of responding firms have introduced ICT in order to improve their business processes. As for business associations or business networks, more than 50% of automotive and parts SMEs were active. Also, in 2009 more than two-thirds of SMEs in automotive and parts reported spending to improve their business capabilities in various ways, such as purchasing new machines, new know-how or introducing their own products.

Table 3(b) summarizes business capabilities of SMEs that were in or out of a production network. The results of the survey showed that ability to build these capabilities was not significantly higher among firms in the production networks. Firms in the production networks engaged more in activities to improve their capabilities through meeting international standards, developing new plants, attending business associations, buying new machines, and using new know-how. However, the differences were not significant.

Table 3(a). Summaries of Business Capability of SMEs by Types of Business

Business Capability	Clothing	Automotives	Electronics
Met ISO	36.67	88.46	52.38
Introduced ICT	70	61.5	61.9
Established new division or plants	23.33	42.31	33.33
Attend business assoc. or networks	40	53.8	38.1
Bought new machines or facilities	40	88.46	47.62
Improved existing machines	80	96.15	76.2
Introduced new know-how	43.33	76.92	57.14
Introduced new products in last 3 years	70	84.6	76.2
Average Expense on training (USD)	671	10,316	2,434

Source: ERIA SMEs Survey, 2009.

Table 3(b). Summaries of Business Capability of SMEs In and Out Production Networks

Business Capabilities	In	Out	Total
Met ISO	25	20	45
(%)	55.56	44.44	100
Introduced ICT	24	26	50
(%)	48	52	100
Established new division or plants	14	11	25
(%)	56	44	100
Attend business assoc. or networks	19	15	34
(%)	55.88	44.12	100
Bought new machines or facilities	24	21	45
(%)	53.33	46.67	100
Improved existing machines	29	36	65
(%)	44.62	55.38	100
Introduced new know-how	23	22	45
(%)	51.11	48.89	100
Introduced new products in last 3 years	29	30	59
(%)	49.15	50.85	100

Source: ERIA SMEs Survey, 2009.

3.2. SMEs' Perceptions of Barriers

Responding SMEs were asked to assess each of the 38 barriers by using the 5-point Likert scale. The barriers were then ranked in order of average score. Details of mean score and its standard deviations are also shown in Appendix 1. The standard deviation can be used to measure consensus among the respondents on a specific barrier.

Table 4 shows the top ten perceived barriers across 3 industries in this study. In the clothing industry, firms tend to view internal barriers as the most important. The internal barriers which are perceived to be the most significant are: difficulties in matching competitors' prices, developing new products, limited information for locating partners or analyzing the market, difficulty in offering competitive prices to customers, and facing high taxes and tariffs in the home market.

In the automotive and parts industry, firms view both internal and external barriers as important. The barriers they perceive as the most significant are: restrictive health, safety and technical standards in the home market, difficulty in participating in

promotional activities to target new customers or business partners, inadequate property rights protection in the home market, complexity of production value chain, and difficulties in enforcing contracts and resolving disputes.

In the electronics industry, firms tend to see external barriers as the most important. Their highest-ranked external barriers are restrictive health, safety and technical standards in foreign markets, high costs of customs administration in exporting or importing, inadequate property/rights protection in foreign markets, high tax and tariff barriers in foreign markets, and restrictive health, safety and technical standards in the home market.

Table 4. Ranked Top-Ten Barriers Faced by SMEs Classified by Type of Business from 1 (Very Significant) to 5 (Insignificant)

Rank	Type of Business		
	Clothing	**Automotives**	**Electronics**
1	B33. Restrictive health, safety and technical standards (e.g. sanitary and phytosanitary requirements) (foreign market)	B30. Political instability (home market)	B34. High costs of Customs administration, in exporting or importing (foreign market)
2	B33. Restrictive health, safety and technical standards (e.g. sanitary and phytosanitary requirements) (home market)	B28. Poor/deteriorating economic conditions (foreign market)	B28. Poor/deteriorating economic conditions (home market)
3	B30. Political instability (foreign market)	B5. Insufficient quantity of and/or untrained personnel for market expansion	B28. Poor/deteriorating economic conditions (foreign market)
4	B32. Inadequate property rights protection (e.g. intellectual property) (foreign market)	B28. Poor/deteriorating economic conditions (home market)	B33. Restrictive health, safety and technical standards (e.g. sanitary and phytosanitary requirements) (foreign market)
5	B13. Offering technical/after-sales service	B30. Political instability (foreign market)	B30. Political instability (home market)
6	B22. Participation in promotional activities to target markets/business partners	B15. Difficulty in matching competitors' prices	B31. High tax and tariff barriers (foreign market)
7	B31. High tax and tariff barriers (foreign market)	B11. Meeting product quality/standards/specifications	B30. Political instability (foreign market)
8	B28. Poor/deteriorating economic conditions (foreign market)	B19. Establishing and maintaining trust with business partners	B32. Inadequate property rights protection (e.g. intellectual property) (foreign market)
9	B19. Establishing and maintaining trust with business partners	B35. Perceived risks in your current and new business operations	B34. High costs of Customs administration, in exporting or importing (home market)
10	B32. Inadequate property rights protection (e.g. intellectual property) (home market)	B2. Unreliable market data (costs, prices, market shares)	B19. Establishing and maintaining trust with business partners

Source: ERIA SMEs Survey, 2009.

Table 5 shows the top 10 barriers for all samples, and for those which are both in and out of production networks. Based on means of a 5-point Likert scale assessment of 38 barriers, nine out of the top ten barriers among all responding SMEs are found to be external barriers. In particular, these top barriers are from two categories: (a) business environment barriers; and (b) tax and tariff and non-tariff barriers. The relative importance of these external barriers remains when firms are classified as those participating in or out of production networks. Overall, the responding firms perceived external barriers to be the most important in 2009. It should be noted that the top perceived SME barriers reflect higher shares of samples from the automotive and electronics, electrical, parts and machinery industries together. It is known that these industries are pro-cyclical. Sales were greatly affected by short-run shocks in income, a result of the 2008 global financial crisis. Their sales patterns were also vulnerable to changes in domestic macroeconomic conditions. Political uncertainty since the 2006 coup has exacerbated deteriorating economic conditions in Thailand, thereby adversely affecting their business. Business environment barriers thus mirrored current top barriers facing SMEs in these industries.

Table 5. Ranked Top-Ten Barriers Faced by SMEs from 1 (Very Significant) to 5 (Insignificant)

Rank	All sample	Production Network	
		In	Out
1	B33. Restrictive health, safety and technical standards (e.g. sanitary and phytosanitary requirements) (foreign market)	B28. Poor/deteriorating economic conditions (foreign market)	B33. Restrictive health, safety and technical standards (e.g. sanitary and phytosanitary requirements) (foreign market)
2	B30. Political instability (foreign market)	B30. Political instability (home market)	B30. Political instability (home market)
3	B28. Poor/deteriorating economic conditions (foreign market)	B30. Political instability (foreign market)	B33. Restrictive health, safety and technical standards (e.g. sanitary and phytosanitary requirements) (home market)
4	B32. Inadequate property rights protection (e.g. intellectual property) (foreign market)	B28. Poor/deteriorating economic conditions (home market)	B32. Inadequate property rights protection (e.g. intellectual property) (foreign market)
5	B34. High costs of Customs administration, in exporting or importing (foreign market)	B34. High costs of Customs administration, in exporting or importing (foreign market)	B13. Offering technical/after-sales service
6	B30. Political instability (home market)	B33. Restrictive health, safety and technical standards (e.g. sanitary and phytosanitary requirements) (foreign market)	B19. Establishing and maintaining trust with business partners
7	B28. Poor/deteriorating economic conditions (home market)	B31. High tax and tariff barriers (foreign market)	B28. Poor/deteriorating economic conditions (foreign market)
8	B31. High tax and tariff barriers (foreign market)	B32. Inadequate property rights protection (e.g. intellectual property) (foreign market)	B31. High tax and tariff barriers (foreign market)
9	B19. Establishing and maintaining trust with business partners	B11. Meeting product quality/standards/specifications	B22. Participation in promotional activities to target markets/business partners
10	B35. Perceived risks in your current and new business operations	B15. Difficulty in matching competitors' prices	B34. High costs of Customs administration, in exporting or importing (foreign market)

Source: ERIA SMEs Survey, 2009.

In addition, the responding firms were asked to rank all 8 barrier groups from 1 (extremely important) to 8 (least important) simultaneously. Table 6 shows the ranked groups of barriers faced by SMEs, classified by type of business and whether the firm is in or out of a production network. When classified by type of business, the top 4 groups of barriers are: (1) functional barriers, (2) product and price barriers, (3) distribution, logistics and promotion barriers, and (4) procedural barriers. Product and price barriers were ranked as the most important for the clothing and electronics industries, while the functional barriers were the most important for the automotive and parts industry.

Table 6(a). Ranked Group of Barriers Faced by SMEs from 1 (Highest) to 8 (Lowest) by Types of Business

Rank	Type of Business		
	Clothing	**Automotives**	**Electronics**
1	Product and price barriers	Functional barriers	Product and price barriers
2	Functional barriers	Product and price barriers	Distribution, logistics and promotion barriers
3	Distribution, logistics and promotion barriers	Distribution, logistics and promotion barriers	Functional barriers
4	Procedural barriers	Procedural barriers	Procedural barriers
5	Tax, tariff and non-tariff barriers	Informational barriers	Tax, tariff and non-tariff barriers
6	Informational barriers	Tax, tariff and non-tariff barriers	Informational barriers
7	Business environment barriers	Business environment barriers	Business environment barriers
8	Other barriers	Other barriers	Other barriers

Source: ERIA SMEs Survey, 2009.

Table 6(b). Ranked Group of Barriers Faced by SMEs from 1 (Highest) to 8 (Lowest) In / Out Production Networks

Rank	All Samples	Production Network	
		In	Out
1	Product and price barriers	Product and price barriers	Functional barriers
2	Functional barriers	Functional barriers	Product and price barriers
3	Distribution, logistics and promotion barriers	Distribution, logistics and promotion barriers	Distribution, logistics and promotion barriers
4	Procedural barriers	Procedural barriers	Tax, tariff and non-tariff barriers
5	Tax, tariff and non-tariff barriers	Informational barriers	Procedural barriers
6	Informational barriers	Tax, tariff and non-tariff barriers	Informational barriers
7	Business environment barriers	Business environment barriers	Business environment barriers
8	Other barriers	Other barriers	Other barriers

Source: ERIA SMEs Survey, 2009.

As for firms in production networks, the top-3 barriers are: (a) product and price barriers, (b) functional barriers, and (c) distribution, logistics and promotion barriers. These results from firms operating with production networks were not different from results from all samples combined. The results indicate the importance of product quality, standards and specifications. SMEs perceived some difficulties in meeting these requirements. The next important barrier among 'price barriers' was difficulty in matching competitors' prices. The lack of price competitiveness reflected rising domestic costs of production. Among the 'functional barriers', key barriers were: insufficient numbers of personnel for market expansion and lack of specialized expertise to deal with new business opportunities. Among the distribution and logistics barriers, SMEs stressed the importance of establishing and maintaining trust with business partners, and accessing new production chains.

Firms outside production networks feel more strongly about functional barriers, followed by product and price barriers, then distribution, logistics and promotion barriers. These results reflect current weaknesses of SMEs, in terms of insufficient manpower, and working capital for new business opportunities. Among product and price barriers, SMEs outside networks did not have to meet stringent product quality

requirements or other standards. Instead, they were more concerned about offering technical or after-sales services and meeting packaging and labeling requirements. SMEs outside networks were also concerned with logistical arrangements and problems associated with promotion to targeted consumers.

4. Characteristics of SMEs in Production Networks

From the results of the survey, this section identifies characteristics of firms in and outside networks. It examines whether there are salient characteristics of firms participating in production networks. Characteristics which are more likely to be found among firms in networks are postulated as follows: (1) larger firm size, (2) more years in business, (3) larger proportion of foreign ownership, (4) higher productivity, (5) fewer financial constraints, (6) firms located close to ports or within industrial estates, (7) firms with higher technological capabilities.

Due to the small number of samples participating in production networks, it is difficult to conduct rigorous statistical tests. However, some patterns can be identified by comparing frequencies of firms' characteristics as shown in Table 7. We found that, when compared to SMEs which are not in networks,

- Size: SMEs in automotive and electronics production networks were smaller in size, determined by numbers of employees.
- Age: Firms in automotive production networks were younger.
- Ownership: SMEs in electronics networks had a larger proportion of foreign ownership.
- Productivity: Firm productivity was measured by labor productivity, sales growth and profits. We found that SMEs in automotive networks had higher labor productivity. Sales growth was higher for firms in all 3 networks. Profits among firms in automotive and clothing networks were higher.
- Financial constraints: It is not clear if SMEs in the production networks had better financial positions, compared to those outside the networks. Sample firms outside

the networks were found to be strong and not vulnerable to poor economic conditions.

- Location: The results showed that firms in all production networks were located closer to ports, or tended to be located within an industrial estate.
- Technological capability: We measure technological capability in terms of skill intensity, which is defined as the ratio of employees with tertiary and vocational education to total employment. The findings showed that, in all 3 industries, SMEs in production networks were more skills-intensive.

Table 7. Frequency of Firm Characteristics by Status In and Out Production Network

Firm Characteristics	Frequency (%) by status	
	Out	In
Ownership		
Foreign share less than 0.2	0	7.69
Foreign share between 0.2 and 0.5	40	38.46
Foreign share between 0.5 and 0.8	0	7.69
Foreign share more than 0.8	60	46.15
Labor Productivity (1000 USD/worker)		
Less than 12.34	29.27	19.44
Between 12.34 and 20.98	26.83	22.22
Between 20.98 and 60.17	19.51	30.56
More than 60.17	24.39	27.78
Growth		
Less than -0.087	34.15	13.89
Between -0.087 and 0.078	21.95	30.56
Between 0.078 and 0.18	24.39	25
More than 0.18	19.51	30.56
Working Capital Source		
Retained Earnings	15.15	28.13
Bank	3.03	18.75
Other financial institutions	0	0
Others	81.82	53.13
Captial Expansion Source		
Retained Earnings	18.18	25.93
Bank	3.03	18.52
Other financial institutions	0	0
Others	78.79	55.56
Interest coverage ratio		
Less than 35.73	30.43	22.22
Between 35.73 and 72.56	26.09	22.22
Between 72.56 and 200.74	21.74	29.63
More than 200.74	21.74	25.93
Location: distance from port		
Less than 20 Km.	24.39	27.78
Between 20 and 36.4	29.27	16.67
Between 36.4 and 67.5	21.95	30.56
More than 67.5 Km.	24.39	25
Technological Capabilities: Skill intensity ratio		
Less than 0.097	36.59	13.89
Between 0.097 and 0.2	31.71	13.89
Between 0.2 and 0.39	17.07	36.11
More than 0.39	14.63	36.11

Source: Author's calculation.

Of all these characteristics, the most salient one for SMEs in production networks is their strong technological capabilities. The next prominent characteristic is firm efficiency, reflected by higher productivity. Also, higher profit and more sales by firms in the networks could also imply strong capabilities in areas other than production. Overall, stronger capabilities of SMEs are clearly among many key determinants for successful participation in networks. It can be argued that SMEs in networks receive a wide range of support from larger firms, making them more productive and technologically capable. However, knowledge transfer is not automatic, and depends largely on the absorptive capacity of the SMEs. It is likely that firms participating in the production networks must meet various requirements, and must be performing well, prior to joining the networks.

The next distinct characteristic for firms participating in production networks is their location. As with larger firms, SMEs in the production networks have a higher tendency to locate in industrial estates and close to ports. The major benefits of being located in industrial estates are low cost of transportation, lower cost of communication, and economies of scale in production (Poapongsakorn and Techakanont 2008).

So far, it is difficult to make a strong statement about the size, age and ownership characteristics of firms participating in production networks. Efficient firms could be smaller in size and/or younger.

In all, our findings indicate one strong conclusion. Firms participating in production networks, regardless of size or age, must keep up with latest technologies in production, management and organization. This implies that SMEs must be flexible and able to respond quickly to changes in market demand, or changes in the quality requirements of large firms. Participation in production networks requires SMEs to have competitive advantages in the areas of cost reduction, and speed and flexibility of delivery, as argued by Ernst and Kim (2002). This conclusion is consistent with the top-ranking perceived barriers facing SMEs in production networks, as discussed in the previous section. That is, Thai SMEs face some difficulty in meeting these stringent requirements by large firms, and have difficulty in matching competitors' prices.

5. SME Policies and Assessment of Current Government Support Programs

5.1. SME Policies[1]

Before 2000, Thailand did not have a basic law on SMEs which could give coordinated and explicit guidelines for the promotion and long-term development of SMEs. Instead, SME-related policies and measures were articulated and embodied in the National Economic and Social Development Plan and cabinet solutions. Various ministries then translated these policies into action plans. Due to a lack of coordinating agencies which could supervise the direction of SME development plans, and discontinued emphases of SME significance for economic growth in the national plan, government programs towards SME development were fragmented and weak during this period.

When the financial crisis occurred in 1997, reviving SMEs was seen as a good solution to stimulate the economy. Due to their growing importance as an economic and political force, policy formulation specifically for SMEs was called for. In 2000, the first SME Promotion Act was introduced. The Office of SMEs Promotion was set up in the same year as a coordination body among government agencies, working to develop SMEs. The main responsibilities of the new office are (a) Formulating an SME promotion master plan and SME promotional policies, (b) Preparing action plans for the promotion of regional/sector SMEs as well as micro and community enterprises, (c) Serving as the country's SME information center and the central organization in conducting research and studies on SME-related issues including an SME early warning system, (d) Developing information systems and networks to support the operation of SMEs, and (e) Administering the Venture Capital Fund (VC) for SMEs.

The First 2002-2006 SME Promotion Plan aimed to create more entrepreneurs and to enable SMEs to reach international standards. In particular, the plan aimed to enhance the efficiency of operations in SMEs' business as well as in other sectors, to

[1] This section borrows heavily from Punyasavatsut (2009).

create a business environment which would facilitate SMEs, improving market efficiency and competitiveness, and promoting grass-roots businesses so that they could play a more prominent role in income distribution and bring prosperity to the provinces.

In all, the government's first SME promotion policy has 3 main planks: investment promotion, financial assistance, and technical and management consultancy. Investment promotion for SMEs and large enterprises is operated under the supervision of the Board of Investment (BOI) agency. The BOI was established in 1977, under the Investment Promotion Act, as a tool to help promote foreign and domestic investment. In 2006, there were 582 SME investment projects approved by the BOI. Among these, 443 projects or 76.1% of the total, were approved for small enterprises. The value of SME investment projects promoted by the BOI was Bt 30,139 million in 2006. About 62.5% was for investment projects by small enterprises.

In compliance with the SME Promotion Act, the Small and Medium Enterprise Development Bank of Thailand, or SME Bank, was founded in 2002. The new SME bank is an upgrade of the Small Industry Finance Corporation, a small 50:50 financial joint venture between the government and the private sector. The SME bank then took on the role of assisting SMEs in securing sources of funding, preparing business plans, and providing advice on business operations.

In 2003, another key SME development in the first plan was the establishment of a venture capital fund worth Bt 5 billion, aimed at creating joint ventures with SME projects. The fund has worked in conjunction with an existing SME venture capital fund worth Bt 1 billion, established by the Democrat-led government. The latter is now managed by One Asset Management Corporation.

As for technical and management consultancy measures, the New Entrepreneurs Creation program (NEC), established under the Ministry of Industry in 2002, was another initiative intended to encourage people to create their own businesses. Under the NEC program, the SME bank provided business counseling and training to resolve problems and further develop participants' businesses. Combined with other measures, such as offering financial, production and marketing training as well as fund accessing advice, the plan had led to a gross increase of 226,757 new entrepreneurs, or an average of 44,550 per year during the plan. Although impressive, this figure was still behind the

target of 50,000 new entrepreneurs per year. During the whole plan, SME employment increased by 3.8 million persons, well above the target.

At the end of the first plan, SMEs' GDP accounted for 39.8% of aggregate GDP, a little below the target of 40%. In addition, growth in both SME value-added and exports was still below that of large enterprises. Judging from these key performance indicators, we could evaluate overall SME policies as being moderately successful. During this plan, government contributions to Thai SME development tended to focus on the areas of financial assistance, entrepreneurial activities, and access to information.

The current SME policy guideline is the Second SME Promotion Plan 2007-2011. The plan's vision is to promote SMEs to grow with continuity, strength and sustainability on the basis of knowledge and skills. In line with the first plan, the second plan aims to achieve three economic targets: for SMEs' share in GDP to become 42% during the plan; for SMEs' share of exports to grow on average faster than growth in total exports; and for total factor productivity of SMEs to increase by 3% per annum on average during the plan, including a growth in labor productivity to at least 5% per annum. The second plan continues to target some sectors for promotion, such as auto and electronic parts, software, logistics, healthcare, education, tourism, health-functional food, and rubber products.

Of the many measures employed in this plan, measures related to manufacturing SMEs include (1) product quality improvement; (2) establishing business incubators in regional and local areas; (3) trade fairs; (4) establishing exhibition centers for SMEs products throughout the country; (5) improving logistics or distribution channels; (6) creation of clustering and networks.

Many government offices and the private sector are involved in implementing the second plan. Besides formulating and evaluating the plan, the Office of SME Promotion (OSMEP) acts as the intermediary agency to propel and support the implementation of the plan. Government agencies involved in SME development implementation include the Ministry of Industry (MOI), Ministry of Commerce (MOC), Ministry of Tourism and Sports (MOTS), Ministry of Agriculture and Cooperatives (MOAC), and specialized agencies which focus on technological and human resource

development. For example, the SME Development Institute is responsible for training and development of the workforce.

There are also many supporting agencies involved in SME promotion. On financing, there are the SME Bank, and the Small Business Credit Guarantee Corporation providing credit and credit guarantees, as well as venture capital. On product standards, there are the Thai Industrial Standards Institute and the ISO Management System Certification Institute. On business consultation, there is the Office of SME Promotion. On business location, there is the Industrial Estate Authority of Thailand (IEAT), which promotes the establishment of industrial estates for SMEs. In addition, many private agencies are involved in implementing the SME promotion plan.

5.2. Assessment of Current Government Assistance and Support Programs

The previous section reports a wide range of government support measures for SMEs in Thailand. In practice, this government support, including assistance from non-government organizations, is not well distributed, and access to these services may be too costly for many SMEs. Thus, it is important to examine whether support is adequately provided and effective, in the view of SMEs.

The survey classifies all support and assistance into 8 categories: (a) Training; (2) Counseling and advice; (3) Technology development and transfer; (4) Information; (5) Business linkages and networking; (6) Financing; (7) Overall improvements in investment climate; and (8) Others. Details of assistance in each category are shown in the Appendix 1. Each of these supporting programs is rated in terms of its degree of adequacy and effectiveness, using the 5-point Likert scale from 1 (extremely effective) to 5 (least effective).

Of the 77 SMEs responding to the survey, more than 50% of them report receiving assistance or support in each category (Table 8). Among these categories, market information is the most accessible for firms, followed by business linkage and networking; training; counseling and advice; technology development and transfer; and overall improvement in investment climate. Financing is rated as the least accessible. About 82% of respondents report receiving market information, while only 42% report

receiving financing support from the government. Further analysis indicates that financial support favors larger firms over smaller firms.

Table 8. Assistances from Government, NGOs, and others

Types of Assistance from Government, NGOs, and others	% of firms receiving given assistances	% of firms rating them as effective
Market information	81.82	52.9
Business linkages and networking	74.03	57.1
Training	66.23	55.8
Counseling and advice	63.64	54
Technology development and transfer	55.84	56.1
Overall improvement in investment climate	50.65	62.5
Financing	41.56	43.6
Others	2.6	

Source: ERIA SMEs Survey, 2009.

More than half of the responding firms rate assistance they received between 'effective' and 'extremely effective'. The most effective programs, as evaluated by responding firms, are those for overall improvement in investment climate, followed by business linkages and networking programs, technology development and transfer programs, training, counseling and advice, market information, and financing.

The survey also revealed the overall perceived needs of SMEs in overcoming their barriers. Eight categories of assistance were presented to SMEs and rated. Table 9 shows that, during the period of the study, the responding firms viewed improving overall investment climate (e.g. political and macroeconomic stability, reduced corruption and bureaucratic barriers, fair competition, infrastructure etc.) as the most effective ways to overcome their barriers. This result is hardly surprising, and is likely to be specific to the time of this study. In 2009, Thailand has been in recovery from the 2008 global financial crisis and in domestic turmoil since 2006. The political instability, which leads to further deteriorating economic conditions, has proved to be very costly and is the biggest concern for businesses. Among assistance aimed at improving the investment and business environment, the greatest needs include the removal of

international trade barriers. In particular, non-tariff barriers such as restrictive health and safety, and technical, standards in foreign markets, were among the top-rated barriers facing exporting SMEs.

The next effective type of SME assistance was identified as programs focusing on helping firms to enhance technology development and transfer to SMEs, and programs providing information on markets. Despite the Thai government having put in place a variety of programs to help SMEs upgrade their technologies; the extent of support in this area seems to be quite limited. As shown earlier, assistance in this area was rated as 'not yet effective' and was less accessible by many SMEs. As for market information, programs focusing on improving more reliable market data and information for business partners were recommended, and perceived as the most effective and accessible ones. These results could imply that more government efforts and resources should be put into improving the technological capabilities of SMEs. Programs to provide access to market information were already quite effective, but can be extended to cover larger groups of SMEs.

Table 9(a). Ranked Perception of Assistances Faced by SMEs from 1 (Highest) to 8 (Lowest) In / Out Production Networks

Rank	All Sample	Production Network	
		In	Out
1	Overall improvement in business climate	Overall improvement in business climate	Technology development and transfer
2	Technology development and transfer	Technology development and transfer	Information
3	Information	Information	Overall improvement in business climate
4	Business linkage and networking	Business linkage and networking	Counseling/advice
5	Counseling/advice	Counseling/advice	Financing
6	Training	Training	Business linkage and networking
7	Financing	Financing	Training
8	Other	Other	Other

Source: ERIA SMEs Survey, 2009.

Table 9(b). Ranked Perception of Assistances Faced by SMEs from 1 (Highest) to 8 (Lowest) Types of Business

Rank	Type of Business		
	Clothing	**Automotives**	**Electronics**
1	Technology development and transfer	Technology development and transfer	Overall improvement in business climate
2	Overall improvement in business climate	Counseling/advice	Business linkage and networking
3	Information	Information	Information
4	Financing	Overall improvement in business climate	Technology development and transfer
5	Counseling/advice	Business linkage and networking	Training
6	Business linkage and networking	Training	Counseling/advice
7	Training	Financing	Financing
8	Other	Other barriers	Other barriers

Source: ERIA SMEs Survey, 2009.

The survey indicated that the top 3 perceived types of assistance were similar for all SMEs, regardless of their being in or out of production networks. They include improving business climate, technology development and transfer, and information on market and networks. Firms in production networks ranked the overall improvement in business climate as the most effective way of overcoming their business barriers. Firms outside production networks indicated government support for technology development and transfer to be the most effective assistance.

If we do not consider the need for improvements in investment climate, the results showed that SMEs in the clothing and automotive industries viewed government assistance with technology transfer and development to be the most important. This is followed by market information, and counseling and advice. As for electronics, firms viewed business linkages and networking as the most important, followed by market information and technology development and transfer. It is interesting that training and financing are always among the least important needs for all industries.

6. Conclusions and Policy Recommendation

Rapid advancement of global production networks in Southeast Asia has widened the opportunities for SME participation. These networks have provided international knowledge diffusion, supporting capability formation of domestic suppliers, including SMEs. Integration into networks, however, requires many prerequisites and a change in mindset among most SMEs, away from traditional ways of operating a business. With these requirements in mind, policies aiming at promoting business networks and alliances, and industrial clusters, have been given high priority in recent Thai SME and industrial policies. Absorptive capacities of local suppliers are also crucial for reaping the benefits of deepening networks. Thus, policy towards upgrading productivity and innovative capability in manufacturing SMEs has also been emphasized along with industrial cluster and network development policies.

Recent Thai measures relevant to the enhancement of clusters, networks and productivities include (a) promoting business alliances and SME clusters; (2) Supporting the utilization of technological infrastructure and promoting linkages between technology creators and users; (3) Improving efficiency and productivity through improved management and skills; (4) Promoting readiness for trade liberalization to mitigate unfavorable impacts; (5) Upgrading the quality and standards of products to correspond with market demands.

Programs and measures promoting networks and linkages have been implemented by many facilitating agencies. To create concerted programs, the Office of SME Promotion (OSMEP) acts as the intermediary unit. So far, it has been active in coordinating all parties involved in SME promotion. Various types of SME assistance from the government were rated as 'quite effective', except for financing. As far as business linkage and network creation are concerned, almost two-thirds of responding firms reported receiving such assistance. However, there remains much work to be done.

First of all, Thailand urgently needs to improve its investment climate. At the moment, a stable and secure investment in Thailand requires political stability and clarification of regulations and enforcement. The suspension of many investment

projects in the Map Ta Phut industrial estate, due to health and environmental concerns, is a case in point. To send the right signal, the Thai government needs to enforce requirements, so businesses have to comply. Tax incentives could also be used to help firms in achieving desired environmental standards economically.

Second, Thailand needs to strengthen the absorptive capacities of SMEs with special attention given to technological capability development, and dissemination to SMEs. Although various technological capability-building programs have been provided by the Thai government, the survey findings indicate that more government support is still needed in this area. In particular, firms in production networks report a stronger lack of such government support. In addition, there is more room to improve the accessibility and effectiveness of these government supporting programs. Technological upgrading of Thai SMEs thus provides a basis for deepening networks and sustained competitiveness.

Third, Thailand will also need to keep raising the size and quality of its science and technology workforce. Shortage of skilled workers and research personnel increases domestic costs, and results in more difficulties with network participation and business expansion among SMEs.

Fourth, Thailand needs proactive support for networking between large enterprises and SMEs. Previous supporting activities were mainly limited to awareness-building and matching SMEs with MNEs. To create more meaningful programs, joint programs with MNEs for assisting promising suppliers are recommended. Establishment of long-term MNE-SME relationships calls for a strong commitment and vision from the Thai government to enhance the competitiveness of potential suppliers. Programs to incentivize large companies to support local partners may be necessary and worthwhile. Spillover effects from MNE activities could justify program costs.

Future policies for strengthening business linkages and the absorptive capacities of domestic SMEs will need to be exercised in a better-coordinated manner. The challenge for Thai policymakers is to develop more understanding of the source of benefits from enhanced inter-firm networking and linkages, the contexts which help facilitate it, and the right policy instruments to create it.

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Appendix I: Complete Results of Each Barrier from Likert-Scale Ranking

Rank	Mean	S.D.	Barrier	Description
1	1.99	1.3	B33_2	Restrictive health, safety and technical standards (Foreign Market)
2	2.01	1.2	B30_2	Political instability (Foreign Market)
3	2.03	1.27	B28_2	Poor/deteriorating economic conditions (Foreign Market)
4	2.22	1.34	B32_2	Inadequate property rights protection (Foreign Market)
5	2.23	1.35	B34_2	High costs of Customs administration, in exporting or importing (Foreign Market)
6	2.23	1.36	B30_1	Political instability (Home Market)
7	2.26	1.33	B28_1	Poor/deteriorating economic conditions (Home Market)
8	2.26	1.43	B31_2	High tax and tariff barriers (Foreign Market)
9	2.32	1.03	B19	Establishing and maintaining trust with business partners
10	2.43	1.19	B35	Perceived risks in your current and business operations
11	2.44	1.33	B29_2	Inadequacy of basic and IT infrastructure (Foreign Market)
12	2.48	1.07	B11	Meeting product quality/standards/specifications
13	2.48	1.38	B34_1	High costs of Customs administration, in exporting or importing (Home Market)
14	2.49	1.05	B2	Unreliable market data (costs, prices, market shares)
15	2.49	1.08	B5	Insufficient quantity of and/or untrained personnel for market expansion
16	2.49	1.29	B33_1	Restrictive health, safety and technical standards (Home Market)
17	2.6	1.05	B10	Adapting to demanded product design/style
18	2.61	1.17	B13	Offering technical/after-sales service
19	2.61	1.04	B18	Accessing a new production chain
20	2.65	1.13	B22	Participation in promotional activities to target markets/business partners
21	2.66	1.28	B15	Difficulty in matching competitors' prices
22	2.68	1.01	B9	Developing new products
23	2.69	1.28	B25	Lack of home government assistance/incentives
24	2.69	1.18	B21	Excess transportation/insurance costs
25	2.7	1.03	B36	Lack of the perceived benefits from joining production networks
26	2.71	1.27	B32_1	Inadequate property rights protection (Home Market)

27	2.71	1.16	B14	Offering competitive prices to customers
28	2.71	1.2	B1	Limited Information to locate/ analyze markets/ business partners
29	2.73	1.37	B31_1	High tax and tariff barriers (Home Market)
30	2.79	1.02	B29_1	Inadequacy of basic and IT infrastructure (Home Market)
31	2.82	1.08	B37	Willingness to adopt new business strategy or ideas
32	2.82	1.1	B16	Anti-competitive or informal practices
33	2.83	1.09	B6	Lack of production capacity to expand
34	2.83	1.2	B27	Unfavorable host/foreign rules and regulations
35	2.9	1.1	B17	Complexity of production value chain
36	2.95	1.24	B26	Unfavorable home rules and regulations
37	2.97	1.14	B24	Difficulties on enforcing contracts and resolving disputes
38	3	1.09	B12	Meeting packaging/labeling requirements
39	3.03	1.38	B7	Shortage of working capital to finance new business plan
40	3.04	1.04	B3	Inability to indentify and contact potential business partners
41	3.06	0.99	B4	Lack of managerial time to identify new business opportunities
42	3.06	1.17	B23	Unfamiliarity with complexity of procedures/paperwork
43	3.13	1.42	B8	Difficulty in getting credit from suppliers and financial institutions
44	3.38	1.41	B20	Unavailability of inventories/warehousing facilities

Source: ERIA SMEs Survey, 2009.