Chapter 11

Integrating SMEs into the East Asian Region: The Philippines

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CHAPTER 11

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The paper aims to examine the characteristics and factors that constrain the growth of SMEs operating both within and outside production networks. Based on a survey of 101 firms, the analysis shows that SMEs are not homogeneous. While they share certain characteristics such as age, Filipino ownership and foreign equity share; they differ in terms of performance, export intensity, interest rates on borrowings, major sources of finance, and other economic indicators. The results also show that participation in IPNs benefits SMEs, particularly parts and components makers in the electronics and auto industries. In terms of performance, IPN firms have higher mean growth rates and mean labor productivity than non-IPN firms. In terms of barriers to growth, IPN firms are primarily concerned with product and price barriers and difficulties in establishing and maintaining trust with business partners while non-IPN firms' major concerns are tax, tariff and non-tariff barriers and the country's deteriorating business environment. Two themes dominate SMEs' concerns about the type of assistance needed. For IPN firms, financing assistance is crucial while for non-IPN firms, technology development is the most important.

[1] The firm survey used in the paper was carried out by the National Statistics Office (NSO) under the leadership of Ms. Estela de Guzman, Director, Industry and Trade Statistics Department, Ms. Dulce Regala, Chief, Industry Statistics Division and Ms. Lourdes Homecillo, Regional Director, National Capital Region. The very valuable contribution made by the NSO team is gratefully acknowledged.

1. Introduction

The past two decades have witnessed the deepening of economic integration among countries as restrictions on the free flow of trade and investment are removed and globalization forces are heightened. In more recent years, however, the uncertainty surrounding the successful conclusion of the World Trade Organization (WTO)'s multilateral trade negotiations has led to a new wave of regionalism through the surge in free trade agreements (FTAs). In the Asia Pacific region, for instance, the number of FTAs increased substantially from 54 in 2000 to 216 as of June 2009 (ADB Asia Regional Integration Center http://www.aric.adb.org/1.php accessed on Jan. 6, 2010).

Apart from enacting FTAs with Japan, China and Korea; the Association of Southeast Asian Nations (ASEAN) has been actively engaged in negotiating FTAs with Australia-New Zealand and India and considering negotiations with the EU. ASEAN members like Thailand and Singapore are aggressive in seeking bilateral FTAs. China has suggested the creation of an East Asian FTA with ASEAN, China, Japan and Korea (ASEAN plus 3), while Japan proposed the creation of a larger FTA in East Asia to include Australia, New Zealand and India, known as ASEAN Plus 6 or Comprehensive Economic Partnership of East Asia (CEPEA).

Amid the ongoing regional integration in ASEAN and East Asia, it is crucial to understand both the opportunities and challenges arising from this trend of increasing regionalization and how this will affect the growth and development of small and medium enterprises (SMEs). Given their substantial contribution to the economy, SMEs play a critical role in the economic growth and industrial development of developing countries. It is also important to note that the remarkable economic growth in the East Asian region has been accompanied by de facto economic integration driven largely by the development of international and regional production networks (IPNs and RPNs) and distribution networks. In light of rising globalization and increasing economic integration in East Asia, SMEs are seen as potential suppliers of outsourced parts and services and could provide a link to the export sector and/ or RPNs which have increasingly grown in manufacturing sectors such as automotive, machinery, electronics and garments.

In the Philippines, micro and small and medium enterprises comprise 99 percent of all manufacturing enterprises and any improvement in their capabilities is important both economically and socially. Understanding how SMEs could be integrated into the whole process of regional integration, particularly with regard to how best they should increase their participation in regional production networks, is crucial in the formulation of policies for the growth and development of SMEs not only at a national level but also at a regional level.

The main objective of the study is to closely examine the constraints to SME growth and understand the factors affecting their participation in IPNs. SME literature in the Philippines abounds with studies focusing on the analysis of various SME government policies and programs covering issues related to finance, technology, export promotion, marketing, logistics and human resource development and training. However, there are only a limited number of studies focusing on SME participation in regional production networks and analysis of the impact of free trade agreements on SMEs.

This paper contributes to the existing literature by differentiating between the characteristics and constraints faced by firms that are operating within IPNs and those operating outside of them. It will examine the characteristics and review the factors affecting the growth of the two groups and identify the major factors affecting their participation in production networks. In the analysis, both internal and external factors will be analyzed. Internal factors refer to firm-level variables affecting operations and performance and which are associated with the firm's organizational resources and capabilities. External factors are those affecting the domestic environment within which the firm operates, such as government policies and programs, infrastructure, logistic support and other business environment factors.

A survey is conducted to gather firm level information on constraints to SME growth and factors that determine successful participation in regional production networks. The following industries are covered in the survey: electronics, automotive and transport, garments, and food manufacturing and processing.

The paper is divided into six sections. Following the introduction, section two discusses the current state of Philippine SMEs in the manufacturing industry in terms of structure, performance and major constraints to growth and development. Section three

presents the extent of SME participation in three RPN industries: electronics, automotive and garments. Section four presents the major findings on the internal and external barriers that SMEs face while section five provides an in-depth analysis of the results focusing on the constraints to growth and factors affecting SME participation in RPNs. Section six summarizes the major findings and policy implications of the paper.

2. SMEs in the Philippine Manufacturing Industry

2.1. Structure and Economic Performance

There are two operational definitions of small and medium enterprises in the Philippines: one is employment-based whilst the other is asset-based. Based on the National Statistics Office (NSO) and Small and Medium Enterprise Development Council Resolution No. 1 Series 2003, the different size categories of enterprises are defined as:

Small enterprises : 10-99 employees
Medium : 100-199 employees
Large : 200 or more employees

Enterprises with 1-9 workers are considered as micro enterprises.

In terms of total assets, the size categories are defined as:

Small enterprises : P3-15 million
Medium : P15-100 million
Large : P100 or more

Enterprises with P3 million or less are classified as micro-enterprises. The employment-based definition will be adopted in the paper.

In terms of the number of enterprises, micro and small and medium enterprises (MSMEs) dominate the economy and accounted for almost 99.7% of the total number of establishments in 2006 (see Table 1, last row). Micro-enterprises are more predominant than small and medium enterprises. Geographically, both micro and SMEs are highly concentrated in the National Capital Region (NCR) and the Calabarzon area.

Table 1. Number of Establishment in the Philippines by Side and Industry, 2006

Industry Sector (1)	TOTAL (2)	% (3)	MICRO (4)	% (5)	SMEs (6)	% (7)	LARGE (8)	% (9)
Agriculture, Hunting & Forestry	4199	0.5	2631	0.4	1447	2.4	121	4.7
Fishery	1447	0.2	890	0.1	529	0.9	28	1.1
Mining and Quarrying	319	0.0	217	0.0	87	0.1	15	0.6
Manufacturing	117346	15.0	105083	14.6	11278	18.7	985	37.9
Electricity, Gas and Water	1399	0.2	559	0.1	736	1.2	104	4.0
Construction	2488	0.3	1352	0.2	1063	1.8	73	2.8
Wholesale and Retail Trade	391448	50.0	373721	51.9	17494	29.0	233	9.0
Hotels and Restaurants	97975	12.5	90121	12.5	7805	12.9	49	1.9
Transport, Storage & Communications	9405	1.2	7035	1.0	2256	3.7	114	4.4
Financial Intermediation	23312	3.0	18679	2.6	4524	7.5	109	4.2
Real Estate, Renting & Business Activities	45722	5.8	40936	5.7	4357	7.2	429	16.5
Education	11857	1.5	6699	0.9	4952	8.2	206	7.9
Health and Social Work	31443	4.0	29996	4.2	1364	2.3	83	3.2
Community, Social & Personal Service Activities	44705	5.7	42272	5.9	2386	4.0	47	1.8
TOTAL	783065	100.0	720191	100.0	60278	100.0	2596	100.0
% of TOTAL	100.0		92.0		7.7		0.3	

In terms of distribution by sector, most enterprises are in the wholesale and retail trade sector, notably in the micro category. As Table 1 (column 3) shows, this sector accounted for 50 percent of the total number of establishments, followed by manufacturing with a share of 15 percent. Hotels and restaurants are third with a share of 13 percent.

Among SMEs, wholesale and retail trade also dominates with a share of 29 percent, followed by manufacturing with a share of 19 percent of the total number of SMEs (see Table 1, column 7). On the other hand, among large enterprises, manufacturing comprised the bulk at 38 percent of the total number (see column 9).

In terms of employment, Table 2 shows that SMEs contributed 33 percent of the total number of workers in all enterprises. Manufacturing and wholesale and retail trade accounted for approximately the same share at 8 percent each. Among large enterprises, manufacturing jobs also comprised the bulk with a share of 15 percent of the total. Meanwhile, for micro-enterprises, jobs generated by the wholesale and retail trade consisted of the bulk with a share of 16 percent while manufacturing jobs contributed only 5 percent of the total.

Table 2. Employment Distribution by Sector, 2006

Industry Sector	TOTAL	%	MICRO	%	SMEs	%	LARGE	%
Agriculture, Hunting and Forestry	143592	2.9	9970	0.2	50054	1.0	83568	1.7
Fishery	30978	0.6	3269	0.1	13771	0.3	13938	0.3
Mining and Quarrying	14845	0.3	850	0.0	2675	0.1	11320	0.2
Manufacturing	1372911	27.5	259664	5.2	385263	7.7	727984	14.6
Electricity, Gas and Water	83536	1.7	2717	0.1	33831	0.7	46988	0.9
Construction	94101	1.9	5528	0.1	36958	0.7	51615	1.0
Wholesale and Retail Trade	1283494	25.7	790398	15.9	391127	7.8	101969	2.0
Hotels and Restaurants	448747	9.0	227978	4.6	199175	4.0	21594	0.4
Transport, Storage and	185184	3.7	25928	0.5	67087	1.3	92169	1.8
Communications		0.0		0.0		0.0		0.0
Financial Intermediation	258864	5.2	70944	1.4	90417	1.8	97503	2.0
Real Estate, Renting and	493609	9.9	99752	2.0	142370	2.9	251487	5.0
Business Activities		0.0		0.0		0.0		0.0
Education		0.0		0.0		0.0		0.0
	270330	5.4	26678	0.5	153587	3.1	90065	1.8
Health and Social Work	133645	2.7	48718	1.0	44560	0.9	40367	0.8
Other Community, Social and Personal Service Activities	171047	3.4	95430	1.9	49156	1.0	26461	0.5
TOTAL	4984883	100.0	1667824	33.5	1660031	33.3	1657028	33.2

Within the manufacturing industry, the large bulk of Philippine enterprises are micro-enterprises, which comprised 90% of the total in 2006, while SMEs and large enterprises accounted for 10% and 1% of the total number of manufacturing enterprises, respectively (see Table 3). Firms in the food and beverage sector dominated with a share of 47% followed by wearing apparel (13%) and fabricated metal products excluding machinery and equipment (11%).

Table 3. Number of Establishments in Manufacturing, 2006

Manufacturing Sub-sector	Total	%	Micro	%	SMEs	%	Large	%
Food Products and Beverages	55189	47.03	51882	44.21	3125	2.66	182	0.16
Tobacco Products	26	0.02			15	0.01	11	0.01
Textiles	1497	1.28	1122	0.96	342	0.29	33	0.03
Manufacture of Wearing Apparel	15759	13.43	14379	12.25	1244	1.06	136	0.12
Tanning and Dressing of Leather, Manufacture of Luggage, Handbags and Footwear	1590	1.35	1240	1.06	333	0.28	17	0.01
Wood, Wood Products and Cork, Except Furniture; Articles of Bamboo, Cane, Rattan and the like; Plaiting Materials	3440	2.93	3004	2.56	416	0.35	20	0.02
Paper and Paper Products	559	0.48	252	0.21	285	0.24	22	0.02
Publishing, Printing and Reproduction of Recorded Media	3887	3.31	3023	2.58	850	0.72	14	0.01
Coke, Refined Petroleum and Other Fuel Products	18	0.02			15	0.01	3	0.00
Chemicals and Chemical Products	1133	0.97	485	0.41	601	0.51	47	0.04
Rubber and Plastic Products	1291	1.10	651	0.55	589	0.50	51	0.04
Other Non-Metallic Mineral Products	5179	4.41	4693	4.00	450	0.38	36	0.03
Basic Metals	1050	0.89	658	0.56	361	0.31	31	0.03
Fabricated Metal Products except Machinery and Equipment	13024	11.10	12304	10.49	682	0.58	38	0.03
Machinery and Equipment Not Elsewhere Classified	3020	2.57	2428	2.07	570	0.49	22	0.02
Office, Accounting and Computing Machinery	73	0.06	9	0.01	43	0.04	21	0.02
Electrical Machinery and Apparatus, Not Elsewhere Classified	290	0.25	67	0.06	183	0.16	40	0.03
Radio, Television and Communication Equipment and Apparatus	263	0.22	24	0.02	119	0.10	120	0.10
Medical Precision and Optical Instruments, Watches and Clocks	122	0.10	42	0.04	55	0.05	25	0.02
Motor Vehicles, Trailers and Semi-Trailers	703	0.60	536	0.46	139	0.12	28	0.02
Other Transport Equipment	425	0.36	330	0.28	82	0.07	13	0.01
Manufacture and Repair of Furniture	7227	6.16	6624	5.64	564	0.48	39	0.03
Recycling	92	0.08	58	0.05	34	0.03	0	0.00
Manufacturing, Not Elsewhere Classified	1489	1.27	1263	1.08	207	0.18	19	0.02
Total	117346	100.00	105074	89.54	11304	9.63	968	0.82

Table 4 indicates that from 1999 up to 2006, the total number of SMEs in manufacturing declined from 15,748 to 11,278. The share of SMEs to the total also

dropped from 12% in 1999 to just 9.6% in 2006. Table 5 shows that in terms of employment contribution, the number of workers in SMEs also declined between 1999 and 2006 from 516,506 workers to 385,263. The share of SMEs declined from 31% in 1999 to 28% in 2006.

Table 4. Number of Manufacturing Enterprises in the Philippines

Year	MICRO	%	SMEs	%	LARGE	%	TOTAL
1999	113861	87.0	15748	12.0	1322	1.0	130931
2000	108998	86.9	15231	12.1	1238	1.0	125467
2001	108986	88.0	13615	11.0	1194	1.0	123795
2002	108847	88.5	13148	10.7	982	0.8	122977
2003	107398	88.6	12763	10.5	1024	0.8	121184
2004	103926	88.0	13081	11.1	1120	0.9	118127
2005	103982	88.6	12392	10.6	1008	0.9	117382
2006	105083	89.5	11278	9.6	985	0.8	117346

Table 5. Manufacturing Employment by Size

Year	MICRO	%	SMEs	%	LARGE	%	TOTAL
1999	366689	21.9	516506	30.8	791277	47.3	1674472
2000	354025	22.3	505062	31.8	730127	45.9	1589214
2001	353415	23.0	446600	29.1	734088	47.9	1534103
2002	353255	24.1	437490	29.8	676443	46.1	1467188
2003	360576	24.7	403923	27.6	698173	47.7	1462672
2004	327112	21.3	432869	28.2	775969	50.5	1535950
2005	323510	22.1	408100	27.9	731736	50.0	1463346
2006	259664	18.9	385263	28.1	727984	53.0	1372911

	Number of Firms		Employment	
Year	SMALL	MEDIUM	SMALL	MEDIUM
1999	14611	1137	361514	154992
2000	14121	1110	354328	150734
2001	12627	988	309952	136648
2002	12128	1020	294487	143003
2003	11910	853	285027	118896
2004	12116	965	299788	133081
2005	11352	1040	270344	137756
2006	10274	1004	252931	132332

In terms of value added, the share of small and medium enterprises (SMEs) increased from 23 percent of the total manufacturing value added in 1994 to 28 percent in 1998 (see Table 6). However, this fell to 21 percent in 2003. Large firms contributed 79 percent of the total, a slight increase on the 72 percent contribution made in 1998.

Table 6. Value Added Contribution 1994, 1998 and 2003 (in percent)

Year	1994		1998		2003		2006*	
Establishment Size	SMEs	Large	SMEs	Large	SMEs	Large	SMEs	Large
Total	23	77	28	72	21	79	20	80
Value Added current prices (in billion P)	324.2		664.2		738.95		688.06	

Note: 2006 Data covered only the formal sector of the economy.

Table 7 presents the contribution of the different manufacturing sub-sectors to total value added in 2003. Among SMEs, the largest contribution was posted by the food processing and manufacturing sub-sector with a share of just under 21 percent. This is followed by industrial chemicals and other chemicals with a share of 16 percent. Non-electrical and electrical machinery is next with a share of around 10 percent. Transport and garments registered the same share of about 5 percent each.

Table 7. Manufacturing Value Added by Establishment Size (in %), 2003

Code		Micro	SMEs	Large	Total
2003	Total (in million pesos)	24297.56	155072.30	583877.92	763247.77
2006*		5965.04	138869.30	549186.78	694021.12
311	Food Processing	9.96	10.12	7.81	8.35
312	Food Manufacturing	24.56	10.76	5.45	7.13
313	Beverages	4.54	5.23	6.29	6.02
314	Tobacco	0.00	0.05	2.99	2.30
321	Textiles	0.40	3.43	1.15	1.59
322	Wearing Apparel except Footwr	13.65	4.70	2.82	3.55
323	Leather and Leather Products	0.03	0.35	0.68	0.59
324	Leather Footwear	3.05	0.24	0.04	0.17
331	Wood and Cork Products	3.37	1.95	0.38	0.79
332	Furniture except Metal	6.01	3.11	0.45	1.17
341	Paper and Paper Products	0.16	4.05	1.25	1.78
342	Printing and Publishing	5.29	2.94	0.65	1.26
351	Industrial Chemicals	0.60	8.99	1.29	2.83
352	Other Chemicals	1.01	7.21	6.86	6.75
353	Petroleum Refineries	0.00	0.00	18.38	14.06
354	Petroleum and Coal Products	0.03	0.10	0.00	0.02
355	Rubber Products	3.20	1.05	0.66	0.82
356	Plastic Products	0.63	4.54	1.22	1.87
361	Pottery, China and Earthenware	0.25	0.35	0.32	0.32
362	Glass and Glass Products	0.04	0.85	0.64	0.66
363	Cement	0.00	0.03	2.32	1.78
369	Other Nonmetallic Mineral Prods	3.76	1.99	0.42	0.85
371	Iron and Steel	1.02	4.41	0.88	1.60
372	Nonferrous Metal Products	0.03	1.01	1.16	1.10
381	Fabricated Metal Products	11.20	4.36	1.09	2.08
382	Machinery except Electrical	3.66	2.90	6.82	5.93
383	Electrical Machinery	0.49	6.90	20.14	16.82
384	Transport Equipment	1.98	4.81	5.56	5.29
385	Professional and Scientific Eqpt	0.10	0.53	1.78	1.47
390	Miscellaneous Manufacture	0.98	3.05	0.50	1.03
	Total Share (in %)	100	100	100	100

Note: 2006 data covered only the formal sector of the economy.

Table 8 presents labor productivity as measured by value added per worker in the manufacturing industry for the years 1994, 1998 and 2003. On the whole, though an increase in the labor productivity of both SMEs and large enterprises was registered between the years 1994 and 1998, both fell in 2003. For SMEs, labor productivity dropped from P139,000 to P97,000 while for large enterprises, labor productivity declined from P227,000 to P211,000.

Table 8. Labor Productivity, 1994, 1998, 2003 and 2006

Year	1994		1998		2003		2006*	
Establishment Size	SMEs	Large	SMEs	Large	SMEs	Large	SMEs	Large
Labor Productivity In million pesos at 1985 prices	0.11	0.196	0.139	0.227	0.097	0.211	0.064	0.118

Note: 2006 Data covered only the formal sector of the economy.

In general, the labor productivity of SMEs has remained at only about half that of large enterprises. Some narrowing of the gap was evident in 2003 although SMEs continue to suffer from low productivity. According to the World Bank (2004), the value added per worker relative to all firms was approximately 46% in the Philippines as compared to 64% in Indonesia, 65% in Malaysia and 84% in Thailand.

2.2 Constraints to Growth and Development: Survey of Philippine Literature

Philippine SME studies have continued to highlight the same major constraints that affect SME development everywhere such as access to finance, technology and skills along with information gaps and difficulties with product quality and marketing (FINEX and ACERD; Tecson, 2004; Fukumoto, 2004). These studies show that lack of access to financing is the most significant constraint to SME growth. As the FINEX and ACERD Study argued, the problem seems to lie not in the supply of funds potentially available for SME lending but in the difficulty of access to these funds. In theory, there should be sufficient funds for SME financing since banks are required by law to allocate 8 percent of their loan portfolios to SME financing. At the same time, government financial institutions have their own SME financing programs. Nevertheless, private banks are reluctant to lend to SMEs because of their general aversion to dealing with a larger number of smaller accounts. Moreover, many banks are still unfamiliar with lending to small businesses. Many SMEs cannot access available funds due to their limited track record, limited acceptable collateral and inadequate financial statements and business plans. Based on a survey of MSMEs, Tecson (2004) noted that SMEs complained that banks still considered their projects bankability rather than viability leading them to rely on collateral lending.

Banks appear to be generally complying with the mandatory lending to SMEs with the total compliance rate reaching almost 29 percent in 2002. However, anecdotal evidence shows that much of these funds do not actually go to SMEs but to large firms that deliberately understate their assets in order to be classified as medium enterprises. According to the FINEX and ACERD study, these loan funds, particularly from large banks and financial institutions, hardly benefited small firms at all. On the other hand, much of the funds from government-sponsored lending programs are directed not to real SMEs but more toward livelihood and micro-enterprise projects, many of which fail to grow.

The country's underdeveloped financial markets represent a formidable barrier not just to the entry of new enterprises but also to the growth prospects of small and medium-sized firms. The absence of an extensive, liquid peso financial market contributes to the high cost of investment and makes it more difficult for enterprises to expand. It should be noted, however, that financing constraints do not affect all firms equally, with access to financial credit being a particular problem affecting SMEs (Maxwell Stamp PLC, 2001). Based on a survey of SMEs, Hapitan (2005) concluded that SMEs still face difficulties in credit access, particularly from foreign banks. This, the study found, is the result of accessibility problems in terms of branch location and the absence of information on the availability of credit facilities.

It should also be noted that the experience of Philippines Planters Development Bank, a private bank geared towards SMEs, shows that these challenges can be overcome (Aldaba 2008). In lending to SMEs, Planters went beyond banking by providing non-financial services to help its SME clients strengthen their operations which included assistance in preparing accounting records, business advice and networking. Planters customized and designed its products and services to suit the needs of SMEs. It simplified its loan documentation procedures and customized loans to match borrowers' cash flow.

Many firms lack technological know-how with most SMEs employing poor or low levels of technology. Most small enterprises are labor-intensive, while medium-sized ones are relatively more technology-intensive. With low levels of technology, the production methods are generally inefficient which leads to inconsistent product quality,

low levels of productivity and lack of competitiveness. This is also manifested in high materials wastage, high rates of reworks and an inability to meet deadlines.

The issue of product quality and quality assurance of raw materials would be better addressed if more firms followed certified methods and underwent performance or quality testing. However, there is a lack of common support facilities like testing centers and standardization agencies, whether government or private-sector led. With respect to quality management systems standards such as the ISO series, SMEs do not invest in these business standards due to the high costs involved along with the high degree of formalization and documentation required.

SMEs are also confronted with supply chain management problems from the sourcing of their raw materials to problems in processing, packaging and distribution. They also find it hard and more costly to access raw materials and inputs primarily due to the universal problem of sourcing and transporting raw materials which can be attributed to infrastructure and communication problems. Government tariff policy also raises the costs of their key intermediate inputs.

Tecson (2004) identified other barriers to SME growth such as difficulties in registering their businesses along with Customs practices, particularly, long delays in the clearing of imports and in registering. Tecson also suggested that MSMEs could benefit from better flow of information. Fukumoto (2004) added that most SMEs in the Philippines suffer from a lack of skilled labor, limited market access, a lack of information about market opportunities and insufficient technical training. These constraints together with a lack of adequate financial sources explain why SMEs in the country have low levels of productivity and why their performance has not been vigorous enough to boost the manufacturing industry in particular and the economy in general.

3. SME Participation in Production Networks: Experiences of the Philippine Auto, Electronics and Garment Industries

Due to the rise in globalization and economic integration, a new form of industrial organization, known as international or regional production networks, has emerged. In order to become more efficient, multinational corporations (MNCs) fragment their production process generally by separating the capital-intensive segments from the labor-intensive ones with the latter being transferred to developing countries. MNCs have established these production networks with domestic firms, particularly small and medium enterprises, serving as potential suppliers of outsourced parts or services. This phenomenon is characterized by the export of parts, components, capital equipment and other industrial inputs to be assembled into finished goods for export to the outside world. By fragmenting the multinationals' production processes into different sub-processes located in different economies based on comparative advantage, Kawai (2004) notes that these production networks have promoted the specialization of production in East Asia.

Participation in regional/ global production networks provides domestic firms not only access to export markets but to newer technologies as well. To increase their overall competitiveness in international markets, leading multinational firms provide their local affiliates and local suppliers with more rapid technological upgrading and greater attention to quality control, cost control and human resource development. All these factors can generate substantial positive spillovers and externalities.

Global/ regional production networks have increasingly grown in sectors such as automotive, machinery, electronics and garments. One of the major objectives of the ASEAN Economic Community (AEC) is to deepen economic integration among the ASEAN Member Countries through the establishment of a region-wide production base. Regional production networks, which are at the heart of intra-regional trade and investment flows, are the key drivers of economic growth in ASEAN together with its integration with the East Asian region.

3.1. Auto

In the Philippines, affiliates of Japanese automakers Toyota, Mitsubishi, Honda and Isuzu as well as the American firm, Ford, have established their presence in the domestic market. Only Ford has made the country an export platform for its passenger cars. Toyota[2], on the other hand has designated the Philippines as its manual transmission export hub. Auto parts such as wiring harnesses and transmissions are among the country's major exports. Auto part exports are made by large MNCs like Toyota Auto Parts, Fujitsu Ten, Yazaki, IWS (Sumitomo Electric), PAC (Denso), AFC (Aichi Steel), JECO, TRP (Tokai Rika), HKR and Technol Eight. However, backward linkages are limited because these exports are labor-intensive and highly import-dependent. The link of MNCs to the domestic economy is limited and thus, the value added of these exports is low.

The parts and components segment of the automotive industry is composed of 256[3] companies producing around 330 different parts and components made of metals, plastic, rubber and composite materials for both the original equipment manufacturers (OEM) and replacement markets. Of the 256 automotive parts manufacturers, 124 are considered first-tier manufacturers directly supplying the needs of domestic automotive assemblers. The remaining 132 are mostly small and medium enterprises (SMEs) serving as second and third tier sub-contractors who supply the needs of the first-tier manufacturers.

The bulk of the parts and components industry is composed of small firms with capitalization ranging from P0.5 to P5 million. Most of these firms operate as "mom-and-pop" style suppliers with varying capabilities and some significant quality problems. These firms have failed to develop as they do not possess the necessary capital or technological know-how required to improve their products. Large firms with capitalization of more than P100 million account for only about seven percent of the industry. They comprise the major players in the industry and are the same

[2] Under Toyota's Innovative Multi-Purpose Vehicle (IMV) Project, Toyota upgraded and expanded plants in Thailand (Toyota Motor Thailand or TMT), Indonesia (PT Toyota Motor Manufacturing Indonesia or TMMIN), Argentina and South Africa and turned them into assembly and export bases for a line of innovative IMVs.

[3] Recently, the automotive parts industry announced that this was already reduced to only 131 firms.

companies manufacturing parts for OEM car assemblers and engaged in exporting activities.[4]

The linkage between the automotive assembly sector and local parts and components has remained weak. After almost three decades of import substitution which has been centred on local content policy, a large portion of the parts and components industry still remains underdeveloped. At best, the local content program has had only a limited impact on the growth and development of the parts and components industry. Very few parts and components are locally sourced with the domestic parts sector accounting for only 10 to 15 percent of the total number of parts and components required by local motor vehicle assemblers. In contrast, the Thai auto industry sources close to 85-90 percent of its parts domestically. Studies have cited the following reasons to explain why the government's local content program has failed to develop the parts manufacturing sector as a world-class export sector: (i) lack of locally manufactured raw materials, hence many of the raw materials used by components manufacturers are imported; (ii) low productivity and lack of quality measures among small and medium parts makers; (iii) outdated equipment and technology, many manufacturers are using technologies that are more than 20 years out-of-date; and (iv) lack of mold design technology and tool and die making equipment.

To improve the competitiveness of suppliers of parts and other inputs, multinational affiliates together with the government are pursuing programs to develop the creation of backward linkages between their companies and domestic suppliers. In the automotive industry, an attempt to enhance the productivity of local auto parts suppliers is being made through a public-private program called ECOP-Big Enterprise Small Enterprise (EBESE). Toyota Motors Philippines is the most active participating company. EBESE

[4] The major players in the automotive components manufacturing sector are Yazaki-Torres Manufacturing Corp., United Technologies Automotive Phils., Temic Automotive (Phils.) Inc., Honda Engine Manufacturing Phils.,Inc., Asian Transmission Corp., Toyota Autoparts Phils., Fujitsu Ten Corp. of the Phils. and Aichi Forging Co., Inc.. Other manufacturers with a proven track record in both OEM and replacement markets include International Wiring Systems Corp.; Honda Parts Manufacturing Corp., Isuzu Auto Parts Manufacturing Corp., Philippine Aluminum Wheels Inc., Enkei Phils. Inc., Kosei Inc., Roberts Automotive & Industrial Parts Manufacturing Corp., Goodyear Phils., Inc and Othsuka Poly-Tech Phils., Inc.

is a partnership among the Employers' Confederation of the Philippines (ECOP), Department of Science & Technology (DOST) and Department of Trade & Industry (DTI).

3.2. Electronics

Production networks are also found in the machinery, electrical goods and electronic parts and components industries. Electronics comprise the bulk of total exports with an average share of 65 percent in the 2000s. Like the auto parts industry, this sector is confronted with the same problem of limited backward linkages. There are 865 electronics companies in the country, 72 percent are MNCs. These are located in special economic zones. A critical mass has been created through the presence of large American, European, Japanese, Korean and Taiwanese companies like Intel[5], Texas Instruments, Philips, Sony, Toshiba, Hitachi, Fujitsu, Samsung, Goldstar and Acer.

The industry's exports are mainly concentrated in semiconductor assembly, packaging and testing (APT). From the viewpoint of participation in the electronics industry value added chain, the Philippines operates in a very narrow range. Agarwalla (2005) estimated the country's participation to be less than 15%. Apart from APT, the industry participates peripherally in printed circuit board assembly and enclosures (plastics, sheet, metal, etc). This narrow participation leaves the country vulnerable to dwindling participation in the global electronics industry and stagnation, even in the semiconductor APT. It also limits the opportunities for spillovers into the local economy. Unless the country participates in other segments of the value chain, it would be difficult for us to anticipate a significant increase in its profitable participation in the global electronics industry.

Studies have shown that the country's participation in the global production network has hardly progressed beyond the lowest level of the production chain (Austria 2006a). Agarwalla indicated that major parts of the electronics supply chain do not reside in the Philippines and unless technology is developed in the country that makes it commercially viable to bring these elements of production to the Philippines, they will

[5] In line with the restructuring of its manufacturing operations, Intel announced in 2008 the pull-out of its Philippine and Malaysian assembly test facilities along with the closure of some US plants.

continue to remain outside the country or locate to China, the most competitive country in the region.

Given the limited role of Philippine electronics in the labor-intensive assembly and testing segment of the production process, our electronics exports have been import dependent with minimal domestic value added. Austria (2006a) noted that backward linkages in the electronics industry remain weak because of both the small numbers and immaturity of local suppliers. Santiago (2005) attributed this to the following problems: unavailability of raw materials, difficulty of finding local suppliers, unreliability of local suppliers, high cost of local raw materials, failure to meet required quality standards. Faced with these constraints, MNCs are forced to import their intermediate inputs. This is illustrated by the case of Wistron Infocomm, a manufacturer of motherboards and computer notebooks for export. Located at the Subic Bay Industrial Park, the excellent infrastructure of which attracted Wistron's suppliers in Taiwan to follow its lead and relocate to Subic. The foreign suppliers tried to establish linkage through outsourcing with local suppliers. However, minimal linkages were created due to the poor quality of output and high costs of local outsourcing (Austria 2006b). Agarwalla pointed out that in many instances; the multinational companies that could increase their local purchases were restricted by their headquarters because the parent company had a global buying program requiring them to import from certified global suppliers even those items available locally. To address this, local suppliers are positioning themselves to become global suppliers of these MNCs. However, the process of being approved as a global supplier is time-consuming and costly.

Trade fairs are held to provide opportunities for networking and linkage development. Reverse trade fairs are organized to encourage domestic companies to engage in the manufacture of parts and components. The industry association known as the Semi-conductor and Electronic Industry of the Philippines, Inc. (SEIPI) maintains a database on suppliers to its member firms. SEIPI has also set up a “Center for Excellence” – the Advanced Research and Competency Development Institute offering advanced training for electronics employees.

3.3. Garments

The garment industry has been dominated by the assembly[6] portion of the production system with relatively few firms like Luen Thai, Eastland and Fil-Pacific providing full package supply or OEM (Antonio and Rodolfo 2006). Basically, the industry is part of what is known as Triangle Manufacturing (Gereffi 2002), whereby a foreign buyer deals with an agent in a newly industrialized economy which then outsources production in the Philippines. The triangle is completed once the Philippine supplier ships the products to the buyer. In recent years, however, mass retailers have shifted from the Philippines to low labor-cost countries such as Cambodia, Sri Lanka, China and Vietnam. Within this highly competitive environment, moving up the value chain and working towards becoming OEM and OBM by enhancing its capabilities is crucial for the industry. To do this, Antonio and Rodolfo (2005) identified the major constraints that need to be addressed: (i) high cost of labor and power; (ii) slow productivity growth due to lack (decline) of investments; (iii) lack of ICT applications; (iv) lack of locally sourced quality raw materials and dependency on imported raw materials which leads to longer lead times; and (v) lack of design capabilities and minimal linkages between local designers and manufacturers.

The Philippines does not have an integrated textile industry that can support the requirements of the garment industry. In the absence of such an industry, textile millers in the Philippines also face difficulties sourcing their raw materials, importing about 80 percent of their input requirements such as polyester fiber, cotton, rayon and acrylic. Given the negative impact of the absence of high quality domestic textiles on the competitiveness of garments, some garment firms have linked up with local yarn and textile producers and are now sourcing 10-20 percent of their requirements locally. Such clustering allows textile producers to niche and upgrade their capabilities.

[6] The assembly system is one of industrial subcontracting in which manufacturers provide the parts for simple assembly to garment sewing factories. The OEM system represents commercial subcontracting where the buyer-seller linkage between foreign merchants and domestic manufacturers allows for a greater degree of local learning on the upstream and downstream segments of the garment chain.

4. SME Survey of Manufacturing Firms

Previous studies on Philippine SMEs have provided many useful insights into understanding the barriers and constraints faced by SMEs. In summary, the most notable constraints identified include those related to financing and technology (see discussions above). While most SMEs face similar constraints, their relative importance and impacts vary because of the wide heterogeneity of SMEs. How and why these barriers and constraints differ are relevant questions to be asked when drafting effective policies to encourage SME development.

In particular, this study aims to look at the differences, if any, between firms within and outside an IPN, in line with the objective of strengthening and increasing their participation in regional production networks. To this end, the study has conducted a survey of SME firms to provide a more concrete picture of the constraints from their perspective. In the first place, to what extent is SME participation happening? For those able to be part of the IPNs, how do they differ from other SMEs in terms of performance, the barriers they face and assistance required and received?

4.1. Survey Administration and Design

The study carried out a firm survey to obtain insights and gain better understanding of the differences in the characteristics and perceptions of firms operating within and outside IPNs. The survey identified not only the barriers to growth faced by the firms but also examined government assistance programs from the perspective of the firms. The survey was carried out by the Philippine National Statistics Office (NSO) from November to December 2009 on manufacturing firms operating in the National Capital Region. Under a systematic sampling design, samples were drawn from the NSO's 2008 List of Establishments (LE) with manufacturing establishments as the unit of analysis and middle managers as respondents. The NSO distributed the questionnaire to a total of 150 firms: 46 from the garment sector, 34 from electronics, 33 from transport parts and components (mostly auto sector) and 37 from other sectors (mostly food manufacturing). A total of 101 manufacturing firms, representing a response rate of 67%, participated in the survey.

4.2. Major Characteristics of Respondents: IPN vs. Non-IPN Firms

Table 9 presents the distribution of the sample-surveyed firms by type of industry and employment size. 28% of the sample firms are from the electronics sector, 26% from garments, 23% from transport parts and components and the remaining 24% are from other sectors dominated by food manufacturing and processing. In terms of size, almost 60% of the firms have employment figures ranging from 1 to 5 workers while 25% employ from 6 to 49 workers. Only 15% represent firms employing from 50 to 99 workers.

Table 10a shows that of the total of 101 firms, only 14 are IPN participants. This figure alone gives an indication of the low participation rate of Philippine SMEs in IPNs. The majority of these firms (86%) employ from 1 to 50 workers. More than 80% of the firms are in the electronics and transport parts and components industries. For the remaining 87 firms that operate outside IPNs, 84% also fall within the same employment size (1-50 workers). The non-IPN firms are distributed as follows: 30% in garments, 25% in electronics, 20% parts and components and 25% in other sectors. Comparing their mean employment, IPN firms have a considerably higher mean average of 59 workers than non-IPN firms with 48 workers (Table 10b).

Table 9. Sample of Surveyed Firms by Industry and Size

Industry	Number of Employees				
	1-5	6-49	50-99	100-199	Total
Garment	14 23.33	5 20	7 46.67	0 0	26 25.74
Transport Parts, Components	14 23.33	8 32	1 6.67	0 0	23 22.77
Electronics	18 30	4 16	5 33.33	1 100	28 27.72
Others	14 23.33	8 32	2 13.33	0 0	24 23.76
Total	60 100	25 100	15 100	1 100	101 100

Table 10a. Sample of Surveyed Firms by Production Network

Industry	Non-IPN Firms					IPN Firms				
	Number of Employees					Number of Employees				
	1-5	6-49	50-99	100-199	Total	1-5	6-49	50-99	100-199	Total
Garment	14	5	7	0	26	0	0	0	0	0
Transport Parts & Components	11	5	1	0	17	3	3	0	0	6
Electronics	16	2	3	1	22	2	2	2	0	6
Others	13	7	2	0	22	1	1	0	0	2
Total	54	19	13	1	87	6	6	2	0	14

Table 10b. Employment by Production Network

Summary Statistics	Non-IPN	IPN	Total
Mean	47.64368	59.14286	49.23762
SD	46.4928	40.30243	45.67344
Min	3	5	3
Max	216	144	216

Relatively little difference is noted between IPN and non-IPN firms in terms of age. The majority of the surveyed firms have been operating for more than 15 years (see Table 11). Approximately 57% of the IPN firms fall within this age range, while for the non-IPN firms, the ratio is 61%. The mean age for both groups is almost the same (around 21 years).

Table 11. Firm Age by Production Network

Firm Age	Non-IPN	IPN	Total
0<Age<=5	11 12.94	1 7.14	12 12.12
5<Age<=15	22 25.88	5 35.71	27 27.27
Age>15	52 61.18	8 57.14	60 60.61
Total	85 100	14 100	99 100
Mean	21.47126	20.85714	21.38614
SD	14.4567	12.91307	14.19364
Min	0	5	0
Max	55	47	55

The same is true in terms of nationality of ownership. In terms of ownership, the surveyed firms are mostly 100% domestically-owned firms (see Table 12). Around 79% of IPN firms are 100% Filipino-owned. The same figure is obtained for non-IPN firms. Joint ventures represent a relatively small proportion of the total for each group, 21% for IPN firms and 18% for non-IPN firms. The mean foreign equity participation is the same, at about 10% each for IPN and non-IPN firms (Table 13).

Table 12. Ownership

Ownership	Non-IPN	IPN	Total
Domestic	69 79.31	11 78.57	80 79.21
Foreign	2 2.3	0 0	2 1.98
Joint Venture	16 18.39	3 21.43	19 18.81
Total	87 100	14 100	101 100

Table 13. Foreign Ownership

Foreign Ownership	Non-IPN	IPN	Total
0<For<=0.2	4 22.22	1 33.33	5 23.81
0.2<For<=0.5	7 38.89	0 0	7 33.33
0.5<For<=0.8	3 16.67	1 33.33	4 19.05
For>0.8	4 22.22	1 33.33	5 23.81
Total	18 100	3 100	21 100
Mean	0.0968161	0.1142857	0.0992376
SD	0.2372578	0.2730093	0.2411155
Min	0	0	0
Max	1	0.9	1

A difference is noted in the export orientation between IPN and non-IPN firms Table 14 shows that among the surveyed IPN firms, only 29% are exporters. Among non-IPN firms, the ratio is lower at around 21%. However, IPN firms have mean exported output of 23% while for exporting non-IPN firms, the mean is considerably higher at 61% (Table 15). This is mainly because IPN firms do not export directly since they are suppliers of parts and other intermediate inputs to assemblers and other levels or tiers in the overall production chain. In terms of skill intensity, the mean is higher for non-IPN firms (55%) than for IPN firms (50%).

Table 14. SME Participation in Export

Indicator	Non-IPN	IPN	Total
Does not export	69 79.31	10 71.43	79 78.22
Export	18 20.69	4 28.57	22 21.78
Total	87 100	14 100	101 100

Table 15. Exported Output

Exported Output	Non-IPN	IPN	Total
0<Exp>=0.2	2 11.11	2 50	4 18.18
0.2<Exp>=0.5	8 44.44	2 50	10 45.45
0.5<Exp>=1	8 44.44	0 0	8 36.36
Total	18	4	22
Mean SD Min Max	0.6063889 0.3852799 0.01 1	0.225 0.1908752 0.07 0.5	0.5370455 0.3847592 0.01 1

Table 16. Skill Intensity

Skill Intensity	Non-IPN	IPN	Total
0<SI>=0.25	17 19.54	3 21.43	20 19.8
0.25<SI>=0.5	25 28.74	5 35.71	30 29.7
0.5<SI>=0.75	14 16.09	1 7.14	15 14.85
75<SI<=1	31 35.63	5 35.71	36 35.64
Total	87 100	14 100	101 100
Mean Std. Dev. Min Max	0.55 0.3312311 0 1	0.5012857 0.3419856 0 0.9861	0.5432475 0.3314276 0 1

4.3. Overall Economic Performance

On the whole, among the surveyed firms, IPN firms performed better in terms of growth. Table 17 shows that among these firms, close to 36% posted growth of over 23% while among non-IPN firms, the ratio is only about 24%. 34% of non-IPN firms registered growth of less than or equal to -0.6%. For IPN firms, the ratio is lower at 21%. Mean growth for IPN firms is about 80% and 31% for non-IPN firms.

Table 17. Growth

Growth Rate	Non-IPN	IPN	Total
gr<=-0.56%	30 34.48	3 21.43	33 32.67
0.56%<gr<=9.2%	18 20.69	4 28.57	22 21.78
9.2%<gr<=22.7%	18 20.69	2 14.29	20 19.8
gr>22.7%	21 24.14	5 35.71	26 25.74
Total	87 100	14 100	101 100
Mean	0.3070348	0.8003483	0.3754149
SD	1.403326	2.638232	1.62105
Min	-0.975498	-0.6666653	-0.975498
Max	11.85167	9.902445	11.85167

In terms of profitability, however, no difference is noted. Table 18 indicates that in terms of profitability, both groups registered a similar mean rate with 14% for IPN firms and 13% for non-IPN firms. About 69% of IPN firms have profit rates that are less than or equal to 10%. 54% of non-IPN firms fall within the same range.

Table 18. Profitability Rate

Profit Rate	Non-IPN	IPN	Total
profit<=3%	25 31.65	4 30.77	29 31.52
3%<profit>=10%	18 22.78	5 38.46	23 25
10<profit>=19.3%	16 20.25	1 7.69	17 18.48
profit>19.3%	20 25.32	3 23.08	23 25
Total	79 100	13 100	92 100
Mean	0.1292361	0.1357385	0.1301549
SD	0.1364587	0.2259144	0.1506526
Min	0.0003	0.00745	0.0003
Max	0.65	0.85	0.85

Some difference is observed in terms of labor productivity, with IPN firms performing better than expected. Labor productivity, here, is measured by sales per worker. Among the surveyed firms, the mean is about US$49,700 for IPN firms and US$34,940 for non-IPN firms (Table 19). Around 43% of IPN firms have labor productivity ranging from US$8,890 to $23,780 and 28% for non-IPN firms. About 30% of non-IPN firms have labor productivity above US$23,780. For IPN firms, the ratio is about 36%.

Table 19. Labor Productivity (in US$000)

Labor Productivity	Non-IPN	IPN	Total
0<LP>=3.74	16 18.39	2 14.29	18 17.82
3.74<LP>=8.89	17 19.54	1 7.14	18 17.82
8.89<LP<=23.78	24 27.59	6 42.86	30 29.7
LP>23.78	30 34.48	5 35.71	35 34.65
Total	87 100	14 100	101 100
Mean	34.93739	49.70086	36.98381
SD	69.30064	108.008	75.31963
Min	0.15855	2.512526	0.15855
Max	501.9268	420.6879	501.9268

4.4 Financing

IPN firms appear to have enjoyed preferential borrowing terms. Table 20 shows that on average, IPN firms pay much lower interest rates on their borrowings with 43% reporting interest rates of lower than 8%. Only 22% of non-IPN firms face the same interest rates with 33% paying rates greater than 12%. Mean interest rates for IPN firms are about 8% and 13% for non-IPN firms.

Table 20. Interest Rates on SME Borrowings

Interest Rate	Non-IPN	IPN	Total
IR<=8%	6 22.22	3 42.86	9 26.47
8<IR>=12%	12 44.44	3 42.86	15 44.12
IR>12%	9 33.33	1 14.29	10 29.41
Total	27 100	7 100	34 100
Mean	0.1304667	0.0823857	0.1205676
SD	0.0736863	0.0787115	0.076117
Min	0.0001	0.0004	0.0001
Max	0.36	0.24	0.36

Table 21 indicates that mean share of interest payments to total cost is also much lower for IPN firms at 3% while for non-IPN firms, the mean is about 8%. The share of interest payments to total cost for most IPN firms ranges from one to 5%. For non-IPN firms, the majority have a share greater than 5%.

Table 21. Share of Interest Payments in Total Cost

Interest share	Non-IPN	IPN	Total
Intsh<=1	5	2	7
	16.67	28.57	18.92
1<Intsh<=5	8	3	11
	26.67	42.86	29.73
Intsh>5	17	2	19
	56.67	28.57	51.35
Total	30	7	37
	100	100	100
Mean	0.081195	0.0349071	0.0724378
SD	0.0841001	0.0215601	0.0781845
Min	0.0007	0.00525	0.0007
Max	0.3	0.06	0.3

Interest coverage ratio is higher for IPN firms, 50% of the firms have ratios greater than 71.4 and only 22% for non-IPN firms (Table 22). The mean interest coverage ratio is 105 for IPN firms and 95 for non-IPN firms.

Table 22. Interest Coverage Ration

ICR	Non-IPN	IPN	Total
ICR<=11.5	7	0	7
	25.93	0	21.21
11.5<ICR>=24.8	7	0	7
	25.93	0	21.21
24.8<ICR>=71.4	7	3	10
	25.93	50	30.3
ICR>71.4	6	3	9
	22.22	50	27.27
Total	27	6	33
	100	100	100
Mean	95.2369	104.9054	96.99481
SD	272.1578	95.38261	248.2291
Min	4.806537	25.30103	4.806537
Max	1436.183	233.9918	1436.183

Table 23 shows that all IPN firms rely on their retained earnings to finance their working capital. Retained earnings registered a mean of 76% for IPN firms. For non-IPN firms, financing sources for working capital vary, with 67% of the firms also relying on their retained earnings. 15% of non-IPN firms rely on banks for their working capital while 17% rely on other sources. For non-IPN firms, retained earnings registered a mean of 56%.

Table 23. Working Capital Financing Sources

Sources	Non-IPN	IPN	Total
Retained Earnings	48 66.67	12 100	60 71.43
Banks	11 15.28	0 0	11 13.1
Other Financial Institutions	1 1.39	0 0	1 1.19
Others	12 16.67	0 0	12 14.29
Total	72 100	12 100	84 100

Table 23a. From Retained Earnings

	Non-IPN	IPN	Total
less than 25%	31 35.63	1 7.14	32 31.68
25% to 50%	6 6.9	1 7.14	7 6.93
50% to 75%	7 8.05	4 28.57	11 10.89
75% to 100%	43 49.43	8 57.14	51 50.5
Total	87 100	14 100	101 100
Mean	0.5638322	0.763	0.5914396
SD	0.4294188	0.2719231	0.4159094
Min	0	0.09	0
Max	1	1	1

Table 23b. From Banks

	Non-IPN	IPN	Total
zero	62 71.26	7 50	69 68.32
less than 40%	13 14.94	6 42.86	19 18.81
40% to 80%	5 5.75	1 7.14	6 5.94
80% to 100%	7 8.05	0 0	7 6.93
Total	87 100	14 100	101 100
Mean	0.1331954	0.1179214	0.1310782
SD	0.2746396	0.1493771	0.2603767
Min	0	0	0
Max	1	0.4639	1

Table 23c. From Other Financial Institutions

	Non-IPN	IPN	Total
zero	80 91.95	14 100	94 93.07
less than 50%	6 6.9	0 0	6 5.94
more than 50%	1 1.15	0 0	1 0.99
Total	87 100	14 100	101 100
Mean	0.0230345	0	0.0198416
SD	0.1075766	0	0.1000826
Min	0	0	0
Max	0.804	0	0.804

Table 23d. From Other Sources

	Non-IPN	IPN	Total
zero	53 60.92	9 64.29	62 61.39
less than 50%	21 24.14	5 35.71	26 25.74
50% to 100%	13 14.94	0 0	13 12.87
Total	87 100	14 100	101 100
Mean	0.1876161	0.1119357	0.1771257
SD	0.3233417	0.1843399	0.308255
Min	0	0	0
Max	1	0.4461	1

For capital expansion, 75% of IPN firms rely on retained earnings while the remaining 25% rely on other sources. For non-IPN firms, 47% rely on other sources, 29% on retained earnings and 24% on banks.

Table 24. Capital Expansion Financing Sources

	Non-IPN	IPN	Total
Retained Earnings	5 29.41	3 75	8 38.1
Bank	4 23.53	0 0	4 19.05
Other Financial Institutions	0	0	0
Other Sources	8 47.06	1 25	9 42.86
Total	17 100	4 100	21 100

Table 24a. From Retained Earnings

	Non-IPN	IPN	Total
zero	76 87.36	10 71.43	86 85.15
less than 50%	6 6.9	1 7.14	7 6.93
50 to 100%	5 5.75	3 21.43	8 7.92
Total	87 100	14 100	101 100
Mean	0.0665977	0.2028571	0.0854851
SD	0.2189926	0.3824703	0.2499991
Min	0	0	0
Max	1	1	1

Table 24b. From Banks

	Non-IPN	IPN	Total
zero	79 90.8	12 85.71	91 90.1
less than 50%	3 3.45	2 14.29	5 4.95
50 to 100%	5 5.75	0 0	5 4.95
Total	87 100	14 100	101 100
Mean	0.0451724	0.045	0.0451485
SD	0.1618703	0.1145392	0.1556895
Min	0	0	0
Max	0.8	0.33	0.8

Table 24c. From Other Financial Institutions

	Non-IPN	IPN	Total
zero	85 97.7	14 100	99 98.02
less than 50%	2 2.3	0 0	2 1.98
Total	87 100	14 100	101 100
Mean	0.0028736	0	0.0024752
SD	0.0220416	0	0.0204649
Min	0	0	0
Max	0.2	0	0.2

Table 24d. From Other Sources

	Non-IPN	IPN	Total
zero	74 85.06	13 92.86	87 86.14
less than 50%	5 5.75	0 0	5 4.95
50 to 100%	8 9.2	1 7.14	9 8.91
Total	87 100	14 100	101 100
Mean	0.1029425	0.05	0.095604
SD	0.2831177	0.1870829	0.2717018
Min	0	0	0
Max	1	0.7	1

4.5 Location of Plants, Travel Time and Distance from Major Ports

None of the surveyed firms are located within industrial parks or economic zones. However, most are located within five kilometers of EPZs or industrial parks. Most of the firms are located in proximity to major seaports and airports. Mean distance from ports is about 11.4 kilometers for IPN firms and 12.8 kilometers for non-IPN firms. In terms of hours, mean distance from ports is about 2 hours for IPN firms and 1.5 hours for non-IPN firms. Most IPN firms are located within 10 to 20 kilometers of main ports while non-IPN firms are within 2 to 10 kilometers of main ports. In terms of number of hours, most IPN and non-IPN firms are 1 to 2 hours away from main ports.

Table25a. Distance from Main Port (range in km)

	Non-IPN	IPN	Total
2<dist<=10	40 47.06	4 30.77	44 44.9
10<dist<=20	26 30.59	8 61.54	34 34.69
20<dist<=40	16 18.82	1 7.69	17 17.35
40<dist<=50	3 3.53	0 0	3 3.06
Total	85 100	13 100	98 100
Mean	12.77294	11.38462	12.58878
SD	9.47183	4.444818	8.964373
Min	2	6	2
Max	50	20	50

Table 25b. Distance from Main Port (range in hours)

	Non-IPN	IPN	Total
0.2<dist<1	12 14.12	0 0	12 12.24
1<=dist<=2	40 47.06	7 53.85	47 47.96
2 <dist<=3	25 29.41	3 23.08	28 28.57
3<dist<=6	8 9.41	3 23.07	11 11.22
Total	85 100	13 100	98 100
Mean	1.527059	1.961538	1.584694
SD	0.7319882	1.450022	0.863743
Min	0.2	1	0.2
Max	3	6	6

Table 25c. Distance from EPZ or Industrial Parks (range in km)

	Non-IPN	IPN	Total
dist<=5km	37 48.68	6 46.15	43 48.31
5<dist<=10	12 15.79	5 38.46	17 19.1
10<dist<=25	11 14.47	1 7.69	12 13.48
dist>25	16 21.05	1 7.69	17 19.1
Total	76 100	13 100	89 100
Mean	14	9.461538	13.33708
Std. Dev	16.103	8.637278	15.28959
Min	0	1	0
Max	85	34	85

Table 25d. Distance from EPZ or Industrial Park (range in hours)

oepzh1	Non-IPN	IPN	Total
dist<=1 hr	36	6	42
	49.32	46.15	48.84
1<dist<=2	21	6	27
	28.77	46.15	31.4
dist>2	16	1	17
	21.92	7.69	19.77
Total	73	13	86
	100	100	100
Mean	1.59726	1.361538	1.561628
Std. Dev	1.054616	0.8150035	1.021322
Min	0.2	0.3	0.2
Max	4	3	4

4.6. Business Improvement Initiatives and Innovative Efforts

IPN firms, among the firms surveyed, appeared to fare better in terms of business improvement initiatives and innovative efforts. Among IPN firms, 29% met an international standard (like ISO), 50% introduced ICT and reorganized their business processes accordingly, 7% established new divisions and 50% are engaged in networking with industry associations. 36% of the IPN respondents bought new machines or facilities, 50% upgraded their existing machinery and equipment and 14% introduced new production methods. Around 36% of the respondents indicated that they introduced new products in the last three years, of which 40% reported that these were introduced to the existing market and 40% used their existing technology.

For non-IPN firms, 33% met an international standard, 38% introduced ICT, 9% established new divisions and 46% are engaged in networking with industry associations. 30% acquired new machines or facilities, 37% improved their existing machinery and equipment and only 8% introduced new production methods. Around 40% of the respondents said that they introduced new products in the last three years, of which 17% introduced these new products to the existing market and 23% reported that they used their existing technology.

Table 26a. International Standards

Indicator	Non-IPN	IPN	Total
Has not met international standards	58 66.67	10 71.43	68 67.33
Has met international standards	29 33.33	4 28.57	33 32.67
Total	87 100	14 100	101 100

Table 26b. ICT

Indicator	Non-IPN	IPN	Total
Has not introduced ICT	54 62.07	7 50	61 60.4
Has introduced ICT	33 37.93	7 50	40 39.6
Total	87 100	14 100	101 100

Table 26c. New Divisions

Indicator	Non-IPN	IPN	Total
Has not established new divisions	79 90.8	13 92.86	92 91.09
Has established new divisions	8 9.2	1 7.14	9 8.91
Total	87 100	14 100	101 100

Table 26d. Business Associations, R&D, & Other Networks

Indicator	Non-IPN	IPN	Total
Not involved in business associations, R&D & other networks	47 54.02	7 50	54 53.47
Involved in business associations, R&D & other networks	40 45.98	7 50	47 46.53
Total	87 100	14 100	101 100

Table 26e. New Machinery & Facilities

Indicator	Non-IPN	IPN	Total
Has not bought new machinery or facilities	61 70.11	9 64.29	70 69.31
Bought new machinery or facilities	26 29.89	5 35.71	31 30.69
Total	87 100	14 100	101 100

Table 26f. Existing Machinery & Facilities

Indicator	Non-IPN	IPN	Total
Has not improved existing machinery & facilities	55 63.22	7 50	62 61.39
Improved existing machinery & facilities	32 36.78	7 50	39 38.61
Total	87 100	14 100	101 100

Table 26g. New Production Methods

Indicator	Non-IPN	IPN	Total
Has not introduced new know-how in production method	80 91.95	12 85.71	92 91.09
Introduced new know-how in production method	7 8.05	2 14.29	9 8.91
Total	87 100	14 100	101 100

Table 26h. New Products or Services

Indicator	Non-IPN	IPN	Total
Has not introduced new products or services	52 59.77	9 64.29	61 60.4
Introduced new products or services	35 40.23	5 35.71	40 39.6
Total	87 100	14 100	101 100

Table 26i. New Products or Services in Existing Markets

Indicator	Non-IPN	IPN	Total
Has not introduced new products in existing markets	29 82.86	3 60	32 80
Introduced new products in existing markets	6 17.14	2 40	8 20
Total	35 100	5 100	40 100

Table 26j. New Products & Services using New Technology

Indicator	Non-IPN	IPN	Total
Has not introduced new products using existing technology	27 77.14	3 60	30 75
Introduced new products using existing technology	8 22.86	2 40	10 25
Total	35 100	5 100	40 100

4.7. Assistance Received From Government, NGOs and Others

The respondents were asked if they received assistance from government, NGOs and other institutions in the form of training in general business management, counseling and advice, market information, technology development and transfer, business linkages and networking, financing and overall improvement in investment climate. Those who answered yes were then asked to evaluate the assistance that they received. Respondents scored the barriers from 1 to 5, with "1" being very adequate to "5" being not at all adequate. Table 27 presents the results for IPN and non-IPN firms. Around 40 % of all firms surveyed indicated that they received at least one form of assistance. The most commonly-cited assistance was in the form of market information, followed by training in general management. Decomposing between IPN and non-IPN firms, 50 % of IPN firms received at least one form of assistance, compared to 40 % for non-IPN firms. For IPN firms, the most cited form is business linkages and networking while for non-IPN firms, it is market information. Based on the perceptions of the surveyed firms, the results indicate that both IPN and non-IPN recipient firms are satisfied with the assistance they received. Among IPN firms, mean responses range from 1.67 to 2.8 and for non-IPN firms mean ratings range from 1.92 to 2.46. The results, however, cannot adequately show whether they receive all the assistance they require, nor to what extent this assistance is adequate to overcome the constraints they face.

Table 27. Perceptions on Effectiveness of Government Assistance

SME Group	Assistance Type	N	Mean	SD
Non-IPN				
	Financing	24	1.91667	1.28255
	Counseling and advice	22	1.95455	1.4953
	Business linkages and networking	23	2.21739	1.44463
	Technology Development and transfer	32	2.25	1.21814
	Overall improvement in investment climate	24	2.33333	1.57885
	Training in general business management	33	2.36364	1.31857
	Market Information	35	2.45714	1.31379
IPN	Training in general business management	6	1.66667	1.0328
	Counseling and advice	4	1.75	1.5
	Financing	5	2	1.41421
	Business linkages and networking	7	2.14286	1.21499
	Market Information	5	2.2	1.30384
	Technology Development and transfer	5	2.8	1.78885
All	Counseling and advice	26	1.92308	1.4676
	Financing	29	1.93103	1.27982
	Business linkages and networking	30	2.2	1.37465
	Overall improvement in investment climate	25	2.24	1.61452
	Training in general business management	39	2.25641	1.29204
	Technology Development and transfer	37	2.32432	1.29216
	Market Information	40	2.425	1.29867

To summarize, on the whole, the SMEs surveyed share some common characteristics, specifically in terms of age, ownership and profitability. The notable differences between IPN and non-IPN firms surveyed are in their growth performance, labor productivity and financing terms, with IPN firms at the favorable end. IPN firms among the firms surveyed also performed better in terms of business improvement initiatives and innovative efforts. Another important finding is the seemingly low IPN participation rate of Philippine SMEs, with only 14% of the surveyed firms qualifying to be within an IPN. This is consistent with the main finding in the literature that SME participation in production networks is limited due to the weak backward linkages in the auto and electronics industries (sub-sections 3.1 and 3.2). The results also confirm the

findings of earlier studies about the limited access of SMEs to financing and technology. The results show that some firms do receive at least one form of assistance, mainly in the form of market information but that it reaches less than half of the firms surveyed.

The first part of the survey provides a comprehensive description of the characteristics of SMEs and reveals some important differences between IPN and non-IPN firms. More can be gleaned about the constraints and barriers by looking at the firms' perceptions of what these are and what kind of assistance they require.

5. Analysis of SMEs and Regional Integration

5.1. Constraints to Growth of IPN and Non-IPN Firms

To gain a deeper understanding of the constraints to SME growth, the survey also asked about the firms' perceptions of the barriers that they confront. The barriers are generally classified into two categories: internal and external. The former pertains to barriers that are internal to the firm and associated with its organizational resources and capabilities. The latter refers to barriers originating from the home and host environment within which the firm operates. Internal barriers cover informational; functional; product and price; and distribution, logistics and promotion. The external barriers include procedural; business environment; and tax, tariff and non-tariff.

The perceived barriers are ranked according to the mean score received. Respondents scored the barriers from 1 to 5, with "1" being most significant to "5" being insignificant. The results are presented in Table 28. For IPN firms, the top 10 most commonly-cited barriers are: difficulties in offering competitive prices to customers; meeting product quality, standards, and specifications; difficulties in establishing and maintaining trust with business partners; developing new products; willingness to adopt new business strategies or ideas; difficulty in getting credit from suppliers and financial institutions; high tax and tariff barriers; inability to identify and contact potential business partners; shortage of working capital to finance new business plan; and poor and deteriorating economic conditions at home.

Table 28. Perception of Barriers to SME Development

SME Group	Barrier	Code	N	Mean	SD	Category	General Type
IPN	Offering competitive prices to customers	B14	14	2.357	1.216	product &price	Internal
	Meeting product quality/standards/specifications	B11	14	2.429	1.284	product &price	Internal
	Establishing and maintaining trust with business partners	B19	14	2.429	1.399	distribution, logistics & promotion	Internal
	Developing new products	B9	14	2.571	1.604	product &price	Internal
	Willingness to adopt new business strategy or ideas	B37	14	2.571	1.284	other barriers	External
	Difficulty in getting credit from suppliers and financial institutions	B8	14	2.714	1.069	functional	Internal
	High tax and tariff barriers_HM	B31a	14	2.714	1.326	tax, tariff & non tariff	External
	Inability to indentify and contact potential business partners	B3	14	2.786	1.369	informational	Internal
	Shortage of working capital to finance new business plan	B7	14	2.786	1.051	functional	Internal
	Poor/deteriorating economic conditions_HM	B28a	14	2.786	1.424	business environment	External
	Poor/deteriorating economic conditions_FM	B28b	13	2.846	1.345	business environment	External
	Unreliable market data (costs, prices, market shares)	B2	14	2.857	1.460	informational	Internal
	Adapting to demanded product design/style	B10	14	2.857	1.562	product &price	Internal
	Restrictive health, safety and technical standards (e.g., sanitary and phyto sanitary requirements)_HM	B33a	14	2.857	1.460	tax, tariff & non tariff	External
	Political instability_HM	B30a	13	2.923	1.441	business environment	External
	Difficulty in matching competitors' prices	B15	14	2.929	1.269	product &price	Internal
	Lack of managerial time to identify new business opportunities	B4	14	3.000	1.519	functional	Internal
	Complexity of production value chain	B17	14	3.000	1.359	distribution, logistics & promotion	Internal
	Limited Information to locate/ analyze markets/business partners	B1	14	3.071	1.685	informational	Internal
	Insufficient quantity of and/ or untrained personnel for	B5	14	3.071	1.542	functional	Internal

	market expansion						
	Meeting packaging/labeling requirements	B12	14	3.071	1.492	product &price	Internal
	Participation in promotional activities to target markets/business partners	B22	14	3.071	1.542	distribution, logistics & promotion	Internal
	High costs of Customs administration, in exporting or importing_HM	B34a	14	3.071	1.639	tax, tariff & non tariff	External
	Lack of production capacity to expand	B6	14	3.143	1.231	functional	Internal
	Accessing a new production chain	B18	14	3.143	1.460	distribution, logistics & promotion	Internal
	Unfavourable home rules and regulations	B26	14	3.143	1.657	procedural	External
	Inadequacy of basic and IT infrastructure_HM	B29a	14	3.143	1.406	business environment	External
	Perceived risks in your current and new business operations	B35	14	3.214	1.369	other barriers	External
	Unavailability of inventories/warehousing facilities	B20	14	3.286	1.267	distribution, logistics & promotion	Internal
	Excessive transportation/insurance costs	B21	14	3.286	1.437	distribution, logistics & promotion	Internal
	Difficulties in enforcing contracts and resolving disputes	B24	14	3.286	1.729	procedural	External
	Lack of home government assistance/incentives	B25	14	3.286	1.637	procedural	External
	Political instability_FM	B30b	14	3.286	1.490	business environment	External
	High tax and tariff barriers_FM	B31b	13	3.308	1.601	tax, tariff & non tariff	External
	High costs of Customs administration, in exporting or importing_FM	B34b	13	3.385	1.710	tax, tariff & non tariff	External
	Unfamiliarity with complexity of procedures/paperwork	B23	14	3.429	1.399	procedural	External
	Restrictive health, safety and technical standards (eg sanitary and phytosanitary requirements)_FM	B33b	13	3.462	1.613	tax, tariff & non tariff	External
	Offering technical/after-sales service	B13	14	3.500	1.454	product &price	Internal
	Inadequacy of basic and IT infrastructure_FM	B29b	13	3.538	1.330	business environment	External
	Anti-competitive or informal practices	B16	14	3.571	1.399	product &price	Internal
	Inadequate property rights protection (eg intellectual property)_HM	B32a	14	3.571	1.453	tax, tariff & non tariff	External

	Lack of perceived benefits from joining production networks	B36	14	3.571	1.453	other barriers	External
	Unfavorable host/foreign rules and regulations	B27	14	3.643	1.393	procedural	External
	Inadequate property rights protection (eg intellectual property)_FM	B32b	13	3.769	1.589	tax, tariff & non tariff	External
Non-IPN	High tax and tariff barriers_HM	B31a	87	2.60	1.16	tax, tariff & non tariff	External
	Poor/deteriorating economic conditions_HM	B28a	87	2.63	1.12	business environment	External
	Willingness to adopt new business strategy or ideas	B37	87	2.86	1.08	other barriers	External
	Offering competitive prices to customers	B14	87	2.87	1.20	product &price	Internal
	Political instability_HM	B30a	87	2.90	1.14	business environment	External
	High costs of Customs administration, in exporting or importing_HM	B34a	87	2.92	1.18	tax, tariff & non tariff	External
	Difficulty in matching competitors' prices	B15	87	3.05	1.14	product &price	Internal
	Unfavorable home rules and regulations	B26	87	3.05	1.28	procedural	External
	Meeting product quality/standards/specifications	B11	87	3.06	1.19	product &price	Internal
	Developing new products	B9	87	3.09	1.13	product &price	Internal
	Establishing and maintaining trust with business partners	B19	87	3.09	1.21	distribution, logistics & promotion	Internal
	Inadequate property rights protection (eg intellectual property)_HM	B32a	87	3.09	1.28	tax, tariff & non tariff	External
	Limited Information to locate/analyze markets/business partners	B1	87	3.14	1.04	informational	Internal
	Shortage of working capital to finance new business plan	B7	87	3.14	1.21	functional	Internal
	Lack of home government assistance/incentives	B25	87	3.14	1.30	procedural	External
	Perceived risks in your current and new business operations	B35	87	3.14	1.05	other barriers	External
	Restrictive health, safety and technical standards (e.g., sanitary and phytosanitary requirements)_HM	B33a	87	3.15	1.04	tax, tariff & non tariff	External
	Adapting to demanded product design/style	B10	87	3.16	1.06	product &price	Internal
	Excessive transportation/insurance costs	B21	87	3.17	1.06	distribution, logistics & promotion	Internal

	Unreliable market data (costs, prices, market shares)	B2	87	3.18	1.06	informational	Internal
	Inability to indentify and contact potential business partners	B3	87	3.20	1.17	informational	Internal
	Participation in promotional activities to target markets/business partners	B22	87	3.23	1.10	distribution, logistics & promotion	Internal
	Insufficient quantity of and/or untrained personnel for market expansion	B5	87	3.26	1.02	functional	Internal
	Meeting packaging/labeling requirements	B12	87	3.26	1.06	product &price	Internal
	Inadequacy of basic and IT infrastructure_HM	B29a	87	3.26	1.04	business environment	External
	Lack of production capacity to expand	B6	87	3.29	1.03	functional	Internal
	Unavailability of inventories/warehousing facilities	B20	87	3.29	1.11	distribution, logistics & promotion	Internal
	Unfavorable host/foreign rules and regulations	B27	87	3.30	1.38	procedural	External
	Offering technical/after-sales service	B13	87	3.31	0.98	product &price	Internal
	Difficulty in getting credit from suppliers and financial institutions	B8	87	3.34	1.19	functional	Internal
	Anti-competitive or informal practices	B16	87	3.34	1.14	product &price	Internal
	Complexity of production value chain	B17	87	3.34	1.03	distribution, logistics & promotion	Internal
	Lack of perceived benefits from joining production networks	B36	87	3.36	0.99	other barriers	External
	Poor/deteriorating economic conditions_FM	B28b	85	3.39	1.35	business environment	External
	High costs of Customs administration, in exporting or importing_FM	B34b	86	3.40	1.34	tax, tariff & non tariff	External
	Accessing a new production chain	B18	87	3.40	0.97	distribution, logistics & promotion	Internal
	Difficulties in enforcing contracts and resolving disputes	B24	87	3.43	1.10	procedural	External
	Unfamiliarity with complexity of procedures/paperwork	B23	87	3.44	1.03	procedural	External
	Lack of managerial time to identify new business opportunities	B4	87	3.45	1.06	functional	Internal

	Political instability_FM	B30b	87	3.45	1.30	business environment	External
	High tax and tariff barriers_FM	B31b	86	3.48	1.39	tax, tariff & non tariff	External
	Restrictive health, safety and technical standards (e.g., sanitary and phyto sanitary requirements)_FM	B33b	86	3.52	1.24	tax, tariff & non tariff	External
	Inadequacy of basic and IT infrastructure_FM	B29b	85	3.60	1.19	business environment	External
	Inadequate property rights protection (e.g., intellectual property)_FM	B32b	86	3.60	1.32	tax, tariff & non tariff	External

Note: *HM: home

*FM: foreign

Non-IPN firms cited almost the same barriers in their top ten: high tax and tariff barriers; poor and deteriorating economic conditions at home; unwillingness to adopt new business strategies or ideas; difficulties in offering competitive prices to customers; political instability; high costs of customs administration in exporting and importing; difficulty in meeting competitors' prices; unfavorable home rules and regulations; meeting product quality, standards, and specifications; and developing new products. Note that the standard deviations are small, implying consensus among the firms in the rankings of the respective barriers.

On the whole, both IPN and non-IPN firms perceive product and price barriers as their most important concern. For IPN firms, the top barriers to their operations are as follows: product and price; business environment; taxes, tariffs and non-tariff barriers; distribution, logistics and promotion; informational; functional; and procedural. For non-IPN firms, the rankings are as follows: product and price; taxes, tariffs, and non-tariff barriers; business environment; informational; distribution, logistics and promotion; functional; and procedural.

Table 29. Most Important Barriers to Operations as Perceived by SMEs

SME Group	Barrier Type	N	Mean	SD
Non-IPN	Product and Price barrier	86	2.94186	1.83659
	Tax, tariff, non-tariff	86	3.81395	2.45674
	Business Environment	86	3.88372	2.06608
	Informational barrier	86	4.05814	1.9903
	Distribution, logistics, promotion	86	4.36047	1.83375
	Functional barrier	86	4.66279	1.81892
	Procedural	86	4.75581	1.84669
	Other	86	7.52326	1.37821
IPN	Product and Price barrier	14	3	1.51911
	Business Environment	14	3.14286	2.0327
	Tax, tariff, non-tariff	14	4.07143	2.05555
	Distribution, logistics, promotion	14	4.14286	1.65748
	Informational barrier	14	4.5	2.13937
	Functional barrier	14	5	2.11224
	Procedural	14	5	2.38586
	Other	14	7.14286	2.0702
Total	Product and Price barrier	100	2.95	1.78871
	Business Environment	100	3.78	2.06745
	Tax, tariff, non-tariff	100	3.85	2.39686
	Informational barrier	100	4.12	2.00645
	Distribution, logistics, promotion	100	4.33	1.80378
	Functional barrier	100	4.71	1.85481
	Procedural	100	4.79	1.91904
	Other	100	7.47	1.48701

Firms were asked to rank the most effective assistance that would help them overcome the barriers to the conduct of their business. At the top of the list of IPN firms is the need for financing assistance. This is followed by market information, business linkages and networking, technology development, overall improvement in investment climate, training and counseling and advice. For non-IPN firms, the most crucial assistance needed is technology development followed by market information, business linkages and networking, financing, training, overall improvement in investment climate, training, and counseling and advice.

Table 30. Firm Perception on Most Effective SME Assistance

SME Group	Assistance Type	N	Mean	SD
Non-IPN	Technology Development and transfer	87	3.43678	1.72331
	Market Information	87	3.57471	1.58211
	Business linkages and networking	87	3.72414	1.80239
	Financing	87	3.72414	2.10586
	Training in general business management	87	3.94253	2.05368
	Overall improvement in investment climate	87	4.37931	2.40272
	Counseling and advice	87	5.10345	1.7523
	Others	2	8	0
IPN	Financing	14	3	1.41421
	Market Information	14	3.5	1.87083
	Business linkages and networking	14	3.57143	1.94992
	Technology Development and transfer	14	3.85714	1.9945
	Overall improvement in investment climate	14	4.14286	2.53763
	Training in general business management	14	4.35714	2.06089
	Counseling and advice	14	5.5	1.5064
All	Technology Development and transfer	101	3.49505	1.75854
	Market Information	101	3.56436	1.61503
	Financing	101	3.62376	2.03397
	Business linkages and networking	101	3.70297	1.81408
	Training in general business management	101	4	2.04939
	Overall improvement in investment climate	101	4.34653	2.41013
	Counseling and advice	101	5.15842	1.71891
	Others	2	8	0

The results confirm the findings of earlier studies identifying financing and technology constraints as key obstacles and areas where assistance would be most effective. For IPN firms, financing assistance would be most crucial while for non-IPN firms, technology development would be the most important.

Overall, the survey results show that the main barriers faced by SMEs stem from both internal and external factors that affect their operations. The more serious ones pertain to their weak competitiveness and domestic factors, particularly incoherent government policies and regulations and an unhealthy business environment that increases the costs of their business operations. For both IPN and non-IPN firms, the most important barriers pertain to product and price followed by business environment; tax, tariff and non-tariff; and information, distribution, logistics and promotion. If not properly addressed, these barriers could reduce their chances of survival and growth in a highly competitive world.

The results confirm the conclusions drawn from the existing studies on barriers to SME growth and development as discussed in the previous section (see sub-section 2.2). These studies highlighted the same barriers, such as lack of access to finance, low levels of technology, lack of information on market opportunities, as well as difficulties in product quality and marketing which resulted in SMEs' low levels of productivity and lack of competitiveness. The other barriers cited also include supply chain management problems arising from infrastructure and communication difficulties along with conflicting government policies and high tariffs on their intermediate inputs. The absence of common support facilities like testing centers and standardization agencies in the country also contributed to SMEs' problems regarding product quality and quality assurance of raw materials. Many SMEs have not invested in quality management system standards such as the ISO series.

5.2. Case Study of Two Medium Automotive Parts Enterprises

Box 1 presents two contrasting cases of an IPN and a non-IPN firm with one being more successful than the other in terms of performance as well as in overcoming constraints to growth and development. Both are medium-sized manufacturers of auto parts and are 100% Filipino-owned. Both were established in the early 1970s and are of about the same age. The case study illustrates the problems affecting the operations of SMEs and how they faced these constraints, particularly those arising from the opening-up of the previously highly protected automotive industry.

Firm X is a manufacturer of mufflers, exhaust systems, brackets and stamped parts for both the domestic and export markets. By overcoming its own internal barriers,

mostly related to price and product, and changing its strategy, Firm X was able to adjust to the new liberalized environment. Convinced that the domestic automotive industry was no longer profitable, Firm X decided to shift its focus to the export market and concentrated its efforts towards producing quality products for export abroad. Currently Firm X exports 70% of its production. Locally, its major market consists of Toyota Motors, Isuzu, Nissan, Kawasaki and Honda Motorcycle.

Box 1: Overcoming Internal Barriers -- A Tale of Two Companies

Firm X manufactures metal parts with 70% of its production geared towards the export market. Currently their major market is the US, where the company exports shock absorber parts. In the domestic market, its major customers are Toyota, Isuzu, Nissan, Honda Motorcycle, and Kawasaki.

To increase its total productivity, it upgraded its equipment. The company aims to become a world class manufacturer of auto parts and components. Its R&D target is to start product redesign and enhance product reengineering. The company spends about 3% of total sales for R&D. It has a product development department which employs 5 workers. At present, their R&D activities cover product development from prototype, product reengineering, mold and die designing and evaluation and testing. In terms of the company's engineering testing capability; 3D CAD, CAM and CAE are utilized.

The defect rates set by major customers are 100 parts per million (ppm) for Toyota and 0.5PPM for export. There has been no major rejection in their domestic market. For their exports, the company offers a 1% annual rebate to customers to cover rejects. The company has a marketing arm based in the United States. It will open a market in Mexico and other parts of South America. The main problem the firm faces is how to raise the necessary capital needed for its market expansion abroad.

Firm Y began manufacturing brake discs for Mitsubishi (or Pamcor) in 1975 and from 1990, it began to supply Toyota. In 1991, Honda also became its customer. As a supplier of the top automotive firms in the country, the early nineties were the busiest and the most profitable years for the company. To keep up with demand, the company acquired additional CNC machines and automatic second-hand equipment. The company has its own foundry shop, the only one in the Philippines that is accredited by Japan.

After 1996, however, things started to change. One by one, its customers left. With the substantial cutbacks in demand that the industry has faced, the company has downsized its labor force. Though prices of its raw materials and power costs have been rising, the company has been experiencing difficulties in passing these increases onto its customers. Toyota wanted a 20% reduction in its price, a request the company could not agree to given the volume they are currently producing.

The company has also explored the possibility of entering the export market, but has not been successful. It has participated in trade fairs abroad and but has yet to close any deals. A French firm wanted 1.5 million pieces annually but was asking for a 15% price reduction. A Japanese firm, on the other hand, wanted the company to fulfill major requirements to enable it to penetrate the world market. In order to satisfy potential customers, the firm's most pressing need is to upgrade its existing equipment. sIn particular, their grinding operations and finishing process are not acceptable to Honda. Modernizing their finishing process would require an additional P12 million in new investment.

To reduce their costs, they are currently outsourcing their machining process. Their workload has been reduced tremendously. Toyota, whose affiliate company in Thailand owns a foundry, wants the company to do only the finishing of its brake discs which it imports from Thailand. Asian Transmission, sister company of Mitsubishi, has also asked it to do the finishing of its bearing retainers.

Source: Adapted from Aldaba (2007).

Firm X notes that its success in penetrating the export market was due to a combination of factors such as an effective marketing arm, capacity to manufacture high-quality products at low cost and the ability to deliver these on time, acquisition of modern machinery and equipment, and application of appropriate technology. Firm X has invested in computerized die-making facilities and is currently concentrating on product design. Firm X spends around 3% of its sales for R&D. The firm is concentrating its R&D efforts on improving its tool and die capability. It uses advanced engineering and testing facilities such as 3D CAD, CAM, CAE, and CAT. It has ISO certification and TS 16949.

Firm Y is a maker of brake disks and drums and has remained domestic-oriented. It produces mainly proprietary parts which cannot be sold directly to other customers or in the replacement market. The firm is aware that to penetrate the export market, it has to innovate and develop its own products. The firm has a very sizeable plant and a foundry shop, but they are severely underutilized. It does not have ISO certification and does not have any of the advanced facilities in which Firm X has invested.

With increasing competition from imports and a lack of domestic demand, the experience of the two firms shows that to survive in this era of liberalization in the

automotive industry and compete against imports and other domestic manufacturers, one has to expand one's market reach by exporting and not relying solely on the domestic market. To penetrate the export market, product and price barriers need to be addressed. It is important to note that the automotive industry is highly global; it is technology-driven; competition is intense and only the fittest firms survive: those that can offer the lowest cost, highest quality and most innovative products. Firm Y was able to survive by defining its strategy and market position. After the liberalization of the industry, it shifted its focus towards the international market and made serious efforts to find the right product mix as well as to improve its manufacturing efficiency and productivity by enhancing its capabilities and investing in product development.

5.3. Conclusions and Some Broad Policy Recommendations

Overall, the survey shows that SMEs are not homogeneous as indicated by the differences in the overall characteristics and performance between firms operating within production networks and those outside these networks. While the two groups of firms share similar characteristics such as age, Filipino ownership, and foreign equity share, they differ in terms of performance as well as in other economic indicators used in the study. In terms of exported output, non-IPN firms surveyed exported a higher proportion of output than IPN firms. This is not surprising because IPN firms are not usually direct exporters but, rather, act as suppliers of parts and other intermediate inputs to assemblers and other levels or tiers in the overall production chain. With respect to skill intensity, non-IPN firms posted higher ratios than IPN firms.

In terms of the interest rates on borrowing that SMEs pay, IPN firms face lower rates compared to non-IPN firms. In addition, IPN firms have a lower share of interest payments in total cost and a much higher interest coverage ratio. In terms of financing sources for working capital and capital expansion, IPN firms' financing comes mainly from retained earnings and a small proportion from financial institutions. Non-IPN firms also use their retained earnings as well as sources of financing from financial institutions and elsewhere.

The survey results also show that participation in IPNs benefits SMEs, particularly parts and components makers in the electronics and transport industries. In terms of performance, the survey results show that IPN firms have higher mean growth rates

than non-IPN firms. Their mean profit rates are approximately the same but in terms of mean labor productivity; the mean for IPN firms is higher than for non-IPN firms.

The survey also indicates that there are two main types of barriers that emerge as the most important concerns of SMEs. IPN firms are primarily concerned with product and price barrier difficulties in establishing and maintaining trust with business partners while non-IPN firms' major concerns are tax, tariff and non-tariff barriers and the country's deteriorating business environment. The following internal and external barriers are perceived by firms as the most important constraints affecting their growth and prospects for participation in production networks:

IPN Firms

Product and price barriers:

- difficulties in offering competitive prices to customers (1)
- meeting product quality, standards, and specifications (2)
- developing new products (4)

Distribution, logistics and promotion barriers:

- difficulties in establishing and maintaining trust with business partners (3)

Functional barriers

- difficulty in obtaining credit from suppliers and financial institutions (6)
- shortage of working capital to finance new business plan (9)

Tax, tariff and non-tariff barriers

- high tax and tariffs at home (7)

Informational barriers:

- inability to identify and contact potential business partners (8)

Business environment barriers

- poor and deteriorating economic conditions at home (10)

Other barriers

- willingness to adopt new business strategy and idea (5)

Non-IPN Firms

Tax, tariff and non-tariff barriers

- high tax and tariffs at home (1)

- high costs of customs administration at home (6)

Business environment barriers
- poor and deteriorating economic conditions at home (2)
- political instability (5)

Product and price barriers:
- difficulties in offering competitive prices to customers (4)
- meeting product quality, standards, and specifications (9)
- developing new products (10)

Functional barriers
- difficulty in obtaining credit from suppliers and financial institutions (7)

Procedural barriers
- unfavorable home rules and regulations (8)

Other barriers
- willingness to adopt new business strategy and ideas (3)

The above results confirm the main findings on barriers to SME growth and development identified in the existing Philippine SME literature as well as those discussed in the case study. Studies on SMEs highlighted the same barriers, such as lack of access to finance, low levels of technology, lack of information on market opportunities, as well as difficulties in product quality and marketing. The other barriers cited in the literature also include supply-chain management problems arising from infrastructure and communication difficulties along with incoherent government policy and high tariffs affecting the intermediate inputs used by SMEs. The case study shows that overcoming these barriers, particularly product and price, is crucial for production network participation.

The responses summarized in Table 30 are instructive in the formulation of government policy measures to strengthen SMEs, to enable them to participate in regional production networks and enter the export market. As the results show, there are two themes that dominate SMEs' concerns about the type of assistance needed. For IPN firms, financing assistance would be crucial while for non-IPN firms, technology development is seen as the most important.

IPN

1) financing assistance
2) market information
3) business linkages and networking
4) technology development
5) overall improvement in investment climate
6) training
7) counseling and advice

Non-IPN firms

1) technology development
2) market information
3) business linkages and networking
4) financing
5) training
6) overall improvement in investment climate
7) counseling and advice

Given the large number of barriers that SMEs face, participating in IPNs is not easy. Making small and medium manufacturers internationally competitive is a major challenge that would require government support and close coordination between the government and the SME sector. In light of this, the government could facilitate SMEs' gainful participation in IPNs through:

First, designing a coherent set of policies and programs tailor-made for IPN firms. It is also necessary to review current government support programs to find out whether or not they benefit IPN firms and to re-orient the programs to focus on deepening SME participation in international production networks.

Second, raising awareness of the potential of participation in IPNs and comprehensive understanding of the advantages and potential of sub-contracting. It is

important to develop a program to provide information exchange to local firms to make strategic linkages with MNCs. Supplier development and linkage programs should be developed to improve linkages between domestic firms, especially SMEs, with foreign affiliates of MNCs. The government could facilitate the matching of firms as well as providing subcontracting and outsourcing advice to domestic firms.

Third, addressing financing issues including inadequate working capital, insufficient equity, difficulties of credit finding and prohibitively expensive credit cost since these have severely constrained the growth of SMEs. Private banks are reluctant to lend to SMEs because of their general aversion to dealing with a large number of small accounts. Many SMEs cannot access available funds due to their limited track record, limited acceptable collateral, and inadequate financial statements and business plans. Some private banks were able to overcome these challenges by providing assistance in preparing accounting records, business advice, and simplifying loan documentation and customizing loans to match the borrower's cash flow.

Fourth, improving the technological capabilities and strengthening supply chains are necessary to enable SMEs to move up the technology scale as well as to create and enhance existing linkages with production networks. This would require the development of specialized skills and technological capabilities, particularly in electronics and auto parts. One possible way to achieve this is to design and grant incentives to encourage universities and researchers to interact more closely with industry. The Philippines can learn from the experiences of South Korea, Taiwan, and Singapore which all set up centralized institutions to monitor and diffuse new technologies and provided technological services to small and medium enterprises (SMEs) in particular.

Last but not least is the need to create an enabling environment for firms to survive and realize their potential to grow. This is a crucial precondition for private sector investment (domestic or foreign). Sound infrastructure and logistics that lower production costs and facilitate the easy supply chain management from the procurement of inputs to the export of outputs are also important for the operations of production networks. The government must continue to pursue policies to lower power and communication costs, provide sufficient port systems, reduce travel time, and offer travel and shipment options. To improve the country's overall investment climate, the

government needs to immediately focus not only on inadequate infrastructure but also on the country's low institutional quality, corruption and inefficient bureaucracy that continue to constrain doing business in the country.

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