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## Integrating SMEs into the East Asian Region: Philippines

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Philippine Institute for Development Studies  
*Surian sa mga Pag-aaral Pangkaunlaran ng Pilipinas*

## Integrating SMEs into the East Asian Region: Philippines

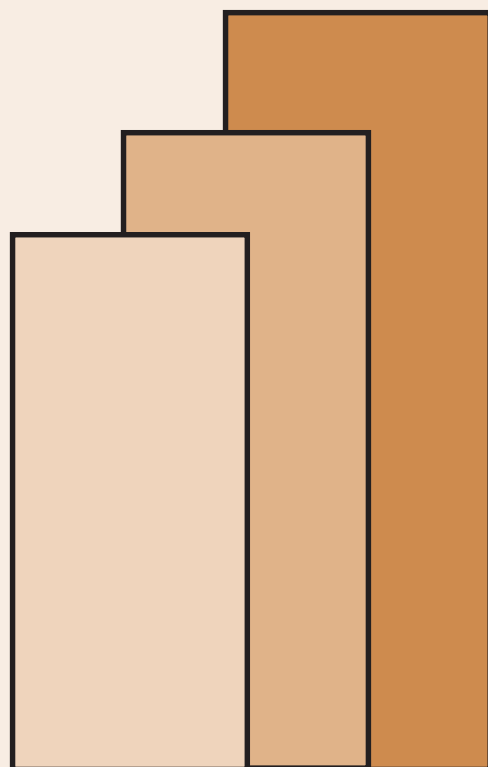
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# **Integrating SMEs into the East Asian Region: Philippines**

*Rafaelita Aldaba, Erlinda Medalla, Fatima del Prado and Donald Yasay<sup>1</sup>*

## **Abstract**

The paper aims to examine the characteristics and factors that constrain the growth of SMEs that are operating 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 rate 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 on the type of assistance needed. For IPN firms, financing assistance would be crucial while for non-IPN firms, technology development would be the most important.

## **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 in 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

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<sup>1</sup> 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 excellent contribution of the NSO team is gratefully acknowledged.

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 negotiating 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 the increasing regionalization trend 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 the light of rising globalization trend and increasing economic integration in East Asia, SMEs are seen as potential suppliers of outsourced parts and services and could provide the link to the export sector and/or RPNs which have increasingly grown in sectors such as automotive, machineries, 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 in both economic and social aspects. Understanding how SMEs could be integrated into the whole process of regional integration, particularly on how to deepen their participation in regional production networks, would be crucial in the formulation of policies for the growth and development of SMEs not only at national levels 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. The SME

literature in the Philippines abounds with studies focusing on the analysis of various SME government policies and programs covering issues on finance, technology, export promotion, marketing, logistics, and human resource development and training. However, there are not too many studies analyzing the impact of free trade agreements on SMEs. Studies focusing on SME participation in regional production networks are also limited.

Differentiating between firms that are operating within and outside IPNs, the paper 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, logistics 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. After 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 and 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 number of establishments, micro and small and medium enterprises (MSMEs) dominate the economy and account 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 Calabarzon area.

<<Table 1>>

In terms of distribution by sector, most establishments 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 is 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 of large enterprises (see column 9).

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

<<Table 2>>

Within the manufacturing industry, the large bulk of Philippine enterprises are microenterprises, 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 beverages sector dominated with a share of 47% followed by wearing apparel (13%) and fabricated metal products excluding machinery and equipment (11%).

<<Table 3>>

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 only 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>>

<<Table 5>>

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, an increase from its level of 72 percent contribution in 1998.

<<Table 6>>

Table 7 presents the contribution of the different manufacturing subsectors to total value added in 2003. Among SMEs, largest contribution was posted by the food processing and manufacturing subsector with a share of 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>>

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, the same 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>>

In general, the labor productivity of SMEs has remained only about half the labor productivity of large enterprises. Some narrowing of the gap was evident in 2003. Still, SMEs 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 difficult constraint to SME growth. As the FINEX and ACERD Study argued, the problem seems not to lie in the supply of funds potentially available for SME lending but 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 not aware of 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 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 some large firms that deliberately understate their assets 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. 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 a liquid and deep peso financial market contributes to the high cost of investment and makes it more difficult for enterprises to expand. Note, 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.

Note 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 include assistance in preparing accounting records, business advise, and networking. Planters customized and designed its products and services to suit the needs of SMEs. It simplified its loan documentation and tailor fitted loans to match borrowers' cash flow.

With respect to technology, many firms are not knowledgeable on technology with most SMEs employing poor or low level of technology. Most small enterprises are labor-intensive, while the medium-sized ones are relatively more technology-intensive.

With low level of technology, the production methods are generally inefficient which leads to inconsistent product quality, low level of productivity and lack of competitiveness. This is also manifested in high materials wastage, high rates of reworks, and inability to meet deadlines.

Regarding product quality and quality assurance of raw materials, this is better addressed if more firms will follow certified methods and undergo performance or quality tests. 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 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 general 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 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 lack of skilled labor, limited market access, lack of information on market opportunities and insufficient technical training. These constraints together with 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 and the economy in general.

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

With the rising globalization and economic integration trends, a new form of industrial organization known as international or regional production network 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 exports 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 the production networks have promoted the specialization of production in East Asia.

Participation in regional/global production networks provide domestic firms not only access to export markets but to newer technologies as well. To increase their overall competitiveness in international markets, lead 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 can generate substantial positive spillovers and externalities.

Global/regional production networks have increasingly grown in sectors such as automotive, machineries, 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 intraregional 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 American firm Ford have established their presence in the domestic market. Only Ford has made the country its export platform for passenger cars. In the case of Toyota<sup>2</sup>, it has assigned the Philippines as its manual transmission export hub.

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<sup>2</sup> 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

Auto parts such as wiring harnesses and transmissions are among the country's major exports. Auto parts 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<sup>3</sup> 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 who are 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 real quality problems. These firms failed to develop as they have insufficient capital and technology that are necessary to improve their products. The large firms with capitalization of more than P100 million account for only about seven percent of the industry. They comprise the major players of the industry and are the same companies manufacturing parts for OEM car assemblers and engaged in exporting activities.<sup>4</sup>

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TMMIN), Argentina and South Africa and turned them into assembly and export bases for a line of innovative IMVs.

<sup>3</sup> Recently, the automotive parts industry announced that this was already reduced to only 131 firms.

<sup>4</sup> 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 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 Ohtsuka Poly-Tech Phils. Inc.

The linkage between the automotive assembly sector and local parts and components has remained weak. After almost three decades of import substitution which was centered on local content policy, a large portion of the parts and components industry still remains underdeveloped. At best, the local content program only had a limited impact on the growth and development of the parts and components industry. Very little 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 needed by local motor vehicle assemblers. In contrast, the Thai auto industry sources close to 85-90 percent of their parts domestically. Studies have cited the following reasons why the government's local content program 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) old equipment and technology, many are using technologies that are more than 20 years behind; and (iv) lack of mold design technology, tool and die making.

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. EBESSE 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. Electronics comprise the bulk of total exports with an average share of 65 percent in the 2000s. Like the auto parts industry, the 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 with the presence of big American, European, Japanese, Korean, and Taiwanese companies like Intel<sup>5</sup>, 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 eroding 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 significantly increase 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 a technology is developed in the country that makes it commercially viable to bring these elements of production to the Philippines, they will continue to remain outside the country or locate in 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 local suppliers are few and immature. 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 Infocom, a manufacturer of motherboards and computer notebooks

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<sup>5</sup> 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

for export. Located at the Subic Bay Industrial Park, the excellent infrastructure attracted its suppliers in Taiwan to follow and locate also in 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 outsourcing locally (Austria 2006b). Agarwalla pointed out that in many instances, the multinational companies that could increase their local purchases were restricted by headquarters because the parent company had a global buying program requiring them to import from certified global suppliers even those items that are locally available. To address this, local suppliers are positioning themselves to become global suppliers of these MNCs. However, the process of being approved as global supplier is slow 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 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 garments industry has been dominated by the assembly<sup>6</sup> 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 called triangle manufacturing (Gereffi 2002), where a foreign buyer deals with an agent in a newly industrialized economy which then outsource 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,

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<sup>6</sup> The assembly system is an industrial subcontracting where 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 garments chain.

and Vietnam. With the 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 needs 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 garments industry. In the absence of an integrated textile industry, textile millers in the Philippines also face difficulties sourcing their raw materials importing about 80 percent of their input requirements like polyester fiber, cotton, rayon, and acrylic. Given the negative impact of the absence of good quality domestic textiles on the competitiveness of garments, some garments 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.

## **4. SME Survey of Manufacturing Firms**

### **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 looked at government assistance programs as perceived by the firms. The survey was administered by the Philippine National Statistics Office (NSO) from November to December 2009 to 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 garments, 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 ranging from 1 to 5 workers while 25% have workers from 6 to 49. Only 15% represent firms with workers from 50 to 99 workers.

Table 10a shows that of the total 101 firms, only 14 are IPN participants. A great bulk of these firms (86%) have employment ranging 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% other sectors. Comparing their mean employment, IPN firms have a much higher mean of 59 workers than non-IPN firms of 48 workers (Table 10b).

<<Table 9>>

<<Table 10a>>

<<Table 10b>>

Majority of the surveyed firms have been operating for more than 15 years (see Table 11). About 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>>

In terms of ownership, the surveyed firms are represented mostly by 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, about 10% each for IPN and non-IPN firms (Table 13).

<<Table 12>>

<<Table 13>>

Table 14 shows that among the surveyed IPN firms, only 29% are exporters. Among non-IPN firms, the ratio is lower at around 21%. IPN firms have mean exported output of 23% while for non-IPN firms, the mean is higher at 61% (Table 15). This is mainly because IPN firms are not directly exporting 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 IPN firms (50%).

<<Table 14>>

<<Table 15>>

<<Table 16>>

### **4.3 Overall Economic Performance**

Table 17 shows that among IPN 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 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% non-IPN firms.

<<Table 17>>

Table 18 indicates that in terms of profitability, both groups registered almost the same 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>>

In terms of labor productivity measured by sales per worker, 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>>

#### **4.4 Financing**

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

<<Table 20>>

Table 21 indicates that mean share of interest payments in 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 in total cost for most IPN firms ranges from one to 5%. For non-IPN firms, the majority has a share greater than 5%.

<<Table 21>>

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>>

Table 23 shows that all IPN firms rely on their retained earnings for financing their working capital. Retained earnings registered a mean of 76% for IPN firms. For non-IPN firms, financing sources for working capital vary but 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 has a mean of 56%.

<<Table 23>>

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>>

#### **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 from EPZs or industrial parks. Most of the surveyed firms are located in proximity to major sea 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 from main ports while non-IPN firms are within 2 to 10 kilometers from main ports. In terms of number of hours, most IPN and non-IPN firms are 1 to 2 hours away from main ports.

<<Table 25>>

#### **4.6 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% improved their existing machinery and equipment and 14% introduced new production methods. Around 36% of the respondents said 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 26>>

#### **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. Based on the perceptions of the surveyed firms, the results indicate that both IPN and non-IPN recipient firms are satisfied with the assistance that they got. For the 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.

<<Table 27>>

## **5. Analysis of SMEs and Regional Integration**

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

To gain deeper understanding of the constraints to SME growth, the survey also asked the firms’ perception of the barriers that they confront. The barriers are generally classified into two: 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 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 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 strategy 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>>

Non-IPN firms cited almost the same barriers in their top ten: high tax and tariff barriers; poor and deteriorating economic conditions at home; willingness to adopt new business strategy or ideas; difficulties in offering competitive prices to customers;

political instability; high costs of customs administration in exporting and importing; difficulty in meeting competitor's 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. In general, 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 increase the costs of their business operations. All these can 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).

In general, 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 nontariff barriers; distribution, logistics and promotion; informational; functional; and procedural. For non-IPN firms, the ranking is given by the following: product and price; taxes, tariffs, and nontariff barriers; business environment; informational; distribution, logistics and promotion; functional; and procedural.

<<Table 29>>

Firms were also 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>>

## **5.2 Case Study of Two Medium Automotive Parts Enterprises**

Box 1 presents two contrasting cases on how two medium-sized, 100% Filipino owned auto parts firms which were both established in the early 1970s are facing the challenges arising from the opening-up of the previously highly protected automotive industry. Though both are facing the same external environment, one is more successful than the other in terms of being able to survive and benefit from the trade liberalization and overcome constraints, both internal and external.

Firm X is a manufacturer of mufflers, exhaust systems, brackets and stamped parts while firm Y is a maker of brake disks and drums. By overcoming its own internal barriers mostly price and product barriers and changing its strategy, Firm X was able to adjust to the new liberalized environment. However, the other firm Y has failed to do the same. 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>>

Firm X notes that its success in penetrating the export market was due to a combination of factors such as a good marketing arm, capacity to manufacture good quality products at low cost and ability to deliver these on time, acquisition of modern machinery and equipment, and application of proper 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 in 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 has remained domestic-oriented and 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 product. The firm has a huge 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 that Firm X has invested in.

With increasing competition from imports and the lack of domestic demand, the experience of the two firms shows that to survive the liberalization in the automotive industry and compete against imports and other domestic manufacturers, one cannot rely solely on the domestic market. The automotive industry is a highly global industry; it is technology driven; competition is intense and only the best firms survive, those that can offer the lowest cost, highest quality and most innovative products. Firm Y tried its best to survive by defining its strategy and market position that it wanted to pursue. It shifted towards the international market and made serious efforts to find its right product mix and improve its manufacturing efficiency by enhancing its capabilities and investing on product development.

### **5.3 Conclusions and Some Broad Policy Recommendations**

On the 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 output than IPN firms. This is not surprising because IPN firms are usually not 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 borrowings that SMEs pay, IPN firms face lower rates compared to non-IPN firms. In addition, IPN firms have lower share of interest payments in total cost and much higher interest coverage ratio. In terms of financing sources for working capital and capital expansion, IPN firms come mainly from retained earnings and a small proportion from financial institutions. Non-IPN firms also use their retained earnings and source from financial institutions and other sources.

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



rate than non-IPN firms. Their mean profit rates are about 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 barriers 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 barrier:

- 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 tariff 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 tariff 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 idea (3)

The responses summarized in Table 30 are instructive in designing government policy measures to strengthen SMEs and 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 on the type of assistance needed. For IPN firms, financing assistance would be crucial while for non-IPN firms, technology development would be 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 must 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. Within this light, the government could facilitate SMEs' gainful participation in IPNs through:

First, designing a coherent set of policies and programs designed particularly for IPN firms. It is also necessary to review current government support programs on whether they benefit IPN firms and to re-orient the programs with focus on deepening SME participation in international production networks.

Second, raising awareness of the potential of participation in IPNs and good 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 can be developed to improve linkages between domestic firms, especially SMEs, with foreign affiliates of MNCs. The government can facilitate the matching of firms as well as provide subcontracting and outsourcing advice to domestic firms.

Third, addressing financing issues including inadequate working capital, insufficient equity, difficulties of credit finding and 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 advise, and simplifying loan documentation and tailor fitting 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 is to design and grant incentives to encourage universities and researchers to interact closely with industries. The Philippines can learn from the experience of South Korea, Taiwan, and Singapore which set up central institutions to monitor and diffuse new technologies and provided technological services to small and medium enterprises (SMEs) in particular.

Finally, creating an enabling environment for firms to survive and realize their potentials to grow is equally important. This is a crucial precondition for private sector investment (domestic or foreign). Good infrastructure and logistics that lower production cost 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.

## References

- Aldaba, R. 2008. "SMEs in the Philippine Manufacturing Industry and Globalization: Meeting the Development Challenges". Chapter 8 in ERIA Research Project Report 2007 No. 5. In *Asian SMEs and Globalization*, ed. Lim, H..
- \_\_\_\_\_. 2007 "Assessing the Competitiveness of the Philippine Auto Parts Industry", Philippine Institute for Development Studies (PIDS) Discussion Paper 2007-14.
- Agarwalla, Gokul (2005) "Study of Linkages in the Philippines Electronics Industry." Power Point Presentation. Manila, Philippines
- Antonio, Emilio Jr. and Rodolfo, Ma. Cherry Lyn (2006) "Assessment of Competitiveness and Logistics Infrastructure of the Philippine Garments Industry." Philippine Institute for Development Studies Discussion Paper Series No. 96-07. Makati, Philippines
- Austria, M. 2006a. "Enhancement and Deepening of the Competitiveness of the Philippine Electronics Industry Under a Bilateral Setting". PIDS Discussion Paper Series 2006-09. Philippine Institute for Development Studies. Makati City, Philippines.
- \_\_\_\_\_. 2006b. "Foreign Direct Investment and Economic Development: The Case of the Philippines". In *Multinationals and Economic Growth in East Asia*, ed. Urata, S., C. SiowYue, and F. Kimura.. London, Routledge.
- FINEX and ACERD (2006). "Making SMEs Work, Making SMEs Create Work: Job Creation Through Small and Medium Enterprise Development". A joint paper by the Ateneo Center for Research and Development (ACERD) and the Financial Executives Institute of the Philippines (FINEX)
- Fukumoto, Mayumi (1998). "Development Policies for Small and Medium Enterprises in APEC-In the case of the Philippines." APEC Study Center Institute of Developing Economies.
- Gereffi, Gary (2003). "The Global Apparel Value Chain: What Prospects for Upgrading by Developing Countries?" Vienna Australia: United Nations Industrial Development Organization.

Hapitan, R. (2005). "Competition Policy and Access of Small and Medium Enterprises (SMEs) to Financial Services: A Review of Selected SMEs", Philippine Institute for Development Studies.

Kawai, M. 2004. "Trade and Investment Integration for Development in East Asia: A Case for the Trade-FDI Nexus". Institute of Social Science, University of Tokyo.

Maxwell Stamp PLC. (2001), "Strengthening Export Competitiveness", Study conducted for the Asian Development Bank under TA 3345-PHI.

Santiago, Ernie (2005). "About The Philippine Electronics Industry: A Snapshot." Power Point Presentation. Manila, Philippines.

Tecson, Gwendolyn (2004). "Review of Existing Policies Affecting Micro, Small and Medium Enterprises (MSMEs) In the Philippines" Makati Philippines.: Small and Medium Enterprises and Development for Sustainable Employment Program.

### 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, moulds 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 of the firm is how to raise the necessary capital needed for its market expansion abroad.

Firm Y manufactured brake discs for Mitsubishi (or Pamcor) in 1975 and beginning in 1990, it also supplied Toyota and in 1991, Honda also became its customer. As the 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 cutback in demand that the industry faces, the company has downsized its labor force. Though prices of its raw materials and power costs have been rising, the company has been having difficulties passing these increases to its customers. Toyota wanted a 20% reduction in its price, which the company could not meet given the volume they are currently producing.

The company has also explored possibilities of entering the export market, but has not been successful. It has joined trade fairs abroad and but has not closed any deals yet. A French firm wanted 1.5 million pieces annually but was asking a 15% reduction in its price. A Japanese firm, on the other hand, wanted the company to fulfill major requirements to enable it to penetrate the world market. To satisfy their potential customers, the most crucial need is the upgrading of their existing equipment. In 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 R. Aldaba (2007).

**Table 1: Number of Establishments in the Philippines  
by Size 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 Activiti	44705	5.7	42272	5.9	2386	4.0	47	1.8
<b>TOTAL</b>	<b>783065</b>	<b>100.0</b>	<b>720191</b>	<b>100.0</b>	<b>60278</b>	<b>100.0</b>	<b>2596</b>	<b>100.0</b>
<b>% of TOTAL</b>	<b>100.0</b>		<b>92.0</b>		<b>7.7</b>		<b>0.3</b>	

**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 Communications	185184	3.7	25928	0.5	67087	1.3	92169	1.8
Financial Intermediation	258864	5.2	70944	1.4	90417	1.8	97503	2.0
Real Estate, Renting and Business Activities	493609	9.9	99752	2.0	142370	2.9	251487	5.0
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
<b>TOTAL</b>	<b>4984883</b>	<b>100.0</b>	<b>1667824</b>	<b>33.5</b>	<b>1660031</b>	<b>33.3</b>	<b>1657028</b>	<b>33.2</b>



**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 Wicker	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
<b>Total</b>	<b>117346</b>	<b>100.00</b>	<b>105074</b>	<b>89.54</b>	<b>11304</b>	<b>9.63</b>	<b>968</b>	<b>0.82</b>

**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

**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: 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: Labor Productivity, 1994, 1998, 2003 and 2006**

Year	1994		1998		2003		2006*	
	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.

**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	5	7	0	26
	23.33	20	46.67	0	25.74
Transport Parts, Components	14	8	1	0	23
	23.33	32	6.67	0	22.77
Electronics	18	4	5	1	28
	30	16	33.33	100	27.72
Others	14	8	2	0	24
	23.33	32	13.33	0	23.76
Total	60	25	15	1	101
	100	100	100	100	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	47.6437	59.1429	49.2376
SD	46.4928	40.3024	45.6734
Min	3	5	3
Max	216	144	216

**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

**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



**Table 14: SME Participation in Export**

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

**Table 15: Exported Output**

Exported Output	Non-IPN	IPN	Total
0<Exp>=0.2	2	2	4
	11.11	50	18.18
0.2<Exp>=0.5	8	2	10
	44.44	50	45.45
0.5<Exp>=1	8	0	8
	44.44	0	36.36
Total	18	4	22
Mean	0.6063889	0.225	0.5370455
SD	0.3852799	0.1908752	0.3847592
Min	0.01	0.07	0.01
Max	1	0.5	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	0.55	0.5012857	0.5432475
Std. Dev.	0.3312311	0.3419856	0.3314276
Min	0	0	0
Max	1	0.9861	1

**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

**Table 18: Profitability Rate**

Profit Rate	Non-IPN	IPN	Total
profit <= 3%	25	4	29
	31.65	30.77	31.52
3% < profit >= 10%	18	5	23
	22.78	38.46	25
10 < profit >= 19.3%	16	1	17
	20.25	7.69	18.48
profit > 19.3%	20	3	23
	25.32	23.08	25
Total	79	13	92
	100	100	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

**Table 19: Labor Productivity (in US\$000)**

Labor Productivity	Non-IPN	IPN	Total
0 < LP >= 3.74	16	2	18
	18.39	14.29	17.82
3.74 < LP >= 8.89	17	1	18
	19.54	7.14	17.82
8.89 < LP <= 23.78	24	6	30
	27.59	42.86	29.7
LP > 23.78	30	5	35
	34.48	35.71	34.65
Total	87	14	101
	100	100	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

**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	0.0761117
Min	0.0001	0.0004	0.0001
Max	0.36	0.24	0.36

**Table 21: Share of Interest Payments in Total Cost**

Interest share	Non-IPN	IPN	Total
Intsh<=1	5 16.67	2 28.57	7 18.92
1<Intsh<=5	8 26.67	3 42.86	11 29.73
Intsh>5	17 56.67	2 28.57	19 51.35
Total	30 100	7 100	37 100
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

**Table 22: Interest Coverage Ratio**

ICR	Non-IPN	IPN	Total
ICR<=11.5	7 25.93	0 0	7 21.21
11.5<ICR>=24.8	7 25.93	0 0	7 21.21
24.8<ICR>=71.4	7 25.93	3 50	10 30.3
ICR>71.4	6 22.22	3 50	9 27.27
Total	27 100	6 100	33 100
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: Working Capital Financing Sources**

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

**Table 23a: From Retained Earnings**

	Non-IPN	IPN	Total
less than 25%	31	1	32
	35.63	7.14	31.68
25% to 50%	6	1	7
	6.9	7.14	6.93
50% to 75%	7	4	11
	8.05	28.57	10.89
75% to 100%	43	8	51
	49.43	57.14	50.5
Total	87	14	101
	100	100	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	7	69
	71.26	50	68.32
less than 40%	13	6	19
	14.94	42.86	18.81
40% to 80%	5	1	6
	5.75	7.14	5.94
80% to 100%	7	0	7
	8.05	0	6.93
Total	87	14	101
	100	100	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	14	94
	91.95	100	93.07
less than 50%	6	0	6
	6.9	0	5.94
more than 50%	1	0	1
	1.15	0	0.99
Total	87	14	101
	100	100	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	9	62
	60.92	64.29	61.39
less than 50%	21	5	26
	24.14	35.71	25.74
50% to 100%	13	0	13
	14.94	0	12.87
Total	87	14	101
	100	100	100
Mean	0.1876161	0.1119357	0.1771257
SD	0.3233417	0.1843399	0.308255
Min	0	0	0
Max	1	0.4461	1

**Table 24: Capital Expansion Financing Sources**

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

**Table 24a: From Retained Earnings**

	Non-IPN	IPN	Total
zero	76	10	86
	87.36	71.43	85.15
less than 50%	6	1	7
	6.9	7.14	6.93
50 to 100%	5	3	8
	5.75	21.43	7.92
Total	87	14	101
	100	100	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	12	91
	90.8	85.71	90.1
less than 50%	3	2	5
	3.45	14.29	4.95
50 to 100%	5	0	5
	5.75	0	4.95
Total	87	14	101
	100	100	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	14	99
	97.7	100	98.02
less than 50%	2	0	2
	2.3	0	1.98
Total	87	14	101
	100	100	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	13	87
	85.06	92.86	86.14
less than 50%	5	0	5
	5.75	0	4.95
50 to 100%	8	1	9
	9.2	7.14	8.91
Total	87	14	101
	100	100	100
Mean	0.1029425	0.05	0.095604
SD	0.2831177	0.1870829	0.2717018
Min	0	0	0
Max	1	0.7	1



**Table 25a: Distance from Main Port (range in km)**

	Non-IPN	IPN	Total
2<dist<=10	40	4	44
	47.06	30.77	44.9
10<dist<=20	26	8	34
	30.59	61.54	34.69
20<dist<=40	16	1	17
	18.82	7.69	17.35
40<dist<=50	3	0	3
	3.53	0	3.06
Total	85	13	98
	100	100	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	0	12
	14.12	0	12.24
1<=dist<=2	40	7	47
	47.06	53.85	47.96
2 <dist<=3	25	3	28
	29.41	23.08	28.57
3<dist<=6	8	3	11
	9.41	23.07	11.22
Total	85	13	98
	100	100	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	6	43
	48.68	46.15	48.31
5<dist<=10	12	5	17
	15.79	38.46	19.1
10<dist<=25	11	1	12
	14.47	7.69	13.48
dist>25	16	1	17
	21.05	7.69	19.1
Total	76	13	89
	100	100	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 parks (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

**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 association	47 54.02	7 50	54 53.47
Involved in business associations, R	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 machiner	55 63.22	7 50	62 61.39
Improved existing machinery & facil	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 i	80 91.95	12 85.71	92 91.09
Introduced new know-how in produ	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	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	29 82.86	3 60	32 80
Introduced new products in existing	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 us	27 77.14	3 60	30 75
Introduced new products using exis	8 22.86	2 40	10 25
Total	35 100	5 100	40 100

**Table 27: Perceptions on Effectiveness of Government Assistance**

SME Group	Assistance Type	N	Mean	SD
Non-IPN	Financing	24	1.91667	1.28255
	Counselling 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
	Counselling 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	Counselling 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

**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&promotio	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 (eg sanitary and phytosanitary requirements)	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&promotio	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 market expansion	B5	14	3.071	1.542	functional	Internal
	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&promotio	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&promotio	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&promotio	Internal
	Excessive transportation/insurance costs	B21	14	3.286	1.437	distribution, logistics&promotio	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)	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
	Unfavourable 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&promotio	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 (eg sanitary and phytosanitary requirement	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&promotio	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&promotio	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&promotio	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&promotio	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&promotio	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 (eg sanitary and phytosanitary requirement	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 (eg intellectual property)_FM	B32b	86	3.60	1.32	tax, tariff & non tariff	External

\*HM: home

\*FM: foreign

**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

**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
	Counselling 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
	Counselling 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
	Counselling and advice	101	5.15842	1.71891
	Others	2	8	0