



Philippine Institute for Development Studies
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The Philippine Manufacturing Industry
Roadmap: Agenda for New Industrial Policy,
High Productivity Jobs, and Inclusive Growth

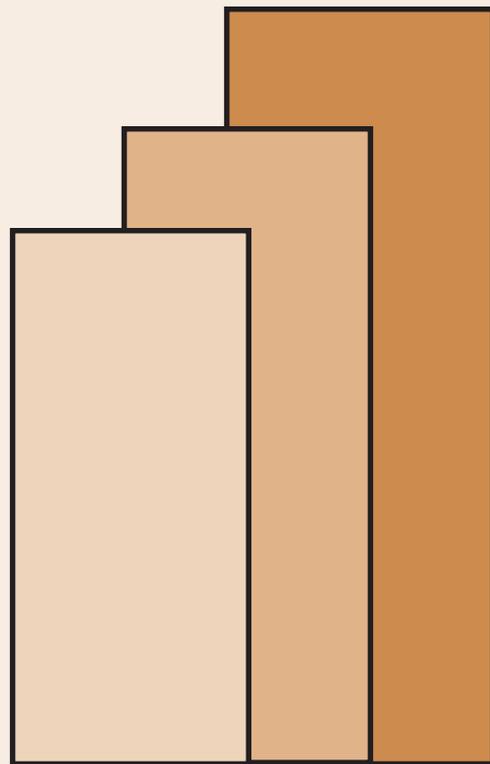
Rafaelita M. Aldaba

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Abstract

In the light of the weak performance of the Philippine manufacturing industry and the absence of structural transformation of the economy from agriculture to manufacturing in the last two decades, the paper calls for the implementation of a new industrial policy. This is crucial not only to upgrade Philippine industries, generate more and better jobs and reduce poverty but also to take advantage of the market opportunities and face the challenges arising from the ASEAN Economic Community.

Based on the sectoral roadmaps submitted by industries to the Department of Trade and Industry and Board of Investments, the paper has formulated a comprehensive industrial strategy to enable manufacturing firms to upgrade, thrive and become catalysts and engines for sustained and inclusive growth. The long-term vision of the Manufacturing Industry Roadmap is to develop a globally competitive manufacturing industry supported by strong backward and forward linkages with both domestic and global supply chains. Through the implementation of the Roadmap, manufacturing contribution to the economy would account for 30% of total value added and generate 15% of total employment.

Industry policies will focus on horizontal and vertical measures and a coordination mechanism to enhance firm productivity, strengthen supply chains to enable firms to move up the technology scale, link domestic firms with multinational companies and aggressively court more investment. Horizontal measures will cover human resource development, SME development, technology upgrading and innovation, investment promotion, and a competitive exchange rate policy. It will also address issues such as high power and logistics cost, smuggling, and infrastructure weaknesses. Vertical measures will address gaps in industry supply chains and expand the domestic market base as springboard for exports. A coordination mechanism will be designed to allow more interaction between government agencies and industries in identifying obstacles and determining the most appropriate interventions.

The roadmap implementation will be private-sector led while the government acts as facilitator. As facilitating government, it will encourage producers to take risks, correct market and government failures and address changes in policies and institutions. By creating the proper environment and strengthening industries, the government can promote the success of domestic firms in both the local and international markets that will lead to economic transformation. Only with the right environment can manufacturing unleash its full potentials to take advantage of the market opportunities currently facing us and become an engine for sustained and inclusive growth.

Key words: manufacturing industry, structural transformation, Philippines

Executive Summary

Around the world, growth patterns and sources of competitiveness are changing dramatically with emerging economies becoming key players as the US, EU, and Japan continue to face slow growth. In the context of these rapidly changing global conditions, the Philippines is now seen as a new growth market. Many see the impressive 7.6% third first half growth rate in 2013 and 6.6% growth posted in 2012 as providing the necessary momentum that would drive the country to a higher and more rapid growth path. The creation of the ASEAN Economic Community in 2015 and the emergence of regional and international production networks offer increased trade and investment opportunities. It is from this global perspective that both the government and private sector must formulate their strategies to adapt to changing market trends.

Globalization also brings with it more competition and to survive and take advantage of the opportunities, industries must be competitive. On the overall, the performance of the manufacturing industry in the past two decades has been weak in terms of its contribution to growth and employment generation. From the 1980s up to the early 2000s, manufacturing growth was slow. Modest growth was posted in the 2000s averaging around 4.1 percent. The contribution of manufacturing to total output remained unchanged at 24 percent in the 1990s and 2000s. In terms of employment contribution, manufacturing failed in creating enough employment to absorb new entrants to the labor force as its share to total employment remained stagnant at 9 percent from the 1990s till the 2000s. This implies that there has been no structural transformation of the economy from agriculture to manufacturing, no rapid industrial growth led by manufacturing but instead, what we observe is a rising services and a declining manufacturing industry. This is in stark contrast to the substantial increases in manufacturing that neighboring countries like Thailand, Indonesia, Malaysia and China have experienced.

Is there still a chance for the Philippines to catch up with our neighbors? Yes, there are potential growth areas where the Philippine manufacturing industry can play an important role. The Philippines has remained competitive in **classic** products such as copper ores, unmanufactured tobacco, vegetable textile fibers, knitted clothing, machinery products like electric distribution equipment, radio broadcast receiver, transistors and valves; and chemical products like phenol and alcohol. The country also has **emerging product champions** given this product group's rising competitiveness in the 2000s. This include animal products like milk and cream; manufactured tobacco, parts of electric power machinery, parts of machinery apparatus, and parts for tractors and motor vehicles; glass and chemical products like metal salts and inorganic acid. For certain products such as veneers, plywood, sugars, molasses, cocoa, natural rubber, fish, animal and vegetable oils, pottery furniture, cushions, clothing accessories and fabric; competitiveness has been diminishing. For this group, the main focus is

how to move up the value chain or product or technology ladder to more sophisticated products. There are also **marginal** or promising group where competitiveness has remained low for most years but has shown recent significant improvements in the last three or four years. This includes pulp and paper, cereal preparations, edible products, ship, boat, motorcycles, aircraft associated equipment, medical instruments, arms and ammunitions as well as chemical products like soap and cleaners. The policy focus is to observe and craft measures to help them grow, survive import competition and become exporters.

In a separate study by Usui (2012), there are opportunities in the following “nearby” products (essentially these are low hanging fruits because the requirements for operating in these products are already present in the country): complete digital processing machines, cameras, appliances and parts, woven fabrics of synthetic material, precious jewelry, refined sugar, jewelry, woven fabric of synthetic material, clocks, watches, and cameras. For “middle” products (some of the required capabilities are present in the country), the opportunities are in angles, shapes, sections and sheet filing of iron and steel, chemical products such as salts of metallic acids, phenoplasts, aminoplasts, felts and articles of felts and bonded fiber fabrics, and fiber building board of wood or other vegetable material. For “far-away” products (requirements are still not developed in the country), the opportunities are in printing and writing paper, chassis fitted with engines for vehicles, bodies for vehicles, other parts and accessories of vehicles, paper and paperboard products, salts and derivatives, and special products of textile materials. Foreign direct investment is crucial in moving to both “middle” and “far-away” products.

To take advantage of the above opportunities that would enable us to catch up, it is crucial to formulate a strategy for technology upgrading and transformation of the manufacturing industry. This would entail the identification of the most binding constraints to the upgrading of product quality and entry of new firms in these potential growth areas. Thus, a new industrial policy is necessary to help the government determine measures to address the most binding constraints to growth and strengthen industries and the business environment in which they operate.

Transforming and upgrading the manufacturing industry is the best way to achieve inclusive growth, create quality jobs, increase income and reduce poverty. The long-term vision of the Manufacturing Industry Roadmap is to develop a globally competitive manufacturing industry supported by strong backward and forward linkages within the economy.

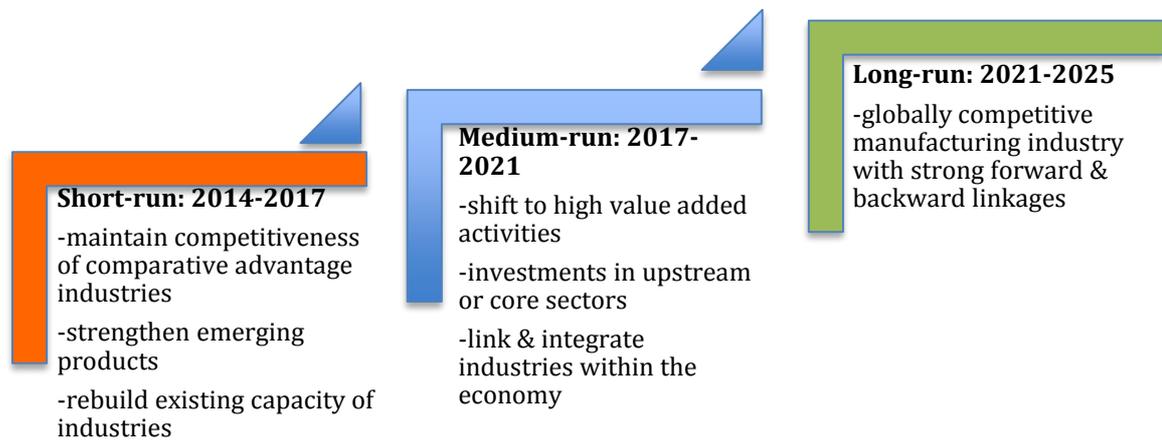
In the short run, the policy focus should be on strengthening existing industries especially those with strong potentials to generate employment, address missing gaps, move up the product ladder and create linkages and spill-over effects in sectors such as automotive, electronics, food, garments, motorcycle, shipbuilding, chemicals, and allied or support industries. During this initial stage, policies and programs should aim at exploiting economies

of scale and learning by doing. Automotive, electronics and garments are industries characterized by global/regional production networks. Deepening our participation in these networks would be crucial for industries and SMEs in particular to benefit from the on-going regional economic integration in ASEAN and East Asia.

Figure 1: Objectives: Industry Roadmap for Structural Transformation, Job Creation and Poverty Reduction

Goal: a globally competitive manufacturing industry supported by a strong parts and components

Targets: manufacturing contribution of 30% of total value added and 15% of total employment

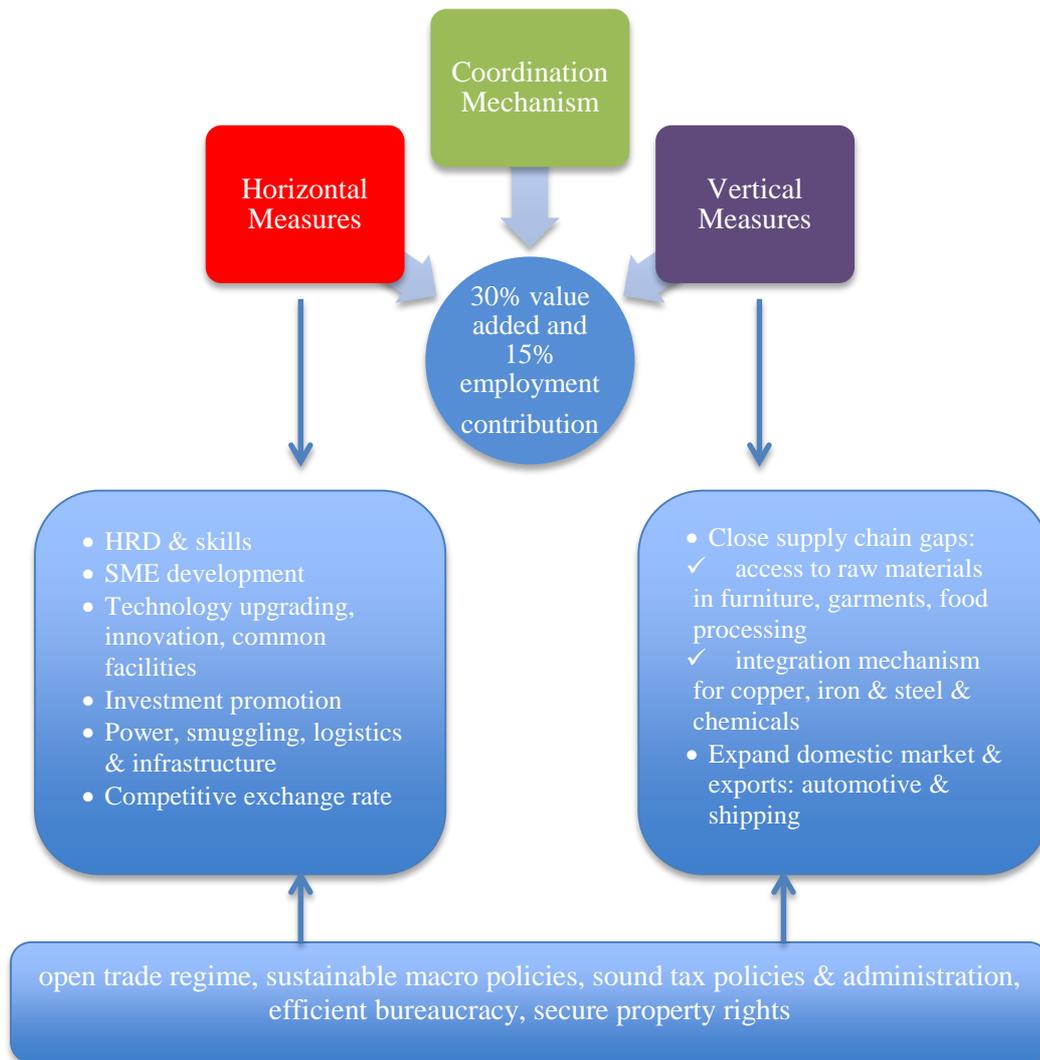


In the medium-term and as domestic capacities are reached, efforts in the initial stage should lead to expansion and new investments especially in the upstream, intermediate or core sectors such as iron and steel and other metals as well as in parts and components industries. By linking manufacturing with agriculture, mining, and services; supply chain gaps will be addressed and forward and backward linkages will be strengthened.

In the long-run, a globally competitive manufacturing industry with strong forward and backward linkages is envisioned as the Philippines play a vital role in the regional and international production networks of automotive, electronics, garments and food.

The Manufacturing Industry Upgrading Roadmap aims to increase the contribution of manufacturing to 30 percent of total output and 15 percent of total employment. There are three main pillars to achieve these targets: vertical measures, horizontal measures, and government-industry coordination mechanism.

Figure 2: Three Pillars of the Manufacturing Industry Upgrading Roadmap



1. Vertical Measures

To achieve the specific objectives outlined in Figure 1 and to overcome the most binding constraints to growth, upgrade industries and make markets work; the following **vertical or industry specific measures** are recommended:

a) Address gaps in industry supply chains

- Copper: establish an institutional mechanism to fully integrate the industry
- Furniture: establish supply hubs for raw and natural materials
- Tool and die: access to raw materials, equipment, & software
- Iron and steel: full integration of the industry up to mining; reliable supply of iron ore and coal
- Motorcycle and motorcycle parts: strengthen local parts industry to improve its linkage with assembly

- Petrochemical: enhance the competitiveness of downstream products
- Plastic: encourage the growth of the recycling industry; provide incentives for upgrading
- Biodiesel: develop feedstock through seedling development for high yield coconuts and other energy crops; map suitable areas for biodiesel feedstock production

b) Expand the domestic market base and exports

- Automotive: fiscal and non-fiscal incentives to rebuild the domestic market.
- Ship building: implement RA 9295 (retirement of old vessels, restrictions on vessel importation); demand development in domestic offshore and maritime sectors.

2. Horizontal Measures

To overcome the cross-cutting constraints, the following **horizontal measures** are recommended:

a) HRD and skills training programs

Design human resource development and training programs to improve skills in the and at the same time, establish tie-ups with universities and training institutions. Note that with educated and well-trained workers, it is easier to learn new skills and enter new trades.

b) SME development and innovation

Support SME development through appropriate innovation incentives and mechanisms such common service facilities (for example, quality testing) and R&D facilities, clustering, and industry-academe linkages for new product development and applied technology for indigenous products/raw materials. Grants, loans, innovation vouchers, and counterpart funding to innovative firms and technical assistance to promote long-term research collaboration between universities and business are also important.

c) FDI Promotion

Pursue aggressive and strategic promotion and marketing programs to attract more foreign direct investments especially those that would bring in foreign technologies. Consolidate and intensify the investment promotion efforts of BOI, PEZA, Clark, and Subic.

d) Business environment improvement

Improve the business environment by addressing smuggling, high cost of power, high domestic shipping (including port charges), inadequate infrastructure. Speed up and facilitate the

implementation of Private Public Partnership programs to finance ports, airports, highways, electricity grids, telecommunications and other infrastructure along with improvements in institutional effectiveness particularly in curbing smuggling.

e) Competitive exchange rate

Maintain a competitive exchange rate in order to support and strengthen the new industrial policy of the government. Manage the exchange rate to tip the balance slightly in favor of exports, prevent surge of capital inflows and avoid excessive appreciation of the peso. Aware of these concerns, the BSP has implemented some measures such as the ban on foreign funds in special deposit accounts (SDA), lowering of SDA interest rates, and cap on non-deliverable forwards for banks (to take effect in March 2014); although many still perceive these measures to be relatively mild and suggest more stringent forms if inflows persist and the need to balance the inflation objective versus the competitiveness goal.

3. Coordination Mechanism

Industry transformation and upgrading entails an important role for the government as it needs to coordinate policies and necessary support measures that will address the obstacles to the entry and expansion of domestic firms. Industry analysis and consultations show that coordination failures are the most crucial factors that must be addressed to catalyze industry development in the country. For instance, implementation of approved legislations (RA 9295 in shipping); strict enforcement of product quality standards; measures providing access to raw materials, intermediate inputs and common service facilities; and aggressive investment promotion and marketing to attract investments are some of the measures that can be implemented by the present administration. In all these, close coordination among government agencies and the private sector as well as effective policy implementation would be vital for industry development. Equally important is for the government to focus its efforts in addressing the high cost of power, domestic shipping, and smuggling which are the most binding horizontal constraints affecting most industries.

Coordination mechanism through industry councils would allow more interaction between government agencies and industries in identifying obstacles and determining the most appropriate interventions. The Department of Trade and Industry will lead the process of coordination among the different government agencies, local government units and industries. Industry and government champions have been identified by the DTI-BOI in carrying out these coordinative functions.

While the private sector is seen as the major driver of growth, the government has an important role to play in **coordinating and facilitating policies and necessary support measures that will address the most binding obstacles to the entry and growth of domestic**

firms and creation of the right policy framework to encourage the development of the private sector along the lines of the country's latent comparative advantage. In the short-run, the granting of fiscal incentives is not the most binding constraint affecting the growth of most industries. The analysis has shown that close coordination among government agencies and effective policy implementation are the most crucial factors for industry development. Implementation of legislations; strict enforcement of product quality standards; measures providing access to raw materials, intermediate inputs and common service facilities; and aggressive investment promotion and marketing to attract investments are some of the immediate measures that the present administration can already put in place. To encourage investments in new areas that are aligned with the country's latent comparative advantage, limited fiscal incentives and other support may be granted to the first mover(s). The granting of temporary incentives would be based on strict criteria and guidelines on the potential of the activity to (i) generate employment, (ii) address missing gaps in the supply/value chain or to move up the value chain or product ladder, (iii) generate spill-over effects to the economy, and (iv) promote a competitive market environment.

By creating the proper environment and strengthening industries to ensure that they are not disadvantaged by international competitors, the government can promote the success of domestic firms in both the local and international markets that will lead to economic transformation. Only with the right environment can manufacturing unleash its full potentials to take advantage of the market opportunities currently facing us and become an engine for sustained, inclusive growth, creation of quality jobs, and poverty reduction.

The Philippine Manufacturing Industry Roadmap: Agenda for New Industrial Policy, High Productivity Jobs and Inclusive Growth¹

Rafaelita M. Aldaba²

I. Introduction

These are exciting times for the Philippines as we now face a decisive moment for the future of the economy. The economic outlook remains positive with 6.8% growth rate posted in 2012 and 7.8% in the first quarter of 2013. With the Philippines' steady growth pace, international credit rating agencies recently upgraded the country's rating to investment grade. In the context of rapidly changing global conditions, the Philippines is now seen as a new growth area especially as investors look for alternative areas after the Japan quake and Thai flooding that disrupted many supply chains as well as the rising yen and increasing labor costs in China.

Nomura Research (2010) indicated that the Philippines has comparative advantage in electronics sub-sectors like printers, multifunction peripheral, projectors, scanners, and digital cameras. Nomura identified missing linkages in the electronics supply chain such as photovoltaic cell, LEDs, rechargeable batteries for hybrid electric vehicles and electric vehicles and mobile digital devices, and next generation energy infrastructure. In a separate report, Nomura (2012) also highlighted our potentials in shipbuilding especially in view of plans by Korea and Japan to expand in overseas market. All these imply possible areas for investment in the country.

With the popularity and high trust rating of the Aquino administration and its continuing efforts to improve the country's infrastructure and investment climate as well as our strengths such as low and stable wages, abundant, young, skilled, English speaking workers; the Philippines is well positioned to attract new investments that would catalyze growth and development of industries. To realize this, the government needs a strong, diversified and inclusive growth model where the industrial sector plays a key role in generating investment, employment, and innovation. A strong and modern industrial base will enable the real economy to lead the country's high level and sustained growth.

Our experience shows that trade liberalization does not automatically lead to growth nor to a competitive domestic market economy. Though imports are effective in disciplining domestic manufacturing firms, the government has an important role to play particularly in

¹ The study is one of the major outputs of the Philippine Institute for Development Studies -Department of Trade and Industry-Board of Investments (PIDS-DTI-BOI) Development of a Comprehensive Industry Plan and Sectoral Roadmaps Project.

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creating and maintaining a competitive environment. It needs to coordinate policies to implement trade liberalization in tandem with necessary support measures that will address the obstacles to the entry, exit and growth of domestic firms. An industrial policy must be deployed to strengthen our industrial base and remove the binding constraints affecting industrial growth.

Central to the new industrial policy framework is the process of competition, innovation, and productivity that serves as channels through which a more open trading environment affects growth and generation of employment. The literature on trade and productivity shows that productivity improves following trade liberalization.³ As Melitz (2002) points out, trade opening may induce a market share reallocation towards more efficient firms and generate an aggregate productivity gain. Through increases in competition, increasing evidence supports the claim that international trade enhances innovation leading to productivity growth.⁴

Given the opportunities and challenges, firms must be able to formulate their strategies from a global perspective to adapt to changing market trends. By creating the proper environment and ensuring that domestic industries are not disadvantaged by international competitors, the government can promote the success of our firms in both the domestic and international markets leading to economic transformation. Only with the right environment can industries unleash their full potentials to become an engine for inclusive growth and creation of new jobs and new skills.

Based on the sectoral roadmaps submitted by industries to the Department of Trade and Industry and Board of Investments, the report aims to formulate a comprehensive industrial strategy to enable manufacturing firms to upgrade, thrive and become catalysts and engines for sustained and inclusive growth. Industry policies will focus on horizontal and vertical measures and coordination mechanisms to enhance firm productivity, strengthen supply chains to enable firms to move up the technology scale, link domestic firms with multinational companies and aggressively court more investment.

The Report is divided into five parts. After the introduction, Part II assesses the current state of the manufacturing industry. Part III discusses the need for a new industrial policy and the overall diagnostics framework used in formulating the industry strategy. Part IV analyzes the potential areas for growth and identifies the most binding constraints to realizing these potentials. Part V presents the roadmap and outlines the major horizontal, vertical and coordination recommendations.

³ This result has been shown in countries like Chile (Pavcnik 2000), Columbia (Fernandes 2003), India (Topalova 2003), Indonesia (Amiti and Konings 2004; Muendler 2002), and Brazil (Schor 2003).

⁴ See Impulliti and Licandro 2010 and 2009 and Licandro 2010.

II. Current State of the Philippine Manufacturing Industry

A. Overall Performance and Contribution to the Economy

1) Value Added Structure and Growth

Since the 1980s, the Philippines has made considerable progress in opening-up the manufacturing industry by removing tariff and non-tariff barriers. Despite the market-oriented reforms, the growth of the manufacturing industry has been slow. Table 1 presents the average growth rates of the economy from the 1970s to the 2000s. While the industry sector was the best performer in terms of average annual growth rate in the 1970s, the services sector has become the most important sector in the succeeding decades. Both agriculture and industry, manufacturing in particular, experienced sluggish growth in the 1980s and 1990s; modest gains were registered in the period 2001-2010. Average growth rate was around 4.1% from 2001 to 2010. Note that in 2011, manufacturing recorded 4.7% growth and 5.4% in 2012. In contrast, the average growth rate of the services sector increased particularly in the last two decades as its average growth rate went up from 3.6% in the 1990s to 5.8% in the 2000s. Services grew by 5.1% in 2011 and by 7.4% in 2012.

Table 1: Average Growth Rates by Sector

Year	1971-80	1981-90	1991-00	2001-10	2011	2012
Gross Domestic Product	5.7	1.7	3.0	4.7	3.9	6.6
1. Agriculture, Fishery, Forestry	3.9	1.1	1.8	3.0	2.7	2.7
2. Industry Sector	7.6	0.3	3.0	4.2	2.3	6.5
Manufacturing	5.9	0.9	2.5	4.1	4.7	5.4
3. Service Sector	5.2	3.3	3.6	5.8	5.1	7.4

Source of basic data: National Accounts of the Philippines, National Statistical Coordination Board

Table 2 shows that the average share of manufacturing value added increased from 28% in the 1970s, this declined to 26% in the 1980s, to around 24 percent in the 1990s and 23.7% in the 2000s. However, manufacturing share in 2011 and 2012 declined to 22%. It is also evident from the table that the Philippine economy's output structure is characterized by a large services sector. The services sector's share continued to increase from an average of 37 percent during the 1970s to 40.4 percent in the 1980s, 42.4 percent in the 1990s and to 48 percent in the most recent period. In 2011, services accounted for a share of 56.4% and 56.9% in 2012.

Table 2: Value Added Structure by Major Economic Sector

Year	1971-80	1981-90	1991-00	2001-10	2011	2012
Agriculture, Fishery, Forestry	25.6	23.9	20.8	18.9	11.5	11.1
Industry Sector	38.3	38.0	34.1	33.1	32.1	32.1
Manufacturing	28.2	26.3	24.3	23.7	22.4	22.1

Service Sector	36.6	40.4	42.4	48.0	56.4	56.9
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Source of basic data: National Accounts of the Philippines, National Statistical Coordination Board

Table 3 shows a more detailed structure of manufacturing value added. Consumer products continue to dominate the sector, although its share dropped from 57 percent during the 1980s to 50 percent in the 1990s and 51% during the 2000s. In 2011, its share declined to 48% but recovered quickly in 2012 as its share went up to 50%. Food manufactures remained the largest subsector with a share of 40% in the 2000s, although this declined to 37% in 2011 and 38% in 2012. Average growth continued to increase from 0.2% in the 1980s to 1.8% in the 1990s and to 4.6% in the 2000s. In 2011, its growth hit 7.3% and 10.3% in 2012.

Table 3: Structure and Growth of Manufacturing Value Added (in percent)

	Average Share					Average Growth Rate				
	80s	90s	20s	2011	2012	80s	90s	20s	2011	2012
Consumer Goods	57	50	51	48	50	0.2	1.8	4.6	7.3	10.3
Food manufactures	44	36	40	37	38	-0.7	1.8	5.9	3.1	6.9
Beverage industries	4	4	4	4	4	7.1	2.3	3.8	17.2	4.4
Tobacco manufactures	3	3	1	0.4	0.4	1.0	1.2	-9.7	-18.8	-0.2
Footwear, wearing apparel	5	6	4	3	3	5.7	1.5	-2.0	3.9	39.0
Furniture and fixtures	1	1	1	3	4	1.6	2.0	6.2	94.8	38.7
Intermediate Goods	31	35	27	20	20	1.7	1.6	2.4	4.3	3.8
Textile manufactures	4	3	2	2	2	0.3	-4.6	0.8	-2.3	-0.5
Wood and cork products	2	2	1	1	1	-4.6	-4.0	-2.7	-8.7	18.1
Paper and paper products	1	1	1	1	1	4.0	-0.7	0.6	14.6	-4.5
Publishing and printing	1	2	1	1	1	3.2	1.4	0.6	-5.6	1.8
Leather and leather prod.	0	0	0			-3.4	5.3	-4.8		
Rubber products	2	1	1	2	2	1.4	-2.2	1.1	7.6	8.1
Chemical & chemical prod.	7	6	6	7	7	-0.7	2.5	4.4	18.1	4.0
Products of petroleum & coal	12	17	14	4	4	6.1	3.7	2.6	-9.1	-3.9
Non-metallic mineral prod.	2	3	2	2	3	2.3	2.1	5.0	2.9	15.1
Capital Goods	10	13	19	29	27	1.9	6.2	5.5	0.2	0.1
Basic metal industries	3	2	3	2	2	9.5	-1.8	13.1	-0.6	-18.1
Metal industries	2	2	2	1	1	3.9	0.1	5.3	6.7	0.1
Machinery except electrical	1	1	1	3	3	0.4	5.9	-0.5	2.7	8.6
Electrical machinery	3	6	12	21	20	7.3	13.2	5.7	0.4	-0.7
Transport equipment	1	1	1	2	2	-5.0	2.4	7.5	-6.4	12.3
Miscellaneous manufactures	2	2	3	4	3	8.0	4.9	7.9	12.5	-6.8
Total Manufacturing	100	100	100	100	100	0.9	2.3	4.1	4.7	5.4

Source: National Income Accounts.

Intermediate goods like petroleum and coal products and chemical and chemical products follow, accounting for an average share of 31 percent in the 1980s to 35 percent in the 1990s, however, its share dropped markedly to 27% in the 2000s. In both 2011 and 2012, its

share declined and remained at 20%. Its average growth rate posted 2.4% during the 2000s, an improvement from 1.6% in the 1990s and 1.7% in the 1980s.

The share of capital goods increased substantially from approximately 10 percent in the 1980s to 17 percent in 1990s. Its average share is about 19 percent in the 2000s. This can be attributed to the strong growth of the electrical machinery sub-sector which increased substantially from 7.3% in the 1980s to 13.2% in the 1990s. Electrical machinery was the best performer from the 1980s up to the 1990s. Although in the 2000s, its growth slowed down to 2.7% due to the 2008 global economic crisis. In terms of share, this went up from 3% in the 1980s to 6% in the 1990s and 12 percent in the period 2000s. In 2011, capital goods recorded a share of 29% but dropped to 27% in 2011. Electrical machinery share posted a 21% share in 2011 and 20% in 2012.

Table 4 compares the value added structure of the Philippines with other East Asian countries. It is evident from the data that our neighboring countries registered reductions in the share of agriculture and substantial increases in the share of industry during the period 1990 to 2010. In comparison, the share of Philippine agriculture dropped from 22 percent to 18 percent, industry declined from 34 percent to 33 percent while services, which constituted a large portion of Philippine output, rose sharply from 44 percent in 1990 to 55 percent in 2010.

Table 4: Structure of Output (as percentage of GDP)

Sector	Philippines			Thailand			Indonesia			Malaysia			China		
	90	99	10	90	99	10	90	99	10	90	99	10	90	99	10
Agriculture	22	18	12	12	10	12	19	19	15	15	11	11	27	18	10
Industry	34	30	33	37	40	45	39	43	47	42	46	44	42	49	47
Manufacturing	25	21	21	27	32	35	21	25	25	24	32	26	33	32	30
Services	44	52	55	50	50	43	41	37	38	43	43	45	31	33	43

Source: World Bank, 2010 World Development Indicators.

2) Employment

In terms of employment contribution, the services sector has become the largest provider of employment in the most recent period (Table 5). The share of the labor force employed in the sector consistently increased, from around 32 percent in the mid-1970s to about 49 percent in 2000-2011. The share of industry to total employment has been almost stagnant at 15% from the mid 1970s to the most recent period under review.

Table 5: Structure of Employment (in percent)

Major Sector	1975-78	1980-89	1990-99	2000-11	2011	2012
Agriculture, Fishery and Forestry	52.83	49.6	43.16	36.07	32.99	32.14
Industry	15.23	14.49	15.98	15.1	14.87	15.35
Mining and Quarrying	0.46	0.66	0.59	0.42	0.57	0.67
Manufacturing	11.29	9.93	10.01	9.08	8.28	8.33

Electricity, Gas and Water	0.35	0.36	0.44	0.4	0.4	0.43
Construction	3.13	3.54	4.94	5.22	5.62	5.92
Services	31.87	35.9	40.94	48.82	52.14	52.51
Wholesale and Retail Trade	10.32	12.55	14.54	18.65	19.89	18.75
Transportation, Storage & Communication	4.08	4.45	5.8	7.46	7.46	7.85
Financing, Insurance, Real Estate & Business Services	4.55	1.79	2.18	3.55	7.56	8.23
Community, Social & Personal Services	14.05	17.11	18.42	19.17	17.23	17.68
Industry not Elsewhere Classified	0.49	0.02	0.05	0	0.01	0.01

Sources: Yearbook of Labor Statistics (1980-2000) and Current Labor Statistics (2001-2002), Bureau of Labor and Employment Statistics, Department of Labor and Employment and Employed Persons by Major Industry Group, National Statistics Office Labor Force Survey (1970, 1975-1976, 1977-1978, 2003-2009).

The manufacturing sector has failed in creating enough employment to absorb new entrants to the labor force as well as those who move out of the agricultural sector. Its share dropped from 11 percent in the mid-1970s to 9 percent in the 2000-2011 period. While the share of agriculture has been declining, the sector has remained an important source of employment. From 52.8 percent in the mid-1970s, the agriculture sector's share in total employment continuously declined in the succeeding decades and is currently around 36 percent. Note that in 2011 and 2012, manufacturing posted a share of only 8%.

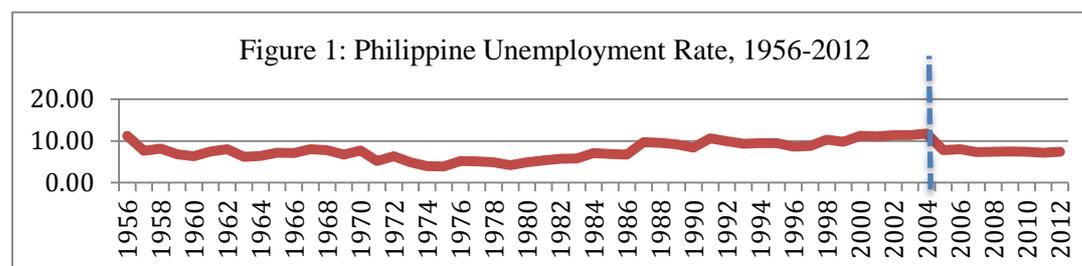
Table 6 and Figure 1 presents the average unemployment and underemployment rates from the 1950s to present. Unemployment increased steadily from an average of 4.9% in the 1970s to 7% in the 1980s, 9.8% in the 1990s and 11% during the early 2000s. Underemployment rate was high and was more than double the unemployment rate up to the 1990s. It declined from 26% in the 1980s to 21% in the 1990s and to 17% in the early 2000s. Note that due to the change in the definition of unemployment in 2005, there has been a big drop in the unemployment rate and an increase in the underemployment rate for the period 2005-2010.

Table 6: Labor Market Indicators

Year	Unemployment Rate	Underemployment Rate	GDP growth rate
1956-60	8.01	--	--
1961-70	7.26	--	6.2
1971-75	4.86	21.00	4.8
1981-90	7.43	25.74	5.7
1991-00	9.75	21.39	1.7
2001-04	11.43	17.20	3.0
2005-10	7.87	20.14	4.9
2011	7.02	19.25	3.9
2012	6.98	19.95	6.6

Sources: Yearbook of Labor Statistics. BLES-DOLE. The rates for 2011 & 2012 are from Labor Force Survey of NSO. Notes: (1) Starting April 2005, unemployed persons include all persons 15 years old &

over & are reported as (i) without work & currently available for work & seeking work & (ii) without work & currently available for work but not seeking for work due to the following reasons: tired/believed no work available; awaiting results of previous job application; bad weather; & waiting for rehire/job recall. (2) Prior to 1976, working age population covered 10 years old and over, and from 1976 onwards, 15 years and above.



Source: Yearbook of Labor Statistics. BLES-DOLE. The rates for 2011 & 2012 are from Labor Force Survey of NSO. Note: Starting April 2005, NSO changed the definition of unemployment (see above).

Table 7 presents the relative wages of skilled to unskilled workers⁵ using the Occupational Wages Survey of the Bureau of Labor Statistics. The Survey covers average monthly wage rates of time-rate workers on full-time basis employed in non-agricultural establishments employing 20 or more workers. These are based on basic pay referring to pay for normal/regular working time before deductions for employees' contributions and withholding taxes and excluding overtime, night shift differential and other premium pay. On the average, the data show a general downward trend between 2004 and 2010 except for certain sectors such as wood, wood products ex. furniture; rubber and plastic products; and motor vehicles, trailers, and semi-trailers.

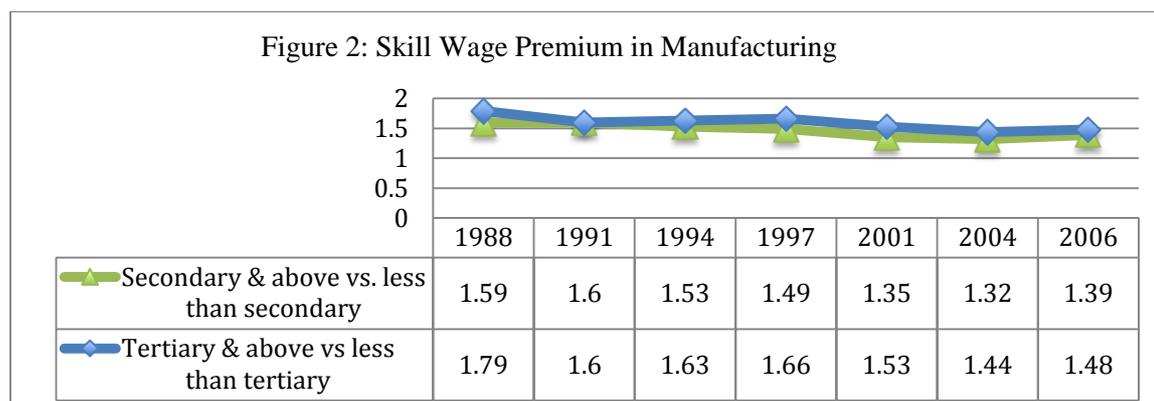
Table 7: Relative Wages of Skilled and Unskilled Workers

Sector	2004	2006	2008	2010
Food Products and Beverages	1.69	1.55	1.37	1.61
Manufacture of Textiles	1.33	1.23	1.22	1.17
Manufacture of Wearing Apparel	1.36	1.25	1.06	1.19
Tanning and Dressing of Leather; Luggage, Handbags and Footwear	1.20	1.16	1.14	1.14
Wood, Wood Products except Furniture	1.28	1.29	1.25	1.34
Paper and Paper Products	1.76	1.48	1.50	1.31
Publishing and Printing	1.51	1.36	1.27	1.36
Coke, Refined Petroleum and Other Fuel Products		3.14	1.71	2.20
Chemicals and Chemical Products	2.08	1.73	1.88	1.97
Rubber Products	1.37	1.74	1.44	1.74
Plastic Products	1.27	1.25	1.28	1.46
Other Non-Metallic Mineral Products	1.93	1.58	2.06	1.79
Basic Metals	1.37	1.23	1.29	1.26
Fabricated Metal Products, except Machinery and Equipment	1.21	1.36	1.25	1.10
Machinery and Equipment, n.e.c.	1.47	1.15	1.56	1.29

⁵ Skilled workers include production supervisors, general foremen, engineers, quality inspectors, accounting and bookkeeping clerks, production clerks and related workers. Unskilled refers to other workers excluding janitors, messengers, and freight.

Electrical Machinery and Apparatus, n.e.c.	1.70	1.64	1.80	1.29
Radio, Television and Communication Equipment and Apparatus	1.55	1.31	1.52	1.35
Motor Vehicles, Trailers and Semi-Trailers	1.88	1.37	1.60	1.92
Building and Repairing of Ships and Boats	1.98	1.46	1.18	1.31
Manufacture and Repair of Furniture	1.25	1.30	1.23	1.19
Average	1.54	1.48	1.43	1.45

Source: Bureau of Labor Statistics Occupational Labor Survey



Source of basic data: Skills wage premiums are calculated as ratio of hourly pay of each skill group relative to comparator skill group. World Bank 2010. Philippine Skills Report.

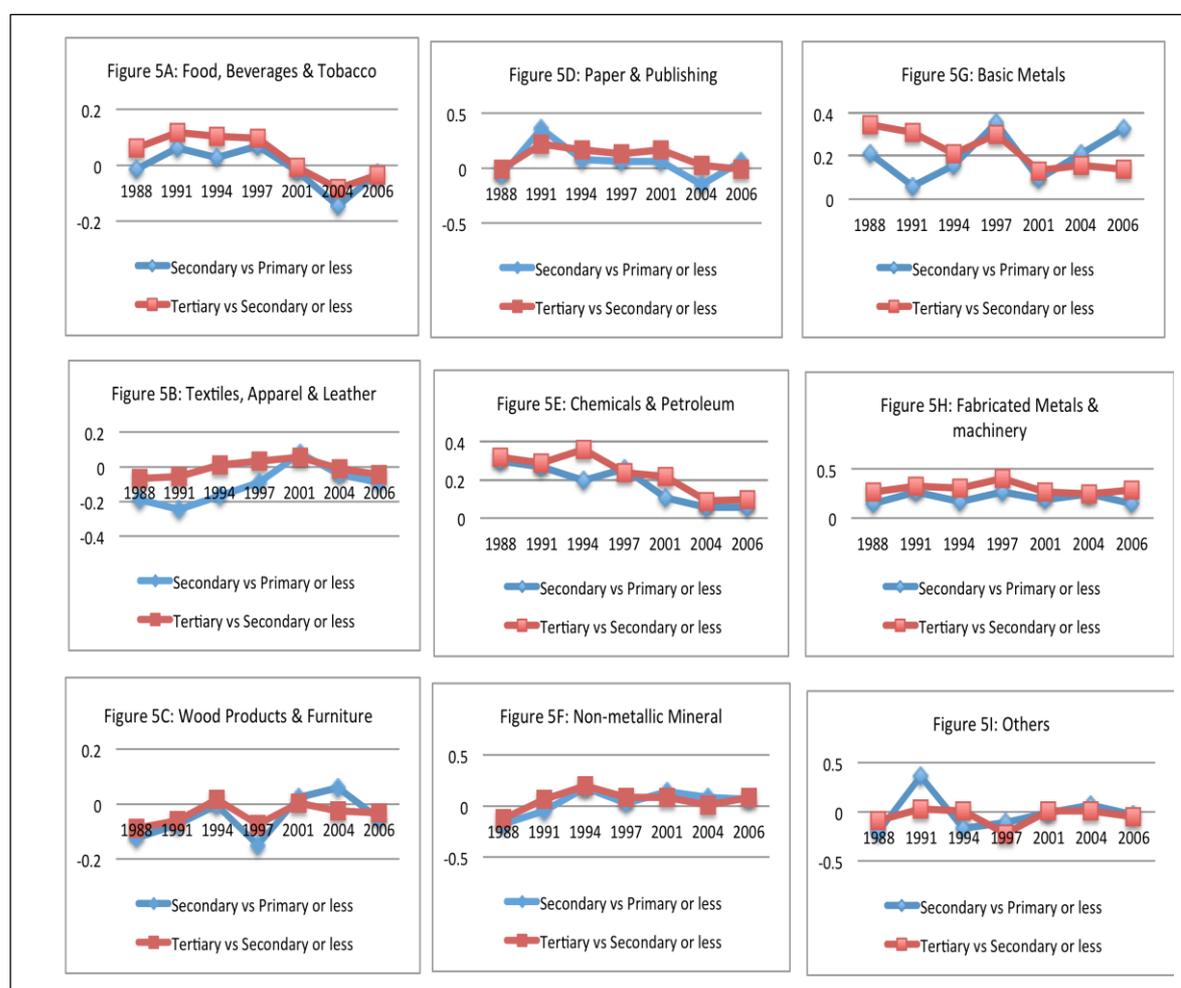
In the manufacturing industry, the share of the workforce with higher education increased dramatically between 1988 and 2006. The share with some secondary education and above went up from 0.5951 in 1988 to 0.6901 in 1994 to 0.745 in 2001. This further increased to 0.7548 in 2004 and to 0.7779 in 2006. In the light of increasing skill shares, wage premium for the employed with secondary and above vs. those with less than secondary declined from 1.59 in 1988 to 1.39 in 2006. Wage premiums for the employed with tertiary and above vs. less than tertiary also dropped from 1.79 in 1988 to 1.48 in 2006 (see Figure 2). Figure 3 shows the declining trend in wage premiums in the various manufacturing sub-sectors.

One of the major stylized facts in the empirical trade and employment literature indicates relatively large increases in skill premiums driven by increased demand for skilled workers in both developed and developing countries (Hoekman and Winters 2005; Goldberg and Pavcnik 2004). Studies indicated that the demand for skilled workers particularly in developing countries may have increased due to the increase in returns to particular occupations that are associated with a higher educational level; shift of skill intensive intermediate goods production from developed to developing countries; skill-biased technological change (SBTC); and compositional changes and quality upgrading of firms and products produced by developing countries.

In the Philippines, however, wage premiums in manufacturing declined as education intensity increased. With the caveat of endogeneity, Aldaba (2013) indicated that the case of

the Philippines has shown that on the overall, tariff reduction is correlated with a decline in wage skill premium within firms in the manufacturing industry. Openness and trade liberalization are associated with lower wage skill premiums as domestic firms failed to shift towards high value added activities. After substantial trade liberalization, their manufacturing process has remained in low value added activities requiring relatively less skill intensity production.

Figure 3: Wage Premium in Manufacturing Sub-sectors⁶



Source: World Bank 2010. Philippine Skills Report.

For instance, in the automotive industry where firms are engaged mainly in the assembly process, there is no production of intermediate parts or products taking place in the plant as these are imported from abroad. In vehicle manufacturing, the production process would normally cover the following: stamping shop, powertrain shop, trim and final shop, body shop, paint shop, assembly, and shipment and inspection (see Appendix 1). In the Philippines,

⁶ Estimates are based on log hourly wage regressions controlling for individual attributes, 16 regions, 34 industries & 5 occupations. Industry premiums are deviations from employment-weighted average industry wage premium (World Bank 2010. Philippine Skills Report).

CKD (completely knocked down) packs are imported and only welding, painting, trimming, and inspection are carried out in assembly plants with a few parts sourced domestically. This is further elaborated in the productivity decomposition analysis below which highlights the absence of industrial upgrading in Philippine manufacturing.

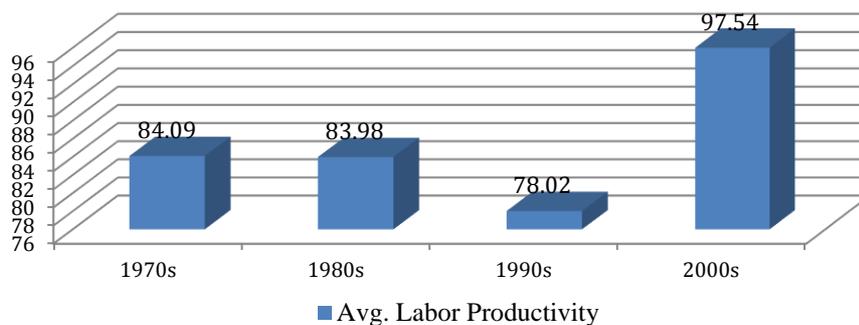
3) Productivity

The traditional way of measuring productivity at the plant level is to compute value-added per worker⁷. On the average, labor productivity in manufacturing declined substantially from around P84,000 during the 1980s to P78,000 in the 1990s (see Figure 4), although in the current period, this improved to around P98,000.

Herrin and Pernia (2003) attributed the deterioration in the country’s labor productivity from the mid-1970s to the 1990s to three factors: the failure of firms to invest in state-of-the-art technology and implement best practice, the lack of investments in human capital, and the relatively quick expansion of employment in low productivity services sector.

Table 8 shows total factor productivity (TFP)⁸ growth figures for manufacturing which are normalized and interpreted as growth relative to 1996. Aggregate productivity gains are evident in leather, textile, furniture, other manufacturing, and basic metals and fabricated metal sectors during the same period. On the whole, however, the manufacturing sector’s aggregate productivity is negative with manufacturing declining by 3.4% from 1996 to 2006.

Figure 4: Average Labor Productivity in Manufacturing, in '000 pesos



⁷ While this is easy to calculate and reflects labor productivity, it focuses productivity measurement only on labor.

⁸ Total factor productivity measures the efficiency with which inputs of labor and capital are used. TFP was estimated using the methodology of Levinsohn and Petrin (2001). The choice between TFP and labor productivity is fundamental because increases in labor productivity can result from increases in the capital-labor ratio without changes in the underlying technology. TFP provides more information about changes in technology than does labor productivity and is the preferred concept despite problems arising from the measurement of capital service flows.

Table 8: TFP Growth in the Manufacturing Industry from 1996 to 2006

Sector	TFP	Sector	TFP
Food, beverages, & tobacco	-1.44	Non-metallic products	-0.65
Textile	2.35	Basic metal & fabricated metal	1.32
Garments	-0.99	Machinery & equipment, motor vehicles & other transport	-0.86
Leather	9.54	Furniture	1.86
Wood, paper, & publishing	-5.39	Other manufacturing	2.87
Coke, petroleum, chemicals & rubber	-4.76	All Manufacturing	-3.37

Source: Aldaba (2010). Note: The growth figures are normalized and interpreted as growth relative to 1996.

To understand the factors underlying changes in TFP growth and to examine whether resource reallocation within industries contribute to productivity growth, the estimated aggregate TFP is decomposed into two parts. The first part is the industry-level productivity growth due to within plant productivity growth as firms adopt new or innovative production methods, high quality inputs and other measures to trim their fat and increase their productivity growth. The second is a covariance term that captures the reallocation effect as resources and outputs are reallocated from less to more efficient firms. A positive covariance term indicates that more output is produced by the more efficient firms.

Melitz (2002) indicates that trade can contribute to the Darwinian evolution of industries by forcing the least efficient firms to contract or exit while promoting the growth of the more efficient ones. Exposure to trade will induce only the more productive firms to enter the export market and will simultaneously force the least productive firms to exit while the less productive firms continue to produce only for the domestic market. The entry of firms in response to the higher relative profits earned by exporters leads to the exit of the least productive domestic firms. Through trade liberalization, additional inter-firm reallocations towards more productive firms occur which can generate industry productivity growth without necessarily affecting intra-firm efficiency.

As earlier shown, aggregate productivity gains are evident in leather, textile, furniture, other manufacturing, and basic metals and fabricated metal sectors from 1996 to 2006. In these sectors, growth was driven mainly by growth in the covariance component indicating a reallocation of market shares and resources from the less productive to the more productive firms. In the leather sector, the covariance grew by 17%, 6.3% in other manufacturing, 4.6% in textile, 2% in basic and fabricated metal, and 1.7% in furniture. Note that except for furniture, all the sectors posted negative within firm productivity growth indicating the failure of firms to improve their productivity. On the overall, manufacturing TFP is negative due to negative within firm productivity and reallocation effects. A negative TFP is an indication of very little capital accumulation or weak technological change as well as the absence of industrial upgrading.

Table 9: Aggregate Productivity Growth Decomposition from 1996 to 2006

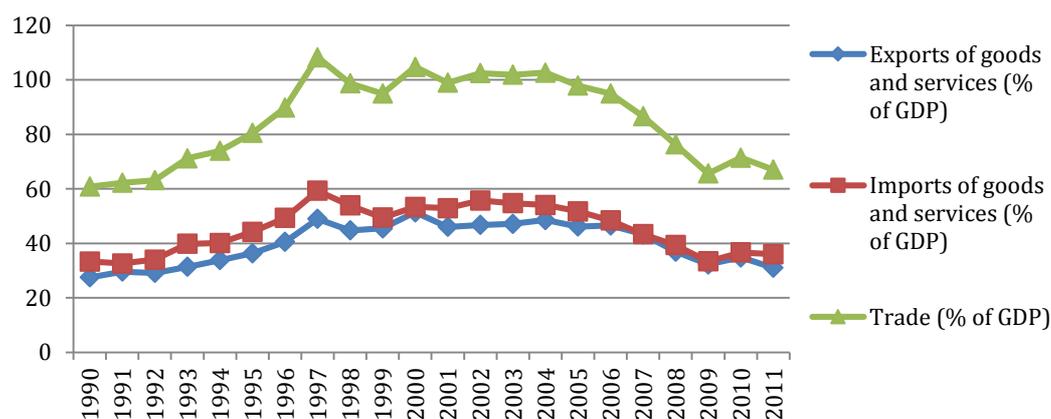
Sector	TFP	Within firm productivity	Covariance
Food, beverages, & tobacco	-1.44	-1.93472	0.49602
Textile	2.35	-2.26561	4.61733
Garments	-0.99	-2.5954	1.60258
Leather	9.54	-7.69629	17.23975
Wood, paper, & publishing	-5.39	-1.40469	-3.98371
Coke, petroleum, chemicals &	-4.76	-2.13054	-2.63366
Non-metallic products	-0.65	-2.37125	1.72388
Basic metal & fabricated metal	1.32	-0.70002	2.02053
Machinery & equipment, motor vehicles & other transport	-0.86	0.82884	-1.68693
Furniture	1.86	0.20054	1.66347
Other manufacturing	2.87	-3.44865	6.31391
All Manufacturing	-3.37	-1.47782	-1.89236

Source: Aldaba (2010). Note: The growth figures are normalized and interpreted as growth relative to 1996

Imports and Exports

Trade (exports plus imports of goods and services) increased from an average of around 82% of GDP in the 1990s to 89% in the 2000s (Figure 5). On average, exports of goods & services as % of GDP rose from 38% to 43% during the same period, and imports from 44% to 47%. Trade balance, however, has been unfavorable with imports surpassing exports except in 1999-2000.

Figure 5: Trade as Percentage of GDP, 1990-2011

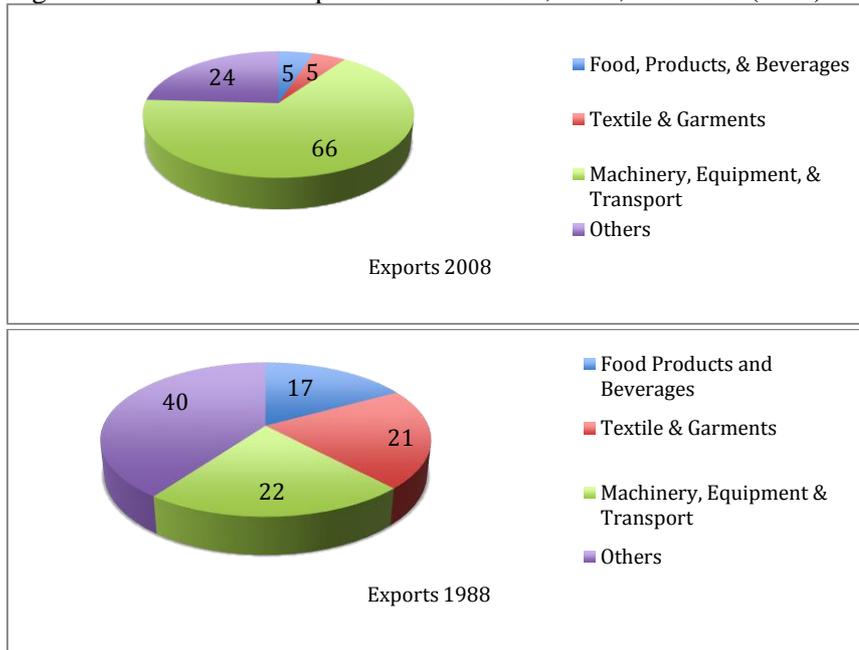


Source: World Development Indicators 2012, World Bank

Figures 6 and 7 present the structure of exports and imports by 2-digit level PSIC. In 1988, 60% of our exports consisted of electrical machinery & apparatus, nec (22%), food and beverages (17%), and wearing apparel and textile (21%). Over the years, however, the Philippine export base has become less diversified. In 2008, 66% of the country's exports relied on only one sector: machinery equipment & transport. Meanwhile, the shares of traditional exports such as food and beverages as well as wearing apparel and textile declined

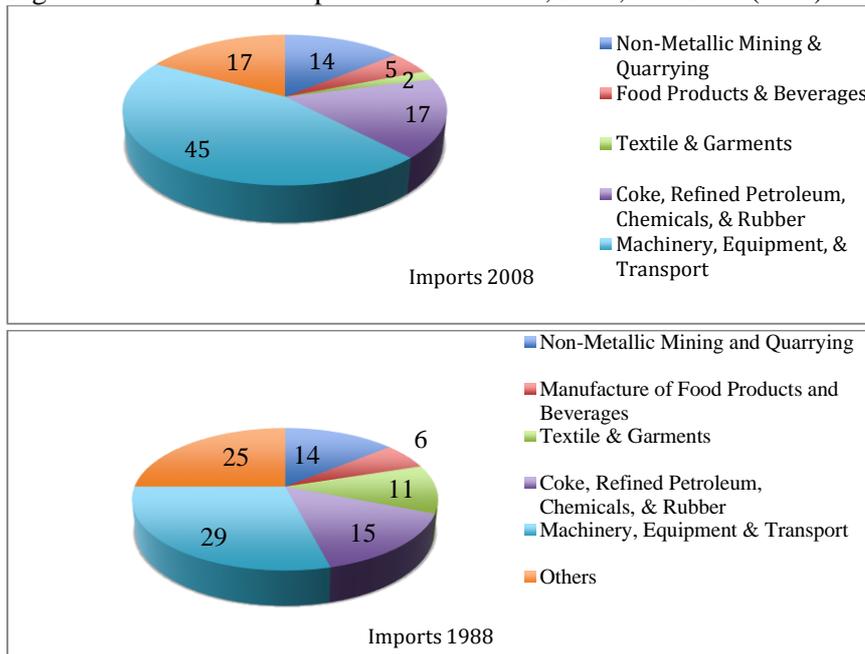
from 17% to 5% for the former and from 21% to 5% for the latter. Note that within these major product groups, exports are highly concentrated in low value added and labor-intensive products sectors. These goods are considerably dependent on imported inputs and have weak backward and/or upward linkages with the rest of the manufacturing sectors.

Figure 6: Merchandise Export Structure 1988, 2006, and 2008 (in %)



Source of Basic Data: Foreign Trade Statistics, National Statistics Office.

Figure 7: Merchandise Import Structure 1988, 2006, and 2008 (in %)



Source of Basic Data: Foreign Trade Statistics, National Statistics Office.

In 1988, Philippine imports were composed of machinery equipment & transport which represented the bulk of the total with a share of 29%, chemicals had a share of 15%, while non-metallic mining & quarrying had 14%. Textiles and garments registered a share of 11% and food and beverages had 6%. Following the changes in the country's export structure, in 2008, the share of machinery & transport increased significantly to 45%, chemicals also increased to 17% while textiles & garments dropped to 2%.

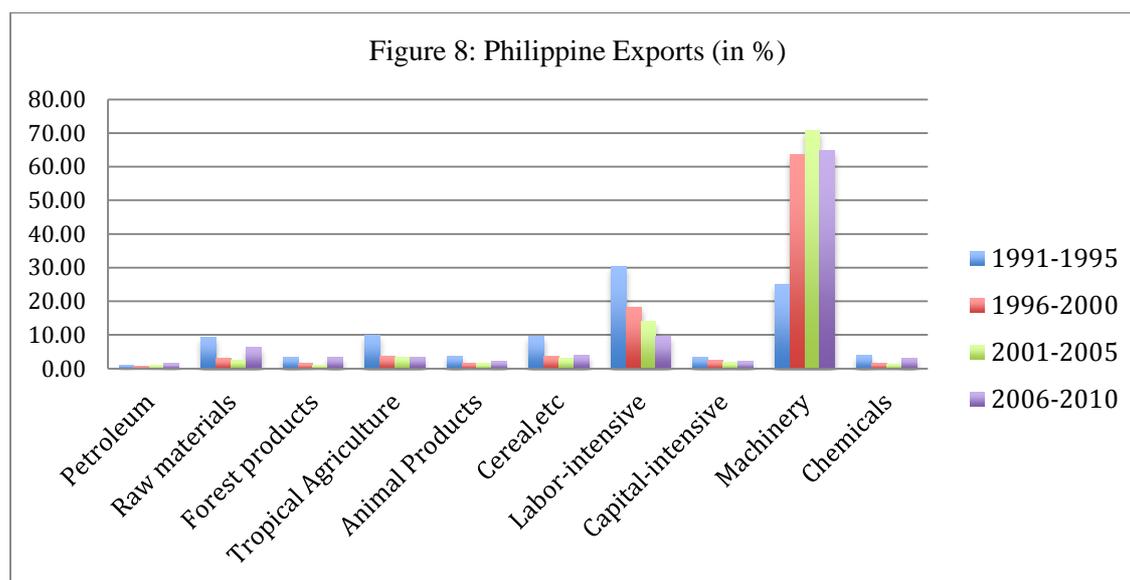


Figure 8 shows the country's export structure by Leamer commodity group from 1991 to 2010. For the period 1991-1995, Philippine exports were dominated by labor-intensive products (30%) followed by machinery (25%). Tropical agriculture (10%) followed along with cereal and other products (9.5%) and forest products (9%). The next periods showed a steady decline in the share of labor-intensive products from 30% in 1991-1995 to 18% in 1996-2000, 14% in 2001-2005, and to 4% in 2006-2010. Machinery products increased substantially from 25% in 1991-1995 to 64% in 1996-2000, 71% in 2001-2005, but declined to 65% in 2006-2010. Note, however, that the bulk of machinery exports has been dominated by transistors, valves, etc which accounted for, on the average, 60% of total machinery exports in 1991-1995, 86% in 1996-2000, 81% in 2001-2005, and to 72% in 2006-2010.

For the other export groups, their average shares declined between the periods 1991-1995 and 2001-2005, although some improvement in their average shares are evident during the period 2006-2010. On the average, raw materials share went up from 2.5% in 2001-2005 to 6.3% in 2006-2010. Similarly, forest products share increased from 1.1% in 2001-2005 to 3.3%.

4) Revealed Comparative Advantage

To see how the Philippine's international specialization has evolved over time, Table 10 presents measures of revealed comparative advantage (RCA) from 1991 to 2011. Based on

Balassa's (1986) concept of RCA, these give an indication of those industries in which a country may have a comparative advantage. The RCA compares how much a country is exporting a given product relative to its total trade, in comparison to the share of that product in world trade. A country is said to have a revealed comparative advantage when its share of export of a given product exceeds the equivalent share of export of the world. This is captured when the RCA is above 1. An RCA below 1 suggests that the country does not have a revealed comparative advantage in a given product.

RCA indicators were calculated for products based on the 3-digit Standard International Trade Classification (SITC) commodity categories. The products are aggregated following Leamer classification (1984) which consists of ten major sectors: (i) petroleum, (ii) raw materials, (iii) forest products, (iv) tropical agriculture, (v) animal products, (vi) cereals, etc, (vii) labor intensive, (viii) capital intensive, (ix) machinery, and (x) chemicals.

Table 10: RCA Indicators

Period	1991-95	1996-00	2001-05	2006-10	2011
I. Petroleum					
Petroleum oils, crude	0.08	0.00	0.02	0.06	0.26
Petroleum products	0.75	0.44	0.39	0.36	0.33
Average	0.41	0.22	0.21	0.21	0.29
II. Raw materials					
Fertilizers, crude	0.18	0.02	0.09	0.05	0.22
Stone, sand and gravel	1.09	0.58	0.51	0.44	0.47
Sulphur,unrstd.iron pyrs	0.01	0.00	0.11	0.23	0.32
Natural abrasives, nes	0.12	0.01	0.03	0.03	0.11
Other crude minerals	0.41	0.24	0.11	0.12	0.26
Iron ore, concentrates	0.70	1.46	1.02	0.70	0.11
Ferrous waste and scrap	0.20	0.21	0.92	1.00	0.92
Copper ores,concentrates	14.41	1.26	0.31	1.18	2.85
Non-ferrous waste,scrap	1.44	1.22	1.02	0.55	0.61
Prec.metal ores,conctrts	31.11	5.28	1.35	2.57	4.36
Uranium,thorium ores,etc	0.00	0.00	0.00	0.00	0.00
Coal,not agglomerated	0.00	0.00	0.00	0.22	0.47
Liquefied propane,butane	0.17	0.00	0.01	0.00	0.00
Natural gas	0.00	0.00	0.00	0.00	0.00
Petroleum gases, nes	26.40	3.44	0.69	2.62	2.34
Coal gas,water gas, etc.	0.00	0.00	0.00	0.00	0.00
Electric current	0.00	0.00	0.00	0.00	0.00
Silver,platinum,etc.	0.07	0.02	0.04	0.25	0.25
Copper	5.40	1.71	1.73	2.92	3.91
Nickel	0.03	0.00	0.00	0.00	0.00
Aluminium	0.02	0.03	0.01	0.01	0.02
Lead	0.03	0.02	0.06	0.17	0.52
Zinc	0.00	0.01	0.02	0.02	0.02
Tin	2.54	0.55	0.11	0.67	1.66
Radio-active materials	0.00	0.00	0.00	0.00	0.00
Misc.non-ferr.base metal	0.83	1.49	2.55	0.93	1.03
Average	3.28	0.67	0.41	0.56	0.79
III. Forest products					

Fuel wood, wood charcoal	23.11	6.24	3.25	3.28	4.05
Wood rough,rough squared	0.01	0.00	0.00	0.00	0.00
Wood, simply worked	0.39	0.15	0.08	0.09	0.27
Cork,natural,raw;waste	0.00	0.00	0.02	0.22	0.02
Pulp and waste paper	0.79	0.36	0.34	0.44	1.03
Veneers, plywood, etc.	1.10	0.15	0.12	0.16	0.31
Wood manufactures, nes	6.62	2.15	1.45	9.51	27.08
Cork manufactures	0.01	0.01	0.00	0.00	0.00
Paper and paperboard	0.03	0.09	0.15	0.20	0.27
Paper,paperboard,cut etc	0.67	0.25	0.14	0.30	0.68
Average	3.27	0.94	0.55	1.42	3.37
IV. Tropical agriculture					
Fruit,nuts excl.oil nuts	7.12	2.56	2.75	2.86	5.67
Fruit,preserved,prepared	12.04	4.19	4.07	4.55	7.22
Vegetables	0.46	0.25	0.20	0.12	0.22
Vegtables,prpd,prsvd,nes	0.42	0.06	0.06	0.05	0.10
Sugars,molasses,honey	4.63	1.37	0.86	0.93	3.57
Sugar confectionery	1.50	0.77	0.86	1.45	2.46
Coffee,coffee substitute	0.30	0.04	0.08	0.04	0.02
Cocoa	2.56	0.54	0.21	0.07	0.14
Chocolate,oth.cocoa prep	0.04	0.07	0.04	0.03	0.03
Tea and mate	0.00	0.02	0.05	0.19	0.23
Spices	0.06	0.02	0.13	0.03	0.10
Non-alcohol.beverage,nes	0.45	0.09	0.12	0.31	0.87
Alcoholic beverages	0.17	0.06	0.15	0.13	0.19
Natural rubber, etc.	1.30	0.73	0.81	0.67	0.86
Synthetic rubber, etc.	0.02	0.01	0.02	0.02	0.01
Average	2.07	0.72	0.69	0.76	1.45
V. Animal products					
Live animals	0.12	0.04	0.06	0.06	0.13
Bovine meat	0.00	0.00	0.00	0.00	0.00
Other meat, meat offal	0.01	0.00	0.01	0.08	0.27
Meat,ed.offl,dry,slt,smk	0.00	0.00	0.01	0.03	0.01
Meat,offl.prpd,prsvd,nes	0.01	0.02	0.03	0.16	0.36
Milk and cream	0.03	0.05	0.63	1.06	1.82
Butter,other fat of milk	0.00	0.01	0.00	0.00	0.01
Cheese and curd	0.01	0.01	0.01	0.03	0.05
Eggs,birds,yolks,albumin	0.01	0.01	0.04	0.00	0.00
Fish,fresh,chilled,frozn	1.53	0.82	0.62	0.91	1.29
Fish etc.prepd,prsvd,nes	8.28	2.36	1.93	3.41	4.83
Hides,skins(ex.furs),raw	0.02	0.02	0.07	0.07	0.04
Furskins, raw	0.00	0.00	0.00	0.00	0.00
Crude animal materls,nes	0.80	0.19	0.18	0.11	0.20
Crude veg.materials, nes	1.97	1.14	0.89	1.04	3.48
Animal,veg.fats,oils,nes	1.81	0.80	1.10	0.82	0.84
Average	0.91	0.34	0.35	0.49	0.83
VI. Cereals, etc					
Wheat, meslin, unmilled	0.00	0.00	0.00	0.00	0.00
Rice	0.23	0.00	0.00	0.02	0.04
Maize unmilled	0.07	0.03	0.00	0.01	0.00
Other cereals, unmilled	0.00	0.08	0.00	0.00	0.00
Meal,flour of wheat,msln	0.00	0.00	0.11	0.38	0.59
Other cereal meal,flours	0.02	0.02	0.02	0.02	0.04
Cereal preparations	0.46	0.35	0.41	0.55	0.95
Animal feed stuff	1.51	0.40	0.27	0.31	0.38

Margarine and shortening	0.29	0.04	0.03	0.04	0.10
Edible prod.preprtns,nes	0.81	0.41	0.53	0.60	0.97
Tobacco, unmanufactured	2.44	0.89	0.72	1.83	4.71
Tobacco, manufactured	0.37	0.13	0.73	1.48	3.57
Oilseed(sft.fix veg.oil)	0.05	0.00	0.00	0.00	0.00
Silk	0.06	0.00	0.00	0.00	0.00
Wool, other animal hair	0.00	0.00	0.00	0.00	0.05
Cotton	0.00	0.00	0.01	0.02	0.00
Jute,oth.textl.bast fibr	0.00	0.00	0.00	0.01	0.02
Vegetable textile fibres	24.28	9.24	3.68	6.60	7.56
Synthetic fibres	0.24	0.01	0.02	0.05	0.01
Worn clothing,textl.artl	0.66	0.43	1.00	1.18	0.63
Animal oils and fats	0.27	0.00	0.02	0.07	0.08
Fixed veg.fat,oils, soft	0.00	0.01	0.02	0.00	0.00
Fixed veg.fat,oils,other	41.53	13.04	9.69	7.95	11.28
Average	3.19	1.09	0.75	0.92	1.35
VII. Labor intensive					
Lime,cement,constr.matrl	0.39	0.25	0.61	0.55	0.54
Clay,refrct.constr.matrl	0.11	0.03	0.04	0.03	0.04
Mineral manufactures,nes	0.15	0.08	0.15	0.29	0.49
Glass	0.85	0.47	1.07	1.05	0.55
Glassware	0.27	0.23	0.14	0.26	0.34
Pottery	4.49	1.95	1.02	0.76	0.37
Pearls,precious stones	0.08	0.07	0.06	0.05	0.05
Furniture,cushions,etc.	2.72	1.15	0.77	0.44	0.45
Trunk,suit-cases,bag,etc	3.89	3.79	1.95	0.83	0.34
Mens,boys clothng,x-knit	3.03	2.48	2.00	1.91	0.93
Women,girl clothng,xknit	3.34	3.09	3.01	1.76	2.34
Mens,boys clothing,knit	9.30	5.48	3.45	2.04	2.71
Women,girls clothng.knit	5.21	2.53	2.37	3.52	2.87
Othr.textile apparel,nes	5.45	2.29	1.48	1.26	1.03
Clothing accessrs,fabric	1.53	0.88	0.66	0.52	0.58
Clothng,nontxtl;headgear	1.62	1.24	0.57	0.21	0.24
Footwear	2.03	0.64	0.18	0.08	0.05
Musical instruments,etc.	0.14	0.09	0.26	0.02	0.01
Printed matter	0.07	0.06	0.07	0.19	0.14
Articles,nes,of plastics	0.61	0.44	0.38	0.41	0.57
Baby carriage,toys,games	3.65	1.38	0.84	0.71	0.98
Office,stationery suppl	0.17	0.18	0.03	0.04	0.07
Works of art,antique etc	0.03	0.04	0.04	0.06	0.02
Gold,silverware,jewl nes	1.20	0.24	0.38	0.31	0.27
Misc manufctrd goods nes	7.07	1.77	0.99	0.64	0.93
Coin nongold noncurrent	0.02	6.22	0.48	0.20	0.04
Average	2.21	1.43	0.88	0.70	0.65
VIII. Capital intensive					
Leather	0.06	0.08	0.03	0.03	0.07
Manufact.leather etc.nes	0.68	0.51	0.17	0.13	0.61
Furskins,tanned,dressed	0.02	0.00	0.02	0.54	1.50
Materials of rubber	0.12	0.06	0.06	0.04	0.07
Articles of rubber, nes	0.33	0.34	0.36	0.48	0.75
Textile yarn	0.61	0.33	0.28	0.22	0.29
Cotton fabrics, woven	0.10	0.07	0.22	0.11	0.02
Fabrics,man-made fibres	0.20	0.28	0.27	0.07	0.08

Oth.textile fabric,woven	0.04	0.08	0.07	0.05	0.07
Tulle,lace,embroidry.etc	1.95	0.93	1.08	1.22	1.71
Special yarn,txtl.fabric	0.60	0.29	0.37	0.28	0.43
Textile articles nes	1.64	1.04	0.50	0.34	0.36
Floor coverings, etc.	0.23	0.10	0.10	0.08	0.11
Pig iron,spiegeleisn,etc	0.87	0.09	0.00	0.01	0.02
Ingots etc.iron or steel	0.03	0.00	0.00	0.03	0.19
Flat-rolled iron etc.	0.18	0.08	0.01	0.26	0.01
Iron,stl.bar,shapes etc.	0.03	0.03	0.01	0.01	0.01
Railway track iron,steel	0.00	0.01	0.00	0.01	0.00
Wire of iron or steel	0.00	0.01	0.01	0.01	0.00
Tubes,pipes,etc.iron,stl	0.48	0.16	0.08	0.20	0.68
Manufacts.base metal,nes	0.25	0.23	0.20	0.27	0.50
Metallic structures nes	0.59	0.35	0.18	0.19	0.15
Containers,storage,trnsp	0.09	0.20	0.16	0.22	0.37
Wire products excl.elect	0.03	0.07	0.06	0.04	0.03
Nails,screws,nuts,etc.	0.19	0.21	0.09	0.69	1.33
Tools	0.06	0.11	0.12	0.07	0.07
Cutlery	0.41	0.16	0.07	0.01	0.00
Household equipment,nes	0.89	0.56	0.38	0.19	0.25
Manufacts.base metal,nes	0.25	0.23	0.20	0.27	0.50
Plumbng,sanitary,eqpt.etc	0.55	0.34	0.53	0.92	0.19
Average	0.38	0.23	0.19	0.23	0.34
IX. Machinery					
Steam gener.boilers,etc.	0.56	0.63	0.50	0.32	0.04
Agric.machines,ex.tractr	0.01	0.01	0.03	0.00	0.00
Office machines	0.01	0.39	1.27	0.63	0.09
Metal removal work tools	0.01	0.23	0.04	0.02	0.04
Mach-tools,metal-working	0.03	0.08	0.09	0.04	0.04
Civil engineering equipt	0.03	0.15	0.16	0.10	0.11
Elect power machny.parts	0.75	0.47	0.57	4.43	6.20
Electr distribt.eqpt nes	6.84	2.90	2.84	2.96	4.61
Television receivers etc	0.72	0.83	0.26	0.04	0.00
Radio-broadcast receiver	2.33	1.05	1.32	1.12	1.26
Dom.elec,non-elec.equipt	0.46	0.18	0.09	0.06	0.07
Electro-medcl,xray equip	0.00	0.00	0.01	0.09	0.26
Transistors, valves,etc.	4.62	10.12	11.39	11.75	7.50
Electric.mach.appart.nes	0.28	0.22	1.83	2.21	0.49
Pass.motor vehcls.ex.bus	0.00	0.00	0.05	0.05	0.05
Goods,spcl transport veh	0.00	0.00	0.01	0.00	0.03
Road motor vehicles nes	0.04	0.04	0.00	0.00	0.00
Parts,tractors,motor veh	0.49	0.54	1.02	1.58	2.33
Cycles,motorcycles etc.	0.42	0.51	0.54	0.42	0.58
Aircraft,assoctd.equipnt	0.01	0.05	0.29	0.49	0.01
Ship,boat,float.structrs	0.01	0.25	0.24	0.36	1.34
Optical instruments,nes	0.68	0.65	0.27	0.07	0.08
Medical instruments nes	0.10	0.12	0.11	0.27	0.71
Photo.cinematogrph.suppl	0.01	0.01	0.00	0.02	0.04
Cine.film exposd.develpd	8.78	2.19	0.02	0.01	0.02
Watches and clocks	0.39	1.46	1.72	0.51	0.04
Arms and ammunition	0.22	0.11	0.20	0.35	0.82
Average	1.03	0.86	0.92	1.03	0.99
X. Chemicals					

Hydrocarbons,nes,derivts	0.01	0.00	0.00	0.19	1.05
Alcohol,phenol,etc.deriv	1.92	0.60	0.52	1.07	2.09
Carboxylic acids,derivts	0.10	0.02	0.02	0.01	0.01
Nitrogen-funct.compounds	0.07	0.01	0.01	0.01	0.00
Organo-inorganic compnds	0.00	0.00	0.00	0.00	0.00
Other organic chemicals	0.02	0.01	0.01	0.01	0.01
Inorganic chem.elements	0.67	0.25	0.21	0.33	0.55
Metal.salts,inorgan.acid	0.07	0.12	0.27	3.93	8.33
Other chemical compounds	0.35	0.09	0.02	0.01	0.02
Radio-active materials	0.00	0.00	0.00	0.00	0.00
Residual petrol.products	0.04	0.02	0.00	0.24	1.20
Synth.colours,lakes,etc.	0.08	0.04	0.03	0.02	0.01
Dyeing,tanning materials	0.19	0.07	0.06	0.11	0.12
Pigments, paints, etc.	0.11	0.06	0.11	0.09	0.08
Medicines,etc.exc.grp 542	0.04	0.05	0.02	0.01	0.00
Medicaments	0.16	0.06	0.03	0.03	0.06
Essntl.oil,perfume,flavr	0.12	0.07	0.08	0.11	0.14
Perfumery,cosmetics,etc.	0.24	0.11	0.15	0.34	0.58
Soap,cleaners,polish,etc	0.96	0.35	0.34	0.84	2.09
Fertilizer,except grp272	3.81	0.92	0.69	0.54	1.07
Explosives,pyrotechnics	2.16	0.83	0.42	0.70	0.58
Polymers of ethylene	0.01	0.05	0.02	0.26	0.55
Polymers of styrene	0.14	0.03	0.04	0.02	0.02
Polymers,vinyl chloride	0.01	0.06	0.19	0.23	0.36
Polyacetal,polycarbonate	0.08	0.02	0.06	0.07	0.13
Oth.plastic,primary form	0.13	0.07	0.07	0.04	0.04
Insecticides, etc.	0.10	0.09	0.05	0.04	0.19
Starches,inulin,etc.	0.04	0.08	0.08	0.11	0.23
Explosives,pyrotechnics	2.16	0.83	0.42	0.70	0.58
Preprd additives,liquids	0.06	0.02	0.02	0.07	0.01
Misc.chemical prodts.nes	0.57	0.21	0.16	0.13	0.19
Average	0.41	0.14	0.12	0.32	0.66

For these product groups, the number of sectors with RCAs>1 declined from six (6) out of ten (10) sectors in 1991-1995 to only two sectors (2) in 1996-2000, one (1) in 2001-2005 and two (2) in the most recent period, 2006-2010. During 1991-1995, the Philippines had a comparative advantage in a wide range of product groups such as raw materials, forest products, tropical products, cereals and other related products, labor intensive and machinery. In the next period 1996-2000, however, our comparative advantage seemed to have disappeared as the number of sectors with comparative advantage was confined only two product groups, cereals and labor-intensive products. The same trend was evident in the succeeding periods, in 2001-2002, our comparative advantage was demonstrated only in tropical products and in 2006-2010, forest and machinery products.

5) Size Structure

In 2006, micro enterprises dominated the economy accounting for 92% of the total while small and medium enterprises (SMEs) accounted for only 7.04 % (Table 11).⁹ Since 2003, the total number of enterprises has fallen from 839,114 to 783,165 in 2006. In terms of employment contribution, micro and large enterprises registered the same employment share of 33% in 2006 while SMEs recorded a share of 34%.

Within manufacturing, micro enterprises accounted for 89.5% of total establishments while SMEs recorded a share of 9.7% (Table 12). Accounting for only 0.8% of total enterprises, large firms contributed the highest share of employment at 53%. SMEs contributed 28% and micro enterprises 19%. Medium size enterprises constitute a small share not only of the SME sector but also of the overall manufacturing and total Philippine industry structure, such that the country's industrial structure has remained "hollow". Lack of new medium-sized entrants may indicate that large incumbent firms do not face credible threat of potential competition. SMEs have continued to face competitiveness problems along with difficulties in finance and market access.

Table 11: Total Number of Enterprises and Employees in the Philippines

Number of Enterprises									
Year	Micro	%	Small	%	Medium	%	Large	%	Total
1995	449950	91	39848	8	2712	1	2447	0.5	495057
2000	747740	91	67166	8	3070	0.4	2984	0.4	821060
2003	762573	91	69175	8	3521	0.4	3745	0.4	839114
2006	720191	92	57439	7	2839	0.4	2596	0.3	783165

Number of Employees									
Year	Micro	%	Small	%	Medium	%	Large	%	Total
1995	1345175	31	945401	22	366890	8	1664076	39	4321603
2000	2165100	37	1522227	26	416686	7	1798173	30	5902256
2003	2214278	34	1556206	24	485891	8	2218419	34	6474860
2006	1667824	33	1279018	26	381013	8	1657028	33	4984950

Source: National Statistics Office

Table 12: Total Number of Enterprises and Employees in the Manufacturing Industry

Number of Enterprises									
Year	Micro	%	Small	%	Medium	%	Large	%	Total
1995	86900	88.8	8928	9.1	1027	1.0	982	1.0	97837
2000	108998	86.9	14121	11.3	1110	0.9	1238	1.0	125467
2003	107398	88.6	11910	9.8	853	0.7	1024	0.8	121184
2006	105083	89.5	10274	8.8	1004	0.9	985	0.8	117346

Number of Employees									
Year	Micro	%	Small	%	Medium	%	Large	%	Total
1995	271699	22.0	227949	18.0	137384	11.0	615874	49	1252906

⁹ Micro enterprises have from 1-9 employees. Small enterprises are defined as having 10-99 employees; medium as having 100-199 employees; and large as having over 200 employees (The National Statistics Office and Small and Medium Enterprise Development Council Resolution No. 1, Series 2003).

2000	354025	22.0	354328	22.0	150734	9.0	730127	46	1589214
2003	360576	25.0	285027	19.0	118896	8.0	698173	48	1462672
2006	259664	18.9	252931	18.4	132332	9.6	727984	53	1372911

Source: National Statistics Office

The linkages of small and medium enterprises with large domestic and multinational corporations has remained weak; hence growth experienced by large enterprises has failed to spillover to the SME sector. Compared with large enterprises, SMEs continue to face growth and market entry difficulties due to underdeveloped financial markets, overly complex administrative arrangements, and poor infrastructure. Subdued SME performance has not generated sufficient manufacturing value added and employment to increase market contestability and improve the country's industrial structure.

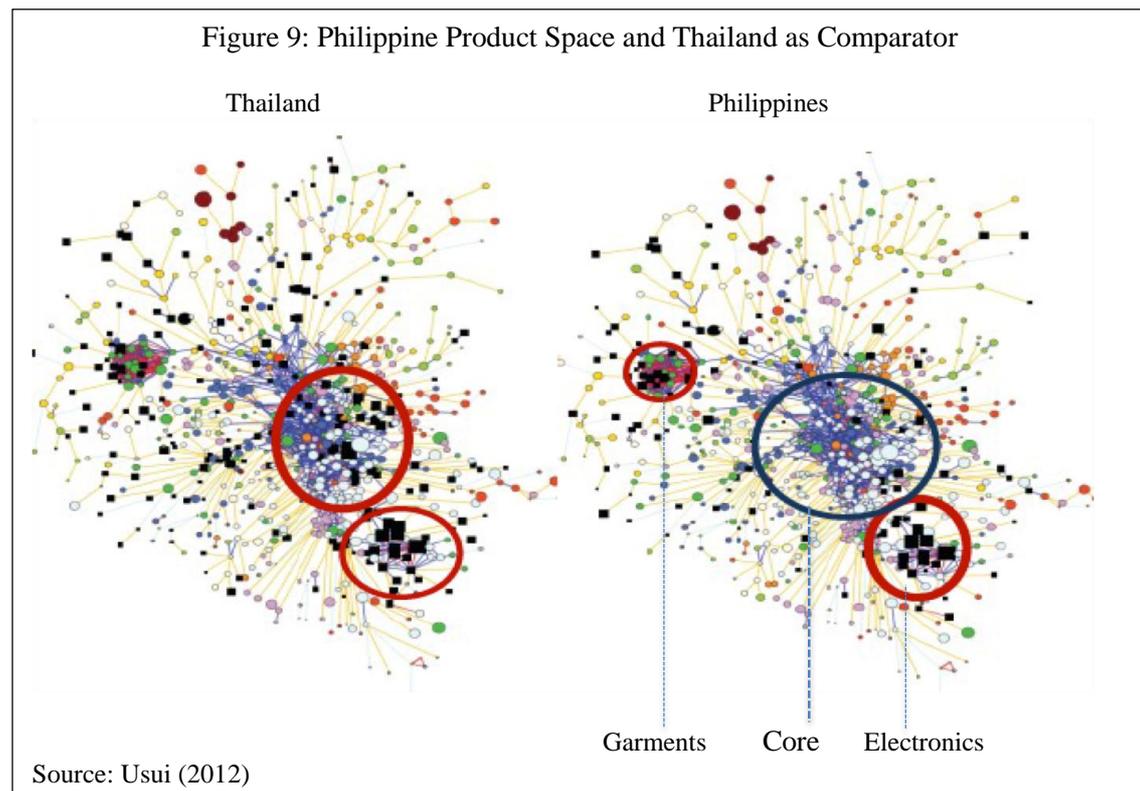
6) Structure of the Product Space

Figure 9 shows how our production is distributed in the product space with the black squares indicating the country's significant exports. The product space is highly heterogeneous and is composed of peripheral and core products. Peripheral products are only weakly connected to other products such as natural resources, primary and agricultural products – more specific examples are petroleum products, seafood, garments and raw materials. The core products are closely connected products found in the center of the network, mostly machinery and other capital intensive goods, chemicals and metal products.

In terms of structure of the product space, the Philippines can also be characterized as hollow. Most of its manufactured products are in the periphery (garments, the dense cluster on the left side of the core) and very few in the core area (Usui 2012). For a country that specializes in peripheral products, structural transformation is much more challenging. If a country is producing in a dense part of the product space, the process of structural transformation is much easier because the set of acquired capabilities can be easily re-deployed to other nearby products. Compared to the Philippines, Thailand has more activities in the industrial core of the product space. Note that while the country is strong in electronics (cluster beside the core), the industry has been unable to upgrade to more sophisticated products. The same holds for garments.

The country's electronics exports are mainly concentrated in semiconductor assembly, packaging and testing (APT). Given the limited role of Philippine electronics in the labor-intensive assembly and testing segment of the production process, the country's electronics exports have been import dependent with minimal domestic value added. Research on the electronics industry shows that backward linkages in the electronics industry remain weak because local suppliers are few and immature. This is attributed to the unavailability of raw

materials, difficulty of finding local suppliers, unreliability of local suppliers, high cost of local raw materials, and failure to meet required quality standards.



Since the 1990s, the garments sector also face the same problems of limited linkages and weak competitiveness. The lack of locally sourced quality raw materials and dependency on imported raw materials such as fabrics and accessories from China, Taiwan, Hong Kong, and India resulted in longer lead times. Note that the Philippines does not have an integrated textile industry that can support the requirements of the garments industry.¹⁰ Other problems that negatively affected industry competitiveness included the high cost of labor and power, slow productivity growth due to lack (decline) of investments. Given the lack of design capabilities and minimal linkages between local designers and manufacturers, the industry was not able to move up the value chain and engage in original brand manufacturing activity. As of 2008, garments exports accounted for only 5% of total exports in contrast to its 21% share in 1988.

7) Foreign Direct Investment

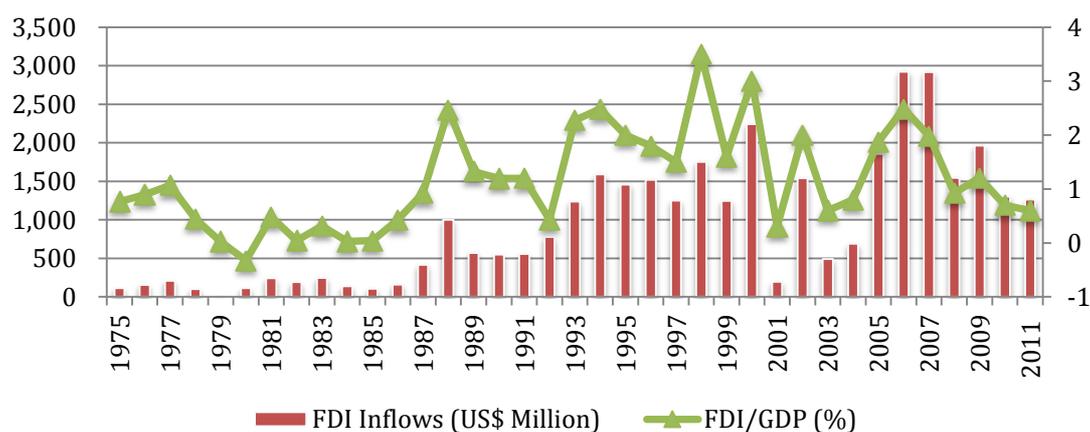
FDI inflows from the 1970s to the 1980s were small and erratic, due mainly to the political and economic instability that characterized the country in these decades (see Figure

¹⁰ In the absence of an integrated textile industry, textile millers also faced difficulties sourcing their raw materials importing about 80 percent of their input requirements like polyester fiber, cotton, rayon, and acrylic.

10). As a result, it failed to take advantage of the rapid growth of Japanese FDI in the mid-1980s following the 1985 Plaza Accord. In the 1990s, overall FDI inflows improved substantially as well as in the 2000s. However, competition has become much fiercer especially given China's growing share. FDI as percentage of gross domestic product (GDP) reached 3% in 2000, and about 2% in 2007, however, the ratio dropped to 0.9% in 2008 primarily due to the global economic crisis. Note also that gross domestic investment as a percentage of GDP has been low and declining from 25% in 1997 to 14% in 2009. The average for the Philippines for the period 2000-2009 was about 16.5%. Compared with other countries, it has lagged significantly behind Indonesia (with an average of 25% during the same period), Korea (30%), Malaysia (22%), and Thailand (26%).¹¹

Within manufacturing, FDI inflows have been dominated by the food and beverage sector increasing substantially from a share of 27 percent in the 1990s to 57 percent during the 2000-2009 period (see Figure 11). The share of basic metals and chemical products which dominated manufacturing in the 1980s fell from 47 percent to 14 percent in the 1990s to 11 percent in the 2000s. The share of coke, refined petroleum, and other fuel products rose from 7 percent in the 1980s to 20 percent in the 1990s but this dropped to only 7 percent in the 2000s. Similarly; FDI inflows in machinery, apparatus and supplies and radio, tv, and communications equipment increased from zero to 21 percent between the 1980s and the 1990s but this dropped to 12 percent in the 2000s. There is also a decline in the share of transport equipment and motor vehicles from 10 percent in the 1980s to 6 percent in the 1990s to 3 percent in the 2000s.

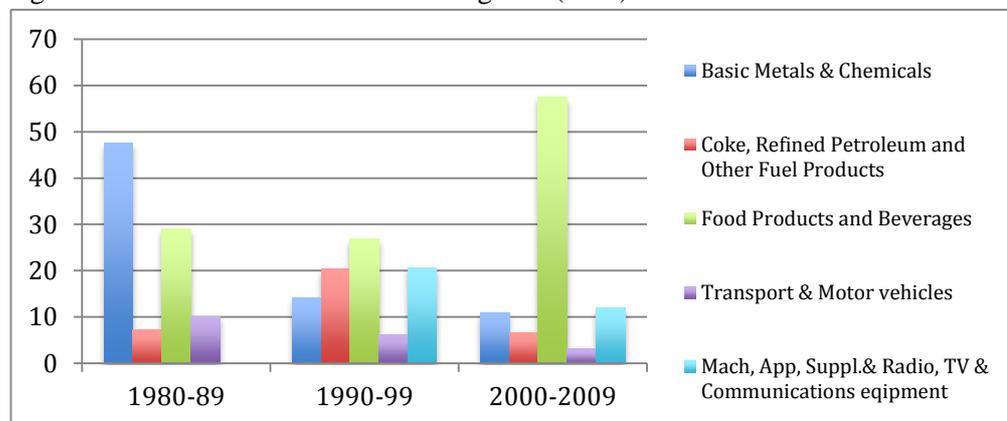
Figure10: FDI Performance



Source: World Development Indicators and UNCTAD Statistics.

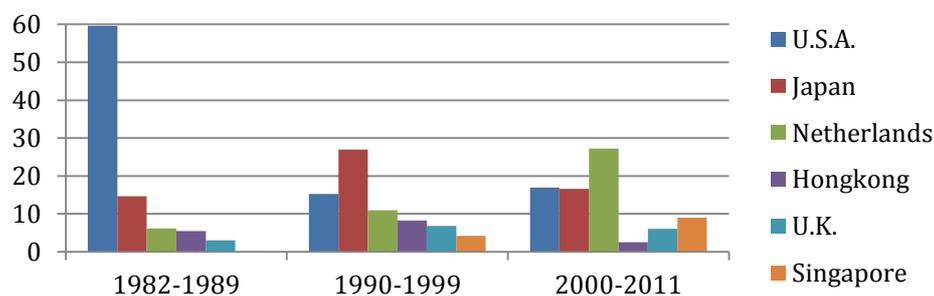
¹¹ Table 1.9: Gross Domestic Investment as Percentage of GDP in Aldaba et al (2010).

Figure 11: Distribution of Manufacturing FDI (in %)



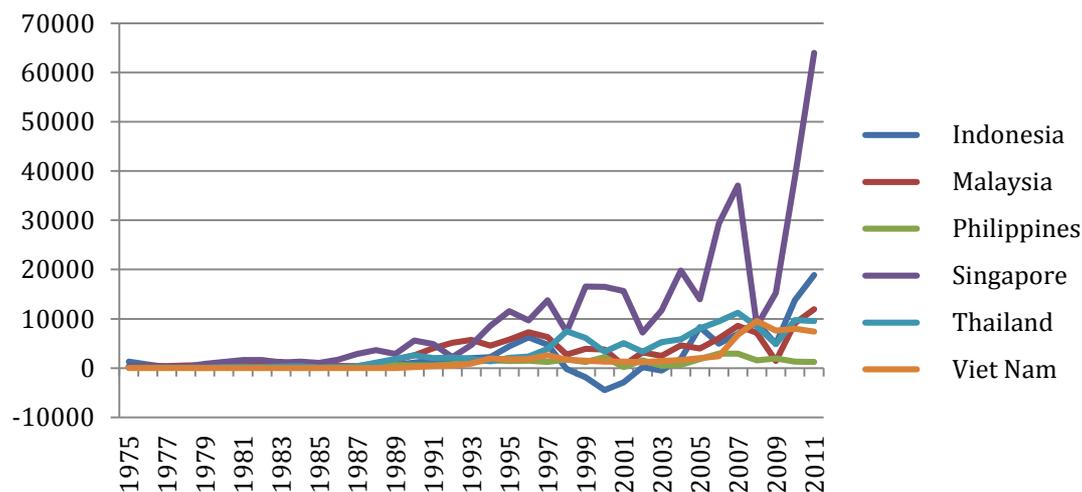
Source of basic data: Bangko Sentral ng Pilipinas (BSP)

Figure 12: FDI by source country (in percent)



Source: Bangko Sentral ng Pilipinas (BSP).

Figure 13: FDI Inflows to ASEAN 6 (in million US\$)



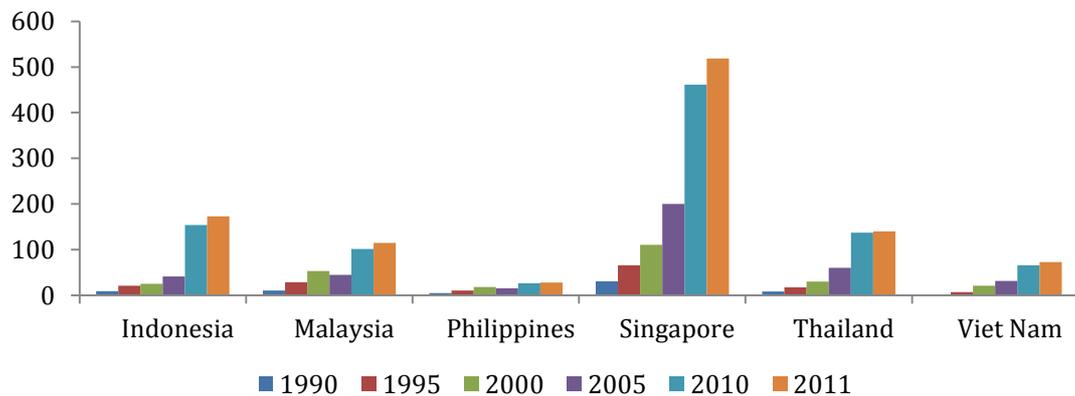
Source: UNCTAD FDI Database.

Up to the 1980s, the US was the country's largest source of FDI inflows with a cumulative share of 60 percent (see Figure 12). However, this dropped significantly to only 15 percent in the 1990s but increased to 17 percent in the 2000s. US dominance has been substantially diluted by the increasing presence of Japan, UK, and Singapore. Japan's share increased from 15 percent in the 1980s to 27 percent in the 1990s, although this fell to 17

percent in the 2000s. Singapore increased its share from less than one percent during the 1980s to four percent in the 1990s and to 9 percent in the recent period. The share of the Netherlands rose from six percent to 11 percent, but declined to just 2.5 percent in 2000-2008. In addition, during 2009 to 2011, Netherlands had negative inflows to the country. The share of the UK, on the other hand, went up from 3 percent in the 1980s to around 6 percent in the 1990s and 2000s.

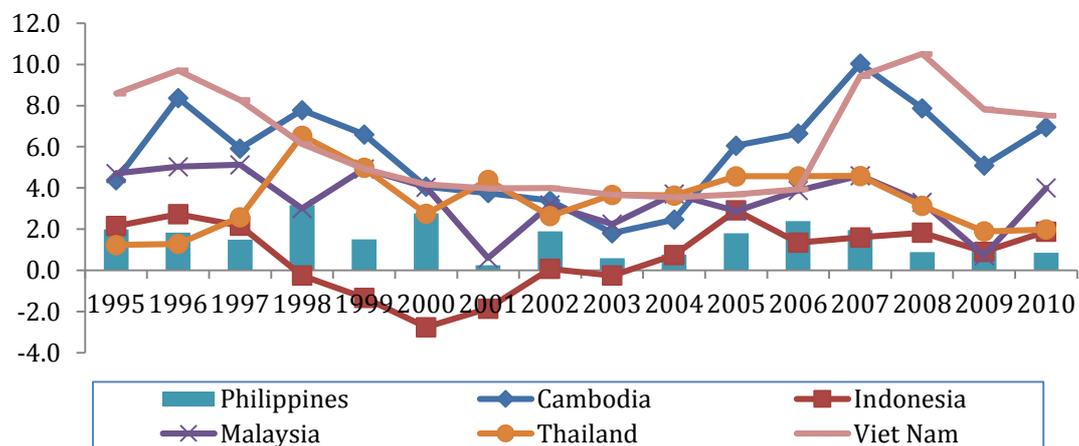
While the investment policy reforms and opening up of more sectors to foreign investors in the past decade resulted in improvements in FDI inflows to the country, on the overall, FDI inflows to the Philippines have been limited; hence the country's performance has lagged behind its neighbors in Southeast Asia. Figure 13 compares FDI inflows to the Philippines with inflows to Singapore, Thailand, Malaysia, Indonesia, and Vietnam from the mid-1970s up to 2011. The figure shows that huge differences are evident in FDI inflows to the ASEAN 6 countries with the Philippines receiving the lowest level of FDI inflows particularly in the 1990s and the 2000s.

Figure 14: FDI Stock in ASEAN 6 (in billion US\$)



Source: UNCTAD FDI Database.

Figure 15: FDI as Percentage of GDP



Source of basic data: World Development Indicators, 2012

Figure 14 presents the FDI stock in the ASEAN countries. In 1990, cumulative FDI inflows to the Philippines amounted to US\$ 4.5 billion while Vietnam registered a total of US\$ 1.65 billion. In 2000, Vietnam surpassed the Philippines total of US\$18.2 billion as its total FDI reached US\$20.6 billion. In 2011, Vietnam soared to US\$73 billion while the Philippine total barely increased at US\$28 billion.

In terms of FDI as percentage of GDP, the Philippines along with Indonesia have been lagging in the ASEAN region. In the Philippines, the indicator showed a slight increase from 2% in 1995 to 3% in 2000 and 2.5% in 2006 but it then dropped to 2% again in 2007 until it reached just 0.9% in 2010. Indonesia dropped substantially from 2.2% in 1995 to -2.8% in 2000 but increased to 1.6% in 2007. In 2010, Singapore registered 18.5%, Cambodia 7%, Indonesia 1.9%, Malaysia 4%, Thailand 2%, while the Philippines posted 1%.

B. Business Environment

Table 13 presents three sets of competitiveness indicators: global competitiveness, macro environment, and public institutions indices along with the rankings of the Philippines and other Southeast Asian countries out of a total of 102, 133, and 144 countries for the years 2004, 2009, and 2012 respectively. The macro environment index is based on macroeconomic stability, country credit risk, and wastage in government expenditures while the public institutions index is based on measures of the enforcement of contracts and law and degree of competition. The results show that the Philippines performed substantially poorly than Malaysia, Thailand, and Indonesia in 2009 and although still lagging in 2012 it improved considerably in the rankings. Public institutions index worsened for the Philippines in 2009 but improved substantially in 2012. Overall, the Philippine ranking improved from 71 (out of 133 countries) in 2009 to 65 (out of 144 countries) in 2012.

Table 13: Competitiveness Indicators Rankings for Selected Southeast Asian Countries

	Global Competitiveness Index			Macro Environment Index			Public Institution Index		
	2004	2009	2012	2004	2009	2012	2004	2009	2012
Malaysia	29	21	25	27	38	35	34	30	29
Thailand	32	34	38	26	41	27	37	57	77
Philippines	66	71	65	60	53	36	85	105	94
Indonesia	72	54	50	64	52	25	76	68	72

Source: World Economic Forum, Global Competitiveness Report, 2003-2004, 2008-2009 and 2012-2013.

Based on the World Bank's cost of doing business, Table 14 shows a comparison of the business costs indicators for the Philippines and its East Asian neighbors. The table reveals that in general, the Philippines, along with Indonesia, performed significantly below the other East Asian countries in terms of corruption-related indicators. Across time, improvements are observed for time to start a business and time to enforce a contract for the Philippines. For instance, number of days to start a business which is 60 days in 2004 was reduced to 52 in 2009

and at present is 36 days. Overall, out of 183 countries, Philippine ranking in the ease of doing business worsened from 141 in 2008 to 144 in 2009, while in 2012 it improved slightly to 138 out of 185 countries.

Table 14: Cost of Doing Business Indicators

Country	Number of start-up procedures			Time to start a business (days)			Cost to register business			Procedures to enforce a contract			Time to enforce a contract (days)			Rigidity of employment index: 0 (less rigid) to 100 (very rigid)	
	04	09	12	04	09	12	04	09	12	04	09	12	04	09	12	04	09
Phils	15	15	16	60	52	36	25	28	18	37	37	37	862	842	842	29	29
PRChina	13	14	13	48	37	33	16	5	2	35	34	37	406	406	406	28	31
Malaysia	9	9	3	30	11	6	25	12	15	30	30	29	600	585	425	10	10
Hong Kong	5	3	3	11	6	3	3	2	2	24	24	27	211	280	360	0	0
Indonesia	12	9	9	151	60	47	131	26	23	39	39	40	570	570	498	40	40
S Korea	10	8	5	17	14	7	16	15	15	35	35	33	230	230	230	27	38
S'pore	7	3	3	8	3	3	1	1	1	21	21	21	120	150	150	0	0
Thai	8	7	4	33	32	29	7	6	7	35	35	36	479	479	440	11	11
VNam	11	11	10	56	50	34	31	13	9	34	34	34	356	295	400	33	21

Source: World Bank, Doing Business 2005, 2010 and 2013 (<http://www.doingbusiness.org>)

Table 15: Trading Across Borders Indicators

Country	Documents to export (number)		Time to export (days)		Cost to export (US\$ per container)		Documents to import (number)		Time to import (days)		Cost to import (US\$ per container)	
	2005	2012	2005	2012	2005	2012	2005	2012	2005	2012	2005	2012
Phils	8	7	17	15	800	585	8	8	18	14	800	660
PRChina	6	8	18	21	390	580	11	5	24	24	430	615
Malaysia	7	5	18	11	432	435	7	6	14	8	385	420
HKong	6	4	13	5	525	575	8	4	17	5	525	565
Indonesia	7	4	25	17	546	644	9	7	30	23	675	660
S Korea	5	3	12	7	780	665	8	3	12	7	1040	695
Singapore	4	4	5	5	416	456	4	4	3	4	367	439
Thailand	9	5	24	14	848	585	12	5	22	13	1042	750
Vietnam	6	6	24	21	669	610	8	8	23	21	881	600

Source: World Bank, Doing Business Report 2006 and 2013 (<http://www.doingbusiness.org>).

Table 15 shows a comparison of the number of the documents needed, time, and cost to import and export in the same countries. Between 2005 and 2012, a reduction in the number of documents needed and time to export and import is evident in Hong Kong, Indonesia, South Korea and Thailand. In the Philippines, except for the number of documents to import, other selected indicators improved. From eight documents needed to export, the number is now down to seven, and from 17 days of exporting time in 2005, it is better now with 15 days. It is also

faster by four days to import now compared in 2005. In terms of cost to export, the Philippines has still one of the highest costs at US\$585 per container at present, only lower than Indonesia, South Korea and Vietnam. Cost to import is still high but the country is lower compared to South Korea and Thailand.

III. Overall Framework and the Need for a New Industrial Policy

A. Philippine Trade Liberalization Experience: What has happened and Where Do We Go From Here?

1. Trade Policy Reforms in the Philippines

After more than three decades of protectionism and import substitution from the 1950s up to the 1970s, the government started to liberalize the trade regime by removing tariff and non-tariff barriers in the 1980s. In 1982, the country's first tariff reform program (TRP I) substantially reduced the average nominal tariff and the high rate of effective protection that characterized our industrial structure. TRP I also reduced the number of regulated products with the removal of import restrictions on 1,332 product lines between 1986 and 1989.

In 1991, the second phase of the tariff reform program (TRP II) further narrowed down the tariff range with the majority of tariff lines falling within the three to 30 percent tariff range. It also allowed the tariffication of quantitative restrictions for 153 agricultural products and tariff realignment for 48 commodities. As such, the number of regulated products declined to about three percent in 1996 and by 1998, most quantitative restrictions were removed except those for rice.

In 1995, the government initiated the third round of tariff reform (TRP III) as a first major step in its plan to adopt a uniform five percent tariff by 2005. This further narrowed down the tariff range for industrial products to within three and ten percent range. In June 1999, Executive Order 63 was issued to increase the tariff rates on textiles, garments, petrochemicals, pulp and paper, and pocket lighters and at the same time, froze tariff rates at their 2000 levels.

In 2001, another legislation (TRP IV) was passed to adjust the tariff structure towards a uniform tariff rate of 5 percent by the year 2004. However, this was not implemented, instead, in October and December 2003, the government issued Executive Orders 241 and 264 which modified the tariff structure to protect selected industries. These Executive Orders restructured tariffs such that the rates on products that were not locally produced were made as low as possible while the tariff rates on products that were locally produced were adjusted upward. Since 2004, no major unilateral tariff changes have been made; mostly the tariff reductions carried out were those covered by the ASEAN Free Trade Area-Common Effective Preferential Tariff (AFTA-CEPT) scheme.

Table 16 presents the tariff rates from 1996 to 2004 for the country's major economic sectors. Note that since 2004, no major most favored nation (MFN) tariff changes have been implemented. The tariff changes pursued were mainly those arising from the ASEAN Free Trade Agreement.

Table 16: MFN Tariff Structure

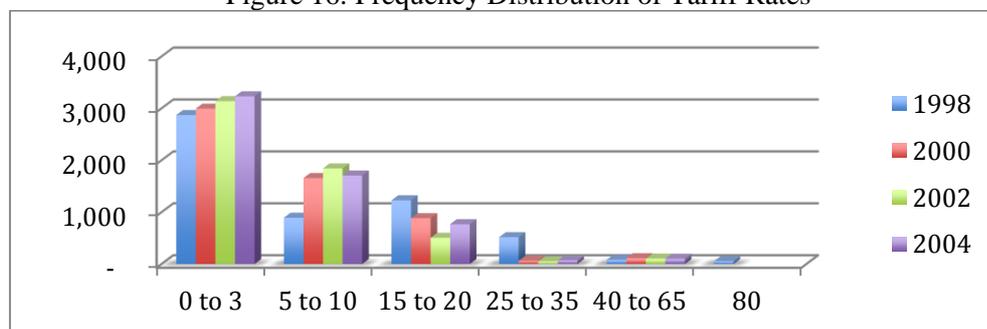
Major Sectors	Implementation of Major Tariff Policy Changes							
	1996	1998	1999	2000	2001	2002	2003	2004
All Industries	25.5 1.02	11.32 0.96	10.25 0.91	8.47 0.99	8.28 1.04	6.45 1.17	6.6 1.06	6.82 1.07
Agriculture CV	29 0.81	15.9 1.07	13.2 1.14	11.5 1.3	12.3 1.23	10.4 1.31	10.4 1.22	11.3 1.17
Fishing & forestry	22 0.95	9.4 0.63	8.9 0.7	6.7 0.66	6.7 0.62	5.8 0.45	5.7 0.48	6.0 0.57
Mining & quarrying CV		3.3 0.42	3.3 0.41	3.1 0.24	3.2 0.23	2.8 0.38	2.7 0.4	2.5 0.48
Manufacturing CV	28.0 0.97	11.38 0.93	10.35 0.88	8.5 0.95	8.28 1.0	6.39 1.13	6.57 1.03	6.76 1.03

Note: CV coefficient of variation (ratio of SD to mean).

Source: Aldaba (2005)

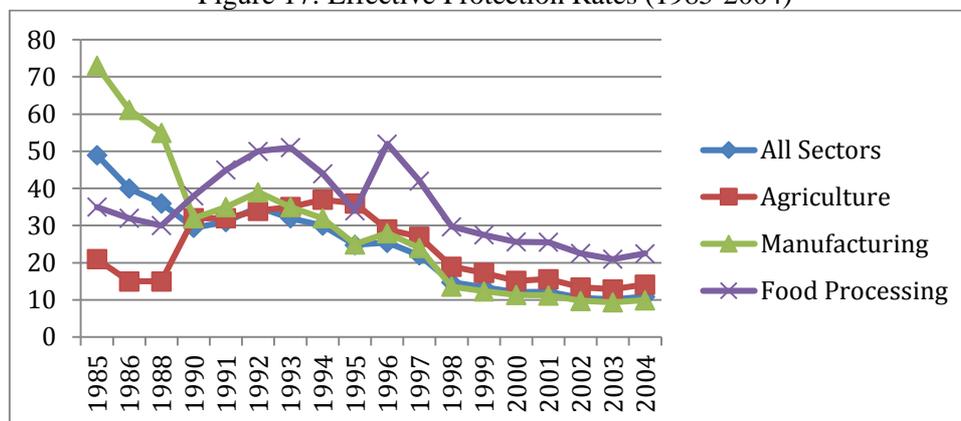
It is evident from the data that the country's overall level of tariff rates are already low. As of 2004, the average tariff rate for all industries is 6.82 percent. Manufacturing rates are almost the same as the total industry average with an average tariff rate of 6.76 percent. In terms of frequency distribution, Figure 16 shows that in 2004, more than 50% of the total number of tariff lines were already clustered in the 0 to 3% tariff range while 29% were in the 5 to 10% range. 13% were in the 15 to 20% tariff range, 1% in the 25 to 35% tariff range, and 2% in the 40 to 65% tariff range. Between 2002 and 2004, the number of lines in the 5 to 10% tariff range fell but those in the 15 to 20% range increased.

Figure 16: Frequency Distribution of Tariff Rates



Source: Aldaba (2005)

Figure 17: Effective Protection Rates (1985-2004)



Source: Medalla, E (1990), Tan, E. (1995), Manasan, R. & V. Pineda (1999), and Aldaba (2005)

Compared to tariff rates, effective protection rates (EPRs)¹² provide a more meaningful indicator of the impact of the system of protection. EPRs measure the net protection received by domestic producers from the protection of their outputs and the penalty from the protection of their inputs. Figure 17 shows that average effective protection rates for all sectors declined from 49% in 1985 to 36% in 1988. In 1995, this further dropped to around 25%, to 15% in 1998 and to 10.9% in 2004. For manufacturing, EPR fell from 73% in 1985 to 55% in 1988 and to 28% in 1996. This further declined to 11.4% in 2000 to about 10% in 2004. Note that with the tariffication of agricultural tariffs in 1992 and 1996, protection shifted from manufacturing towards agriculture. Within the manufacturing sector, the highest average level of protection has been enjoyed by food processing

2. Failure to Industrialize and The Need for Structural Transformation

As the analysis in Part II indicated; despite the breadth and depth of market-oriented reforms, the impact on the manufacturing industry's growth, employment, investment, and productivity has been limited. The overall performance of manufacturing has been weak and there has been no structural transformation of the economy from agriculture to manufacturing, no rapid industrial growth led by manufacturing but instead, as Fabella and Fabella (2012) highlighted, development progeria (premature ageing) characterized the Philippine economy. This is manifested by the rise in the share of services and fall in the share of industry and

¹² EPRs are rates of protection of value added, are more meaningful than actual tariff rates and implicit tariff rates (representing excess of domestic price of a product over its international price) since it is value added (rather than the value of the product) that is contributed by the domestic activity being protected. EPRs measure the net protection received by domestic producers from the protection of their outputs and the penalty from the protection of their inputs. However, as Francois and Reinert (1997) cited, EPRs are partial equilibrium rather than equilibrium measure. It assumes that there is no change in technology in shifting between actual and world prices. It assumes that there is perfect substitutability between domestic and foreign goods, whereas most modern trade models assume imperfect substitutability or the so-called "Armington assumption".

manufacturing sectors. Due to industry’s lackluster growth, it was services that absorbed workers moving out from agriculture and new entrants to the labor force.

On the average, unemployment rate was around 7.6% during the 2005-2010 period while underemployment remained high at 20.14% during the same period. In contradiction to major stylized facts in the trade and employment empirical literature, Philippines experience shows that openness and trade liberalization are associated with lower wage skill premium as domestic firms shifted their manufacturing process towards low value added activities requiring relatively less skill intensity production.

In terms of export performance, the country’s export base has become less diversified as manufactured exports became largely concentrated in three product groups. These consisted of electronics, garments and textile, and machinery and transport equipment which together accounted for around 76% of total exports in 2008. These goods are considerably dependent on imported inputs and have weak backward and/or upward linkages with the rest of the manufacturing industry. Trade indicators show the heavy concentration of Philippine exports on three major products groups: electronics, garments and textiles and auto parts. Within these major product groups, exports are highly concentrated in low value added and labor-intensive products sectors.

The industrial structure has remained “hollow” or “missing” in the middle and medium enterprises have never seriously challenged the large entrenched incumbents. The linkages between SMEs and large enterprises have also remained weak. SMEs have continued to face competitiveness problems along with difficulties in finance and market access.

Figure 18: GDP and Manufacturing Growth Rate: 1949-2012

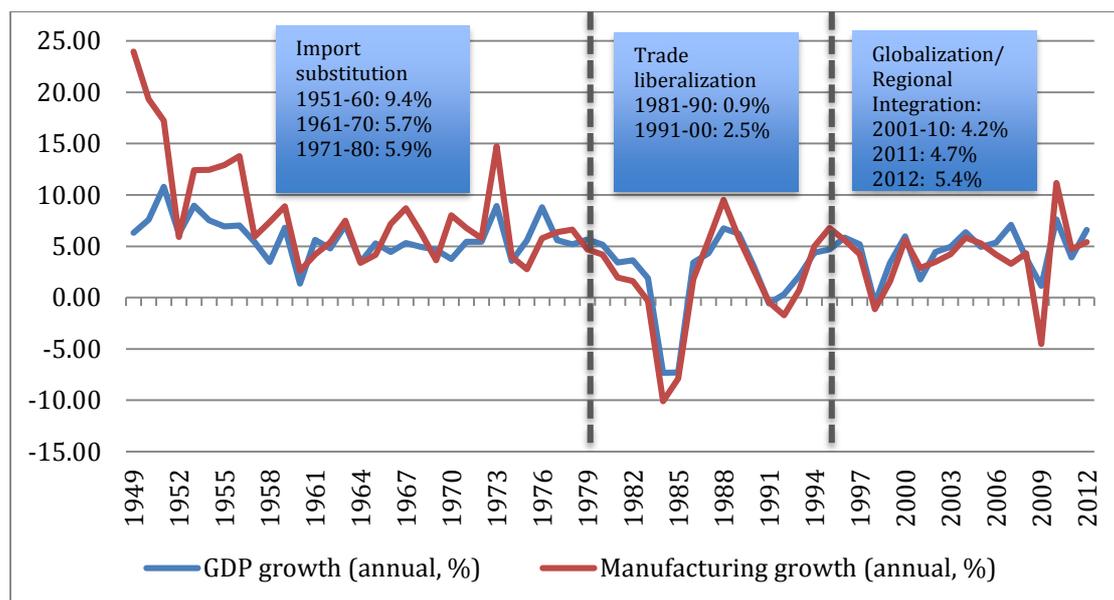


Figure 18 presents a historical picture of GDP annual growth rate that is characterized by a boom-bust cycle. The 1950s represented the best decade with GDP growth average of

6.2%. From the seventies to the nineties, the Philippines experienced three major crises: the first occurred in 1984 when the GDP shrank by 7.3 % followed by another crisis in 1991 when GDP contracted by 0.6% and again in 1998 when GDP shrank by 0.6%. The 1980s, marked as the lost decade, witnessed the country's average growth rate plummet to 1.7%. This placed the Philippines significantly below its neighbors who were able to attain respectable growth rates during the same period. While our neighboring countries registered substantial increases in the share of industry, in the Philippines, the share of industry declined and remained stagnant in the past two decades. The 1990s to 2000s witnessed the economy's attempt to recover and catch up with its neighbors.

Why has trade liberalization not led to industrialization? In understanding Philippine industrialization from a historical perspective, de Dios and Williamson (2013) characterized the country's behavior as deviant. While the Philippines was among the league of leading industrial performers during the early 1900s up to about 1940s, it started to deviate from the group of high performing countries in the 1980s and has continued to lag behind since then. The authors pointed out that since the 1960s the deviant behavior of the country has been attributed to protectionist policy, political instability (coups in 1987, 1989, 1990; further instability in 2000-2001 leading to the second EDSA Revolution; coup attempts in 2003, 2006, 2007), missed FDI opportunity (political crisis in 1984-1991 which coincided with the relocation of Japanese companies to Southeast Asia), foreign capital dependency and two financial crises. The authors also indicated that the real peso appreciation between 2003 and 2010 coincided with the emergence of current account surpluses arising from overseas workers' remittances, rapid decline in manufacturing competitiveness and further losses in manufacturing jobs. They also noted that Dutch disease caused by overseas migrant remittances are relevant beginning in the early 1990s only. While overseas workers' migration provided an opportunity to those who could not be employed due to failure of manufacturing to grow in the 1980s; it has led to Dutch Disease and caused a sustained real appreciation and imposing a penalty on tradable manufacturing by the late 2000s.

Medalla (2002) wrote that the more than two decades of trade liberalization have not yet led to rapid industrial growth due to the slow adjustment and restructuring process within the industry. She noted that new investments are only starting to be made in the more recent years. This delayed response may be due to the failure of the government to implement necessary complementary measures particularly with respect to the exchange rate. The prolonged peso appreciation inhibited much of the potential growth from a more open economy.

Studies on Philippine economic development by the World Bank and Asian Development Bank have extensively discussed the constraints to growth, investment, and employment generation in the country (World Bank, 2007; ADB, 2007). The most important

constraints include tight fiscal condition due to huge fiscal deficits, lack of infrastructure, and weak investor confidence arising from governance issues like corruption and political instability as well as the inability of the government to address market failures leading to a small industrial base.

Aldaba (2005) noted that the shift from a highly protected and highly distorted economic regime towards a more market-oriented has not been a smooth one for the Philippine economy. Trade liberalization in the manufacturing industry has been a long and tedious process with many stops and starts due to the policy reversals that took place in midstream. Philippine experience has shown that trade liberalization does not automatically lead to a competitive domestic market economy. While imports are effective in disciplining domestic manufacturing firms, the government has failed to create and maintain a competitive environment to sustain the benefits from these reforms. Coordination policies among the government agencies tasked to implement continued liberalization and deregulation policies along with support measures have been weak.

There was no master plan that would have guided and managed the adjustment process as the economy tries to shift from a highly protected system to a more open one.¹³ No adjustment programs were formulated to facilitate the adjustment process as the economy shifts from one state to another. It would have been helpful had there been accompanying policies and programs that facilitated the movement of firms from import-substituting towards export-oriented activities and reallocated resources that become unused as a result of the adjustment process. Accompanying structural policy reforms such as labor market flexibility as well as functioning capital and credit markets and policies to encourage adjustment by firms to liberalization such as the removal of entry and exit barriers especially for SMEs were absent. Several episodes of policy reversals that took place substantially reduced the credibility of reforms and negatively affected private sector investment response.

Competition has also been significantly lessened by government regulatory policies, behavioral restraints and structural characteristics of the market that acted as barriers to entry (see WB-OECD, 1999)¹⁴. Obstacles to the entry, exit and growth of domestic firms, particularly

¹³ In June 1998, an Industrial Development Plan of the Philippines was formulated under the leadership of former President Fidel Ramos. The Plan was not successfully implemented due to the changes in political administration and the Asian financial crisis in 1998. No similar plans were drafted during the Estrada and Arroyo administrations.

¹⁴ Regulatory barriers are barriers imposed by government policies including investment licensing, tariff and non-tariff measures, antidumping and countervailing duties along with safeguard measures, special permits, license to operate, regulations influencing the use of some inputs, discriminatory export practices, exclusionary lists, and ownership restrictions. Behavioral barriers are associated with abuse of dominant position where “relatively large” firms engage in anti-competitive conduct by preventing entry or forcing exit of competitors through various kinds of monopolistic conduct including predatory pricing and market foreclosure.

those affecting small and medium enterprises, have not been fully addressed. Many complementary policies and institutions that are necessary to support trade reforms and generate supply-side responses leading to employment and growth are missing. These include “behind the border” complementary policies that define the business environment including investment in human capital, infrastructure, and the quality of governance in the country.

The above discussions all point to the need to industrialize in order to attain a more inclusive and sustained growth. To achieve this, we need to transform and upgrade manufacturing and shift toward more diversified and sophisticated export products. This would require climbing the industrial ladder and moving into higher value added sectors as sources of production advance. To drive the demand for skilled labor and skill intensive manufacturing processes; technological upgrading along with further upgrading of education levels, promoting productivity growth, and increasing technological capability would be crucial.

It is in within this context that a roadmap is being formulated. It is important to identify where to devote government’s energies and resources as well as to craft a strategy and define priorities to upgrade industries and facilitate transformation. In the succeeding discussions, the experiences of more successful countries and the role of markets and governments are presented along with the necessary elements that should accompany economic transformation and the overall growth process.

B. Role of Market Fundamentals and Government in the Growth Process

In studying the growth experiences (rapid growth with equity) of the “Four Tigers” – Hong Kong, Korea, Singapore, and Taiwan and the three newly industrializing economies (NIEs) of Southeast Asia – Indonesia, Malaysia, and Thailand (collectively called high performing Asian economies or HPAEs); the World Bank’s (1993) *East Asian Miracle*¹⁵ highlighted two broad lessons of success in these 8 HPAEs. *One*, having the correct fundamentals was essential: high levels of domestic savings, broadly based human capital, good macroeconomic management, and limited price distortions served as the basis for growth and means by which the gains of productivity change were realized. Important policies include policies to assist the financial sector capture nonfinancial savings and to increase household and corporate savings; liberal foreign direct investment and licensing policies that allowed technology acquisition were crucial to rapid productivity growth; public investment complemented private investment and increased its orientation to exports; and education

Structural barriers are due solely to conditions outside the control of market participants. Economies of scale (increasing returns to scale) is an example of a structural barrier.

¹⁵ These countries have been grouped together because they had rapid, sustained growth between 1960 and 1990, which is unusual among developing countries and what is unique is they combine this rapid, sustained growth with highly equal income distributions. They have also been characterized by rapid demographic transitions, strong and dynamic agriculture and unusually rapid export growth.

policies that stressed universal primary schooling and improvements at primary and secondary levels.

Two, careful policy interventions through subsidies, tariffs or interest rate controls; aware of the costs of these interventions, HPAE governments generally held costs within well-defined limits. Price distortions were mild, interest rate controls used international interest rates as a benchmark, and explicit subsidies were kept within fiscally manageable bounds. In assessing these policy interventions, the World Bank argued that generally these did not work in the promotion of specific industries and therefore holds little promise for developing countries. As a guiding principle for interventions attempting to guide resource allocation to succeed, they must address market failures such as coordination failures which can lead markets to fail especially in the early stages of development. Otherwise, markets would perform the allocation function more efficiently. Some of these interventions contributed to the extraordinary growth of Japan, Korea, and Taiwan because of their highly unusual historical and institutional circumstances. They were successful than most in combining the benefits of economic cooperation with the benefits of vigorous competition. They did this by creating contests with exports as the yardstick of success, with subsidized credit and other government-controlled favors as prizes and with government officials as competent and usually honest referees. In other economies, similar interventions have failed because governments offered incentives without a clear link to economic performance and strong institutional support.

Export-push strategies have been by far the most successful combination of fundamentals and policy interventions and hold the most promise for other developing economies. The book pointed out that subsidies to exports and directed credit programs linked to exports are not generally consistent with the GATT and may invite retaliation from trading partners. Its suggestions include policies creating a free trade environment for exporters, providing finance and support services for SME-exporters, improving trade-related aspects of the civil service, aggressively courting foreign direct investment, and focusing infrastructure on areas that encourage exports.

While there is no recipe for success, positive lessons from the East Asian miracle include: stable macro economy, focus on early education, agriculture must not be neglected, use banks to build a sound financial system, be open to foreign ideas and technology, and let relative prices reflect economic scarcity. What should not be done or negative lessons are: promoting specific industries or attempting to leap stages of technological development will generally fail, strongly negative real interest rates and large subsidies to borrowers debilitate the financial system, and directing credit without adequate monitoring and selection of borrowers distorts allocation.

The World Bank's *Economic Growth in the 1990s* (2005) confirms the findings of the East Asian Miracle (1993) highlighting the importance for growth of macro-stability, market

forces governing the allocation of resources, and openness. However, the book also emphasized that these general principles translate into diverse policy and institutional paths, implying that for economic policies to be effective, they must be country specific and institution sensitive. The central message is there is no one size fits all or unique universal set of rules. Sustained growth depends on key functions that must be fulfilled overtime: accumulation of physical and human capital, efficiency in the allocation of resources, adoption of technology, and the sharing of the benefits of growth.

The *Growth Report* (2008) by the Commission on Growth and Development examined 13 successful economies that have sustained, high growth in the postwar period. The 13 economies consist of a diverse group of countries such as Botswana, Brazil, China, Hong Kong, Indonesia, Japan, Korea, Malaysia, Malta, Oman, Singapore, Taiwan, and Thailand. The Report identified five common characteristics: they fully exploited the world economy; maintained macroeconomic stability; mustered high rates of savings and investment; let markets allocate resources; and had committed, credible, and capable governments. The Report recommended a framework for high, sustained growth with the following elements:

- **Openness:** the high-growth countries imported ideas, technology and knowhow from the rest of the world and exploited global demand, which provided a deep, elastic market for their goods. The inflow of knowledge dramatically increased the economy's productive potential and the global market provided the demand necessary to fulfill it.
- **Macroeconomic stability:** modest inflation, sustainable public finances, governments were fiscally responsible. Macroeconomic volatility and unpredictability damage private sector investment and hence, growth. During their most successful periods, the 13 high-growth countries avoided the worst of this turbulence.
- **Future orientation:** they all mustered high rates of savings and investment, not least public investment in infrastructure; foregoing consumption in the present to have higher level of income in the future.
- **Market allocation:** prices guide resources, resources follow prices
- **Leadership and governance:** credible commitment to growth, credible commitment to inclusion, capable administration

Policy suggestions cover five categories: **accumulation, innovation, allocation, stabilization** and **inclusion**. Strong, enduring growth would require high levels of investment, overall investment rates of 25% of GDP or above are needed for both public and private expenditures. The high-growth countries also invested at least another 7-8% of GDP in education, training, and health (both public and private spending). One channel to promote technology transfer is foreign direct investment and policies to attract more FDI and measures to extract more knowledge from a given amount of investment should be pursued such as

requiring investors to hire and train local staff. Policies to maintain competition and allow structural change to take place through the entry of new, productive firms and exit of ailing ones should also be promoted. In intervening, governments should be guided by two principles: they should try to protect people, not jobs and if social protection cannot be provided, they should be more careful in their economic reforms. The speed of job destruction should not outstrip the pace of job creation. In labor markets, governments should pursue policies that increase labor mobility, workers will find it easier to pick up new skills and enter new trades if they are literate and educated.

On export promotion and industrial policy, if an economy is failing to diversify its exports and failing to generate productive jobs in new industries, governments should look for ways to jump-start the process, these efforts, however, should be subject to certain disciplines. They should be temporary; evaluated critically and abandoned quickly if they are not producing the desired results; and export promotion is not a good substitute for other key supportive ingredients such as education, infrastructure, and responsive regulation.

Efforts to shepherd exchange rates are as controversial as industrial policy, they can be thought of a form of industrial policy. The use of exchange rates for industrial policy has the advantage of being neutral between industrial sectors. However, it has its own costs and risks. At best, the management of the exchange rate can be used for two purposes, one is to tip the balance slightly in favor of exports in the early stages of growth to overcome informational asymmetries and other potential transitory frictions. The other is to prevent a surge of capital inflows from disrupting the profitability and growth of the export sectors.

The Report also cited certain bad policies including providing open-ended protection of specific sectors, industries, firms, and jobs from competition; banning exports for long periods of time to keep domestic prices low for consumers at the expense of producers; allowing the exchange rate to appreciate excessively before the economy is ready for the transition towards higher productivity industry, among others.

Recent work by Justin Lin (2010, 2012) highlights the need to rethink government's economic role and the challenge for industrial policy to assist governments in crafting programs in which public and private sectors coordinate to develop new technologies and industries. He points out that except for a few oil-exporting economies, no country has ever become rich without industrializing. Most countries in the world, intentionally or not, pursue an industrial policy in one form or other. Historical evidence shows that in countries that successfully transformed from an agrarian to a modern economy (in Western Europe, North America and East Asia), governments coordinated key investments by private firms that helped to launch new industries, and often provided incentives to pioneering firms through direct subsidies, tax credits or loans from development banks in order to bolster growth and support job creation. Measures including public financing of airports, highways, electricity grids,

telecommunications, and other infrastructure along with improvements in institutional effectiveness, emphasis on education and skills, and a clearer legal framework have been pursued to strengthen industrial policy.

Box 1: The Thai Industrial Restructuring Plan

As the Thai manufacturing industry exhibited declining signs, the Ministry of Industry (MOI) started to formulate the Industrial Restructuring Plan (IRP) in 1997. The IRP was approved by the Cabinet in January 1998. The National Committee for Industrial Development launched it in June 1998. The implementation program budget allocation was US\$1.19 billion. The IRP focused on upgrading Thailand's competitiveness through a set of strategies including allocating soft loans to targeted sectors, dispatching experts to provide technical assistance and establishing funds and government organizations to support industrial development.

The IRP identified thirteen (13) industries and formulated eight (8) programs to address observed constraints and bring back the industry path to sustainable growth. The 13 industries were: food and animal feed; textile and garment; footwear and leather; wooden products and furniture; pharmaceutical and chemicals; rubber and rubber products; plastic products; ceramic and glassware; electrical appliances and electronic; automobile and parts; gems and jewelry; iron and steel; and petrochemicals.

The 13 programs covered the following: improvement of industrial productivity and streamlining of production processes to increase competitiveness in production cost and product delivery; move towards production of high value added products for middle to higher markets with quality standards by upgrading technological capabilities; improving labor skills; incubation and strengthening of small and medium supporting industries; promoting product design and development, global marketing channels; promoting the decentralization and relocation of labor-intensive industries to regional and rural areas; inducing FDI in targeted industries with technologies of the future; and relocating and managing polluting industries and promoting clean technology.

The formulation and implementation of the IRP was done through Steering Committees (see Appendix 2A for the mechanism). The National Committee for Industrial Development, which was responsible for providing overall guidance in the formulation of the IRP was chaired by the Deputy Prime Minister and managed by the MOI together with members from related ministries, business and academe. The main task of the Committee is to examine and discuss basic policy and overall direction. A Sub-committee on National Industrial Restructuring, chaired by the Deputy Minister of the MOI, was responsible for drafting the IRP's detailed measures and actions. Institutes that were operated jointly by public and private sectors were established as venues for information sharing, monitoring and policy formulation and coordination with line ministries, Thai EXIM BANK, industry associations, and commercial banks.

The institutes that were established as part of the IRP include the Thailand Productivity Institute, Thai-German Institute, Thailand Textile Institute, National Food Institute, Management Systems Certification Institute, Thailand Automotive Institute, Electrical and Electronics Institute, Foundation for Cane and Sugar Research Institute, Institute for SME Development, and The Iron and Steel Institute of Thailand.

The IRP helped to recover and stimulate industrial growth with manufacturing growth of 10% in 2003 and 8% in 2004 (see Appendix 2B). Hence, the Ministry of Industry developed the IRP to be a national industrial policy: Industrial Restructuring Strategy: 2005-2008. This was similar to the IRP and included new strategic plans to generate high value added industries particularly those that are innovation or knowledge-based. Other measures included human capital development, industrial clustering, efficient energy consumption, and creation of new entrepreneurs.

Lin notes that most developing countries have failed in playing a facilitating role due to governments' inability to align their country's resource base and level of development. The propensity to target overly ambitious industries that were misaligned with available resources and skills explains why their attempts to "pick winners" ended up in "picking losers". In contrast, successful economies have focused on strengthening industries that have done well in countries with comparable factor endowments. Lin emphasized that the lesson from economic history and development is government support aimed at upgrading and diversifying industry must be anchored in the requisite endowments. That way, once constraints on new industries are removed, private firms in those industries quickly become competitive domestically and globally.

Lin's framework (growth identification and facilitation framework) suggests that policymakers identify tradable industries that have performed well in countries with similar resources and skills and with a per capita income about double their own. If domestic private firms are already present, policymakers should identify and remove constraints on those firms' technological upgrading or on entry by new firms. If there are no domestic firms present, policymakers should aim to attract foreign investors from the countries being emulated or organize programs for incubating new firms.

Box 1 presents the case of Thailand as it tried to implement its Industrial Restructuring Plan during the period 1998-2002. Thailand took about 20 years to increase its manufacturing contribution from 22% to 30% and double its employment share from 7.5% to 15%. The average share of manufacturing went up substantially from 23.8% from 1981 to 1985 to almost 28% during the period 1991 to 1995, which is a span of about ten years. In the next decade, its average share increased from 27% during the period 1996 to 2000 to 30.38% in 2001 to 2005. In terms of its employment contribution to the total, its average share also rose from 7.5% in 1981-1985 to 8% during 1991-1995 and 11% in 1996-2000. In the succeeding ten years, it reached almost 15% in 2001 to 2005.

C. Analytical Framework

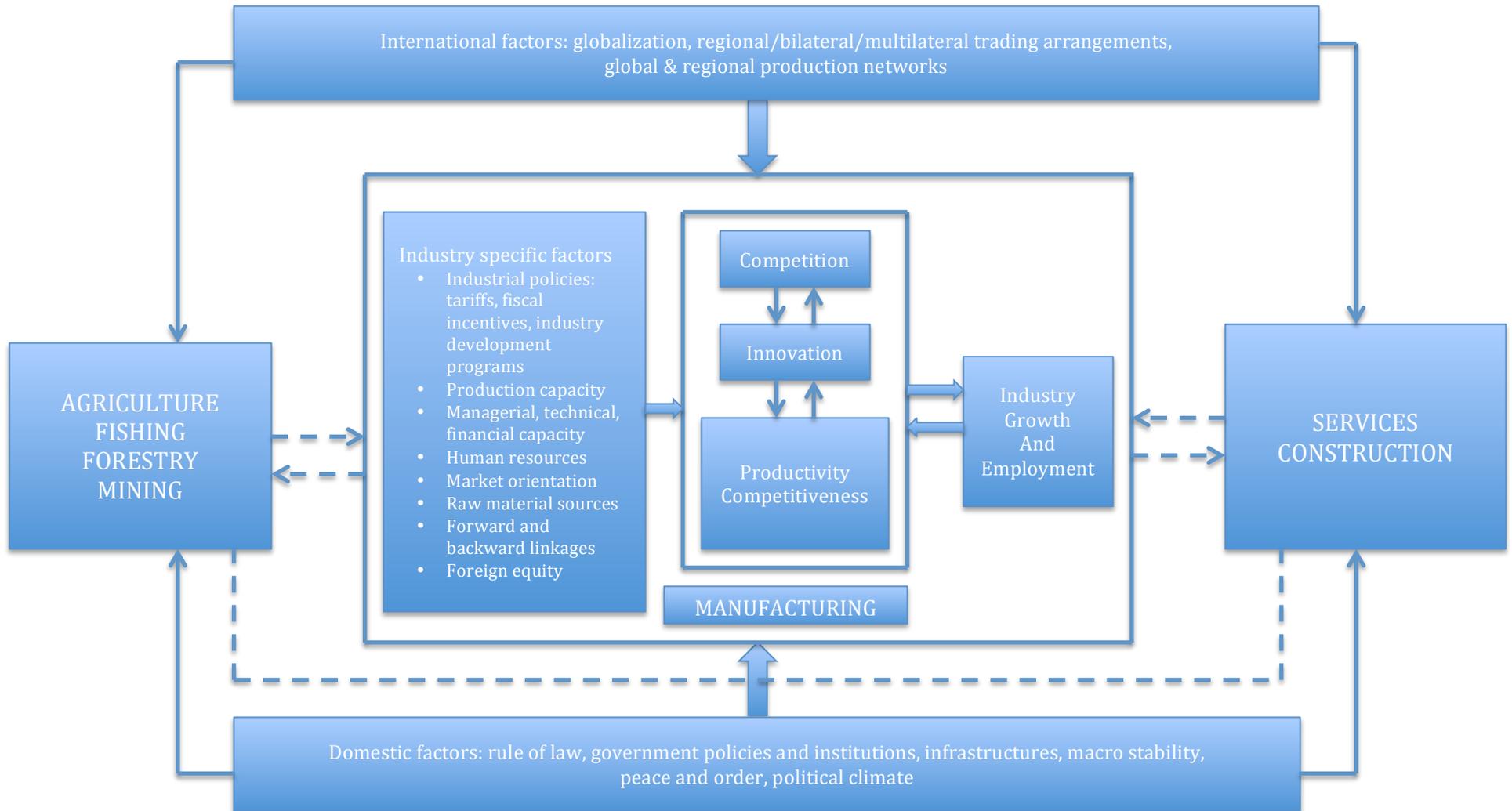
Firms and industries operate in a market environment affected by international and domestic factors. International factors include multilateral, bilateral and regional trade agreements that brings about trade and investment liberalization. The international environment also encompasses globalization and new forms of industrial organizations such as regional or international production networks. IPNs¹⁶ are usually found in trade in automotive, electronics,

¹⁶ Vertical specialization has been one of the most notable trends in the international organization of production during the past few decades. Due to reductions in communication costs, transportation costs and other trade barriers, multinational firms have sliced up their supply chains and dispersed their production activities across multiple countries. (Alyson Ma and Ari Van Assche. 2011 Global Production

machinery, and garments industries. All these external factors can pose both risks and opportunities to firms and industries. For instance, with the removal of trade and investment barriers, opportunities such as bigger export markets and increased foreign direct investment flows can arise but at the same time, the entry of competing imports or more competitive global players in the domestic market would increase competition which might pose risks to the survival of relatively smaller, less competitive and what used to be highly protected firms in the domestic economy.

Networks in the Post-crisis Era. Ch.21 in Mona Haddad and Ben Shepherd, eds. *Managing Openness: Trade and Outward Oriented Growth after the Crisis*. World Bank. 2011)

**Figure 19: Business Environment and Market Process Affecting Industry Growth and Development
Competition, Innovation, Productivity**



Domestic factors include the macroeconomic condition, political situation, peace and order, infrastructure, and government policies and regulation. Within the domestic environment, there are industry-specific or internal factors that affect the growth and development of firms and industries. These are government trade and investment policies such as tariffs, import restrictions as well as investment incentive measures like income tax holidays or tax and duty exemptions on imports. These may also include industry capacity, market orientation, foreign equity participation, raw materials, components and inputs, forward and backward linkages with other sectors of the economy, capabilities and strengths of the industry.

The interplay of all these factors (external and internal) can affect industry growth. Within the context of an open economy, there are three important channels or mechanisms in which trade can affect growth: competition, innovation, and productivity. The internal and external elements comprise the overall business environment in which firms and industries operate. Any changes in these factors can affect the process of competition, innovation and productivity which in turn determines the growth of the industry.

Trade openness and economic growth are linked through the relationships between competition, innovation, and productivity. The old theory of international trade tells us that welfare gains from trade arise from specialization based on comparative advantage. In the new trade theory, gains result from economies of scale and product varieties available to consumers. Empirical evidence based on micro level data shows that an additional source of gains arise from improved productivity. In these studies, the assumption of firm heterogeneity within an industry has been adopted in contrast to traditional models that rely on the representative firm assumption. In the presence of within-industry firm heterogeneity, trade liberalization may lead to improved productivity through the exit of inefficient firms and the reshuffling of resources and outputs from less to more efficient firms. With the exit of inefficient firms, resources (labor and capital) will be freed and will move to other industries where they can be used more productively. Trade liberalization drives the process of restructuring and reshuffling of resources within and across sectors of the economy such that unprofitable activities contract while profitable ones expand. As Melitz (2002) points out, trade opening may induce a market share reallocation towards more efficient firms and generate an aggregate productivity gain, without any change at the firm level.

Studies indicating that productivity improves following liberalization include Pavcnik (2000) for Chile, Fernandes (2003) for Columbia, Topalova (2003) for India, Amiti and Konings (2004) and Muendler (2002) for Indonesia along with Schor (2003) for Brazil. In India, Krishna and Mitra (1998) also found evidence of a significant favorable effect of reforms on industrial productivity.

The most recent literature on trade and growth shows that international trade affects firms' innovative activities through increased competition. As Licandro (2010) noted,

increasing evidence support the claim that international trade enhances innovation and productivity growth through an increase in competition. Impulliti and Licandro (2009, 2010) introduced a framework where trade affects both firm selection and innovation through the competition channel. Given an oligopolistic environment, trade liberalization leads to an increase in the number of firms in the domestic market which raises product market competition and lowers the markup rate. The selection effect of trade operates through endogenous markups resulting from oligopolistic competition among firms. The reduction in the markup rate (or increase in competition) due to trade liberalization reduces profits, increases the productivity threshold above which firms can profitably produce and forces the less productive firms out of the market. Resources are reallocated from exiting firms to the higher productivity surviving firms which innovate at a faster pace.

In an environment characterized by increasing globalization and economic integration through free trade agreements and given the relationships between trade openness, competition, innovation, productivity and growth; it should be pointed out that the impacts of trade and openness are not automatic, government's role will be crucial especially during the transition. Currently, there are two important challenges that industries are faced with: (i) intense competition from imports within the domestic market and (ii) improving capacity to penetrate export markets and take advantage of increasing returns to scale and market access opportunities arising from free trade agreements and increasing regional integration.

The framework to economic development outlined by Lin (2011) will be adapted to help identify the industries with latent comparative advantage and facilitate private sector development in a competitive manner. Lin's framework is based on the principle that developing countries can dynamically transform their economic structure by following their comparative advantage and industrial upgrading needs a facilitating state. The other key concepts include openness, competitiveness and strong fiscal and external accounts, large economic surplus and high return on investments which characterize high-growth countries in the world.

Market and coordination failures are inherent to the process of industrial upgrading and diversification and must be addressed through government's facilitative role. For instance, starting a new industry may be difficult because of the lack of complementary inputs or adequate infrastructure for the new industry even if the targeted industry is consistent with the economy's comparative advantage determined by its factor endowments. Private firms will not be able to internalize the investments of those intermediate inputs or infrastructure in their upgrading or diversification decisions. Hence, the government has a crucial role to play in providing or coordinating investments in necessary infrastructure and complementary inputs (Lin, J. 2011).

Another market failure is caused by important information externalities. Economic innovations (whether successful or not) yield information about profitable and unprofitable market opportunities. But because much of this information is available not only to the innovators themselves but also to competitors and potential imitators, who do not bear any of the costs of the innovation, it will tend to be undersupplied by the market. Government subsidies are one possible mechanism for encouraging innovation and offsetting this first-mover disadvantage. (J. Lin and H. Chang, 2009).

Within the context of the above, the following steps and guidelines will be applied in evaluating the industry roadmaps:

- *First*, what are the growth potentials of the industry in both domestic and export markets?
 - Are there any potential growth areas where the industry might have latent comparative advantage?

The different industrial activities where the Philippines may have potential opportunities for sustained growth and employment generation will be examined. This will include industries and activities identified in the Philippine Development Plan, those suggested by Usui (2012) based on the product space concept and those identified in the industry roadmaps.

- *Second*, what are the obstacles preventing the firms from upgrading the quality of their products? What are the barriers that may be discouraging other firms from entering?
 - Growth diagnostics and value-chain analyses are applied (see Appendix 3) along with the information and evaluation provided by the industry roadmaps.
- *Third*, recommend policy mix to overcome constraints, manage liberalization and upgrade the industry. The policy mix will consist of horizontal and vertical interventions as well as coordination mechanisms that would be formulated in order to allow firms and industry to increase competitiveness, latch on to regional production networks, increase capacity to export and enable domestic firms (especially SMEs) to increase their chances of surviving competition.

Usui (2012) defines horizontal or broad-based interventions as those that provide the framework in which firms and industries operate and where the market mechanism is the key determinant of their development. These include protection of property rights, improvement of overall business and investment environment, and R&D strategies.

Vertical interventions are “targeted” ones focused on specific firms, industries and sectors. They include selected provision of subsidized loans, subsidies, tax incentives and infrastructure provision and human capital development for specific industries. Lin (2011)

notes that the government can compensate firms through time-limited tax incentives, co-financing investments, or access to raw materials. These incentives are for compensating the externalities created by first movers and for encouraging firms to form clusters. Lin emphasizes that the incentives provided by the government could and should be limited both in time and in financial cost, and should not be in the form of monopoly rent, high tariffs, or other distortions so as to avoid rent seeking and political capture.

Coordination mechanisms such as industry councils are important venues for interaction between the government and the private sector in identifying obstacles in exporting these products and determining the most appropriate interventions. These could also help in sharing information on investment ideas, achieving coordination and facilitating changes in legislation and regulation to support private investments.

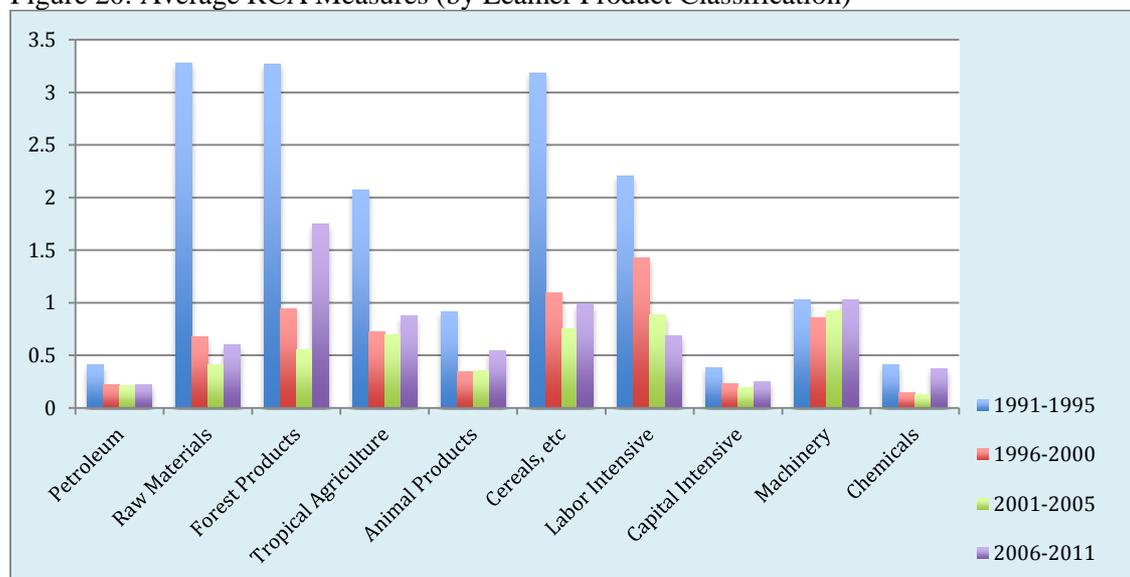
It is important to note that sufficient caution must be exercised to avoid unintended rent transfers to well-connected entrepreneurs and self-interested government officials. Thus, strong political leadership at the top is critical as well as competent and honest bureaucrats along with the incorporation of check and balances mechanisms in public support programs. Usui (2011) identified certain principles as guide in designing public support measures: clear objectives and targets, monitoring and evaluation mechanisms with performance indicators and benchmarks, sunset clauses and exit strategies, simple and flexible interventions, cost recovery schemes, and participatory and transparent public-private dialogue.

IV. Potential Areas for Growth and the Most Binding Constraints

A. RCA Analysis and Product Space: Where are the Potential Opportunities

In June 1998, the Industrial Development Plan of the Philippines was formulated by the Industry Development Council under the leadership of then Department of Trade and Industry Secretary Cesar B. Bautista and approved by former President Fidel Ramos. The central focus of the Plan was on technology and skills upgrading. Based on the latent or actual competitiveness, industry size and impact on jobs; the Plan identified 16 winning industries consisting of: copper products, decorative crafts (basketworks, ceramics, holiday décor, jewelry), electronics, fertilizer, footwear and leather goods, fresh fruits, furniture, garments and textile, industrial tree plantation including rubber products, iron and steel including metal products, marine products, motor vehicles and components, oleochemical, petrochemical, processed food and carrageenan. Table provides a list of the constraints along with the recommended strategies and actions plans of the selected industries. The Plan was not successfully implemented due to the changes in political administration and the Asian financial crisis in 1998. No similar plans were drafted during the Estrada and Arroyo administrations.

Figure 20: Average RCA Measures (by Leamer Product Classification)



The present Philippine Development Plan 2011-2016 envisions a globally-competitive and innovative industry and services sector that contributes significantly to inclusive growth and employment generation. The Plan focuses on improved business environment, increased productivity and efficiency, and enhanced consumer welfare. The following key areas will be pursued in the medium term: tourism, business process outsourcing, electronics, mining, housing, agribusiness/forest-based industries, logistics, shipbuilding, infrastructure, other high-potential industries such as homestyle products (furniture and furnishings, holiday décor, houseware and ceramics, woodcraft, giftware excluding toys, shellcraft, and basketwork), wearables (jewelry), motor vehicle parts and components, garments, and construction and related materials.

Figure 20 shows the declining number of sectors with average RCAs > 1 from 1991 to 2010. The calculated RCAs were further classified into four groups: classic, disappearing, emerging champions, and marginals (see Record, R. and K. Nghardsaysone, 2010). Figure 21 presents the share of each RCA group classification to total exports. Classics are products in which Philippine RCA is high in the earlier periods and remains high at the most recent period; this implies long term competitiveness and strong export performance that should be maintained. As Figure 19 shows, their share to total exports has remained high although this has been gradually declining especially in the more recent years. Table 17.1 presents the classics which include copper ores and copper (raw materials); fuel wood, wood charcoal (forest products); fish, etc, prepared, preserved, nes (animal product); tobacco unmanufactured and vegetable textile fibers (cereal, etc); men's, boys clothing, knitted; women, girl clothing, knitted; other textile apparel (labor-intensive); tulle, lace, embroidery, etc (capital-intensive); electric distribution equipment, nes; radio broadcast receiver; transistors, valves (machinery); and alcohol, phenol (chemicals).

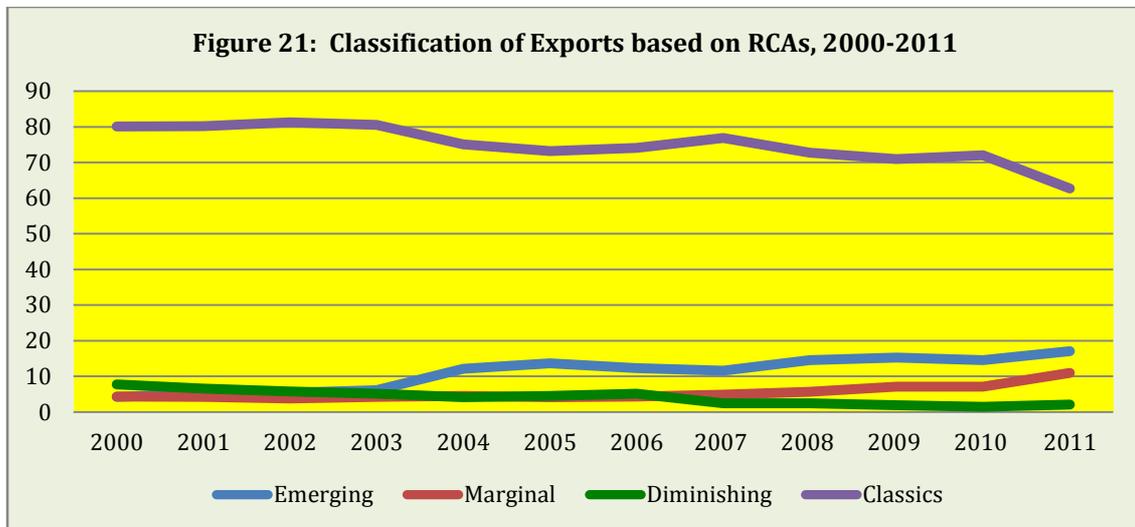


Table 17.1: Classics

Classics		Average Exports (in thousand US\$)			
		1991-1995	1996-2000	2001-2005	2006-2010
Copper ores,concentrates	Raw materials	134,811.88	38,603.75	17,371.01	155,770.64
Prec.metal ores,conctrts	Raw materials	76,462.92	48,841.63	21,676.40	112,430.72
Petroleum gases, nes	Raw materials	84,165.29	66,228.13	23,386.65	100,192.73
Copper	Raw materials	287,885.05	277,457.86	343,400.48	1,211,341.76
Fuel wood, wood charcoal	Forest products	10,295.94	9,677.86	6,874.13	9,855.51
Wood manufactures, nes	Forest products	117,481.72	149,313.22	126,657.41	837,945.30
Fish etc.prepd,prsvd.nes	Animal products	126,172.83	116,490.01	117,694.32	246,822.79
Crude veg.materials, nes	Animal products	57,932.58	91,025.58	85,023.58	115,002.02
Tobacco, unmanufactured	Cereals, etc	29,189.52	30,806.03	22,755.74	68,794.77
Vegetable textile fibres	Cereals, etc	21,676.01	21,170.56	12,465.56	17,006.41
Fixed veg.fat,oils,other	Cereals, etc	488,823.69	551,449.19	502,423.36	843,472.30
Mens,boys clothng,x-knit	Labor-intensive	180,132.36	514,549.83	454,888.29	390,149.75
Women,girl clothng,xknit	Labor-intensive	204,445.21	638,818.16	766,480.61	447,323.73
Mens,boys clothing,knit	Labor-intensive	118,835.11	263,220.62	206,329.32	156,604.26
Women,girls clothng.knit	Labor-intensive	116,190.27	210,891.65	243,238.12	487,722.58
Othr.textile apparel,nes	Labor-intensive	405,519.82	604,515.10	527,798.13	500,349.33
Tulle,lace,embroidry.etc	Capital-intensive	15,220.17	21,969.95	32,743.82	35,340.50
Electr distribt.eqpt nes	Machinery	337,936.20	563,624.83	677,316.11	936,781.54
Radio-broadcast receiver	Machinery	81,479.45	91,429.30	101,989.29	62,380.68
Transistors,valves,etc.	Machinery	1,074,814.09	12,307,684.18	14,722,887.90	15,566,269.93
Alcohol,phenol,etc.deriv	Chemicals	40,058.76	42,602.98	53,199.27	146,450.49

Emerging champions are products in which Philippine RCA is low in the earlier period but is high in the recent period; this implies the emergence of competitiveness and the need to build on these product discoveries. As Table 17.2 shows, emerging champions are few and consist of machinery products such as parts of electric power machinery; electric machinery

apparatus nes; and parts of tractors and motor vehicles. Other emerging champions are ferrous waste and scrap (raw materials); milk and cream (animal products); tobacco manufactured (cereals, etc); glass (labor-intensive); and metal salts, inorganic acid (chemicals). Figure 18 shows that a rising trend in the share of the emerging champions to total exports is evident.

Table 17.2 Emerging Champions

Emerging		Average Exports (in thousand US\$)			
		1991-1995	1996-2000	2001-2005	2006-2010
Ferrous waste and scrap	Raw materials	2,694.14	8,714.99	77,404.15	150,423.65
Milk and cream	Animal products	732.96	3,978.78	59,090.84	125,671.37
Tobacco, manufactured	Cereals, etc	12,415.19	12,576.35	57,714.30	119,205.22
Worn clothing, textl. artl	Cereals, etc	1,938.20	3,622.02	8,830.89	12,253.26
Glass	Labor-intensive	20,579.09	44,685.90	115,082.18	123,892.39
Elect power machny. parts	Machinery	25,348.88	70,917.80	93,738.16	1,035,790.79
Electric. mach. appart. nes	Machinery	37,295.09	104,898.81	1,044,842.10	1,332,119.12
Parts, tractors, motor veh	Machinery	110,358.21	398,226.58	968,024.41	1,643,734.95
Metal. salts, inorgan. acid	Chemicals	998.12	4,740.58	13,527.69	249,913.25

Table 17.3 Marginal RCAs

Marginals		Average Exports (in thousand US\$)			
		1991-1995	1996-2000	2001-2005	2006-2010
Petroleum oils, crude	Petroleum	20,523.32	285.35	60,622.53	198,073.65
Petroleum products	Petroleum	128,502.98	262,221.33	420,174.30	786,251.58
Fertilizers, crude	Raw materials	359.43	134.88	708.88	531.83
Sulphur, unstd. iron pyrs	Raw materials	86.94		441.99	1,829.35
Natural abrasives, nes	Raw materials	170.06	72.67	156.25	123.06
Other crude minerals	Raw materials	5,643.71	9,826.69	4,849.58	5,706.32
Coal, not agglomerated	Raw materials	0.10	1.55	3.13	72,457.82
Silver, platinum, etc.	Raw materials	819.99	1,234.42	3,385.16	38,282.67
Pulp and waste paper*	Forest products	29,462.14	36,807.94	38,881.88	61,124.42
Paper, paperboard, cut etc	Forest products	29,648.09	35,242.85	22,549.65	54,110.58
Non-alcohol. beverage, nes	Tropical agriculture	3,547.89	2,183.44	5,179.15	18,293.03
Cereal preparations*	Cereals, etc	10,842.06	27,868.34	42,142.17	73,923.10
Edible prod. preprtns, nes*	Cereals, etc	25,814.06	41,176.96	68,331.94	103,086.10
Lime, cement, constr. matrl	Labor intensive	7,770.48	16,504.11	44,273.04	53,289.42
Articles, nes, of plastics	Labor intensive	41,179.85	106,309.23	122,002.03	157,550.10
Furskins, tanned, dressed*	Capital intensive	62.37	34.57	124.73	2,230.73
Articles of rubber, nes	Capital intensive	5,489.86	18,978.15	26,915.67	41,914.55
Tubes, pipes, etc. iron, stl	Capital intensive	22,465.47	20,420.90	14,778.20	59,262.42
Manufacts. base metal, nes	Capital intensive	18,179.04	60,367.01	66,113.21	119,477.50
Household equipment, nes	Capital intensive	15,140.97	29,656.33	26,774.71	16,258.50
Plumbng, sanitory, eqpt. etc	Capital intensive	5,724.02	13,167.78	22,891.63	53,041.31
Steam gener. boilers, etc.	Machinery	3,145.76	10,777.32	7,540.76	5,858.50
Cycles, motorcycles etc.	Machinery	12,386.45	45,800.34	64,230.92	57,362.76
Aircraft, assocd. equipnt	Machinery	2,537.43	27,351.05	168,709.33	288,573.47
Ship, boat, float. structrs*	Machinery	557.73	57,994.23	69,103.41	195,052.22
Medical instruments nes	Machinery	3,418.34	15,318.98	23,140.30	68,126.92

Arms and ammunition	Machinery	3,513.60	4,334.90	6,451.80	14,061.13
Inorganic chem.elements	Chemical	18,176.00	23,922.92	20,996.19	52,534.77
Soap,cleansers,polish,etc*	Chemical	20,070.76	23,504.19	32,006.72	98,256.58

Table 17.4: Disappearing RCAs

Disappearing	Classification	Average Exports (in thousand US\$)			
		1991-1995	1996-2000	2001-2005	2006-2010
Stone, sand and gravel	Raw materials	7,821.26	12,019.28	12,630.96	13,792.60
Non-ferrous waste, scrap	Raw materials	20,893.64	54,266.47	53,885.16	67,246.25
Tin	Raw materials	7,069.13	4,357.20	956.73	11,582.45
Misc.non-ferr.base metal	Raw materials	3,405.00	30,618.15	62,750.35	28,585.97
Veneers, plywood, etc.	Forest products	31,920.64	13,694.37	15,076.43	19,103.83
Sugars,molasses,honey	Tropical agriculture	104,860.18	93,357.25	61,850.20	87,395.14
Cocoa	Tropical agriculture	16,392.39	15,265.00	7,460.83	3,490.41
Natural rubber, etc.	Tropical agriculture	15,165.81	19,823.55	27,043.06	44,213.09
Fish,fresh,chilled,frozn	Animal products	54,165.22	88,954.50	82,586.93	143,952.92
Animal,veg.fats,oils,nes	Animal products	12,680.95	15,243.67	25,608.88	26,328.57
Animal feed stuff	Cereals, etc	63,263.09	47,726.28	36,571.39	57,965.07
Pottery	Labor-intensive	45,725.98	55,048.39	28,394.98	19,173.05
Furniture,cushions,etc.	Labor-intensive	215,806.66	335,841.37	298,990.85	205,849.97
Trunk,suit-cases,bag,etc	Labor-intensive	69,504.49	227,906.92	141,729.08	87,414.24
Clothing accessrs,fabric	Labor-intensive	28,669.99	56,697.96	46,794.27	40,803.08
Footwear	Labor-intensive	148,132.56	135,151.29	45,503.63	23,318.56
Baby carriage,toys,games	Labor-intensive	180,400.14	231,996.57	172,721.76	186,332.13
Gold,silverware,jewl nes	Labor-intensive	42,604.18	27,442.57	54,852.58	62,272.42
Misc manufctrd goods nes	Labor-intensive	210,202.03	177,175.27	156,534.60	140,551.80
Textile articles nes	Capital-intensive	36,278.23	84,675.05	57,630.66	48,886.96
Cine.film exposd.develpd	Machinery	6,677.21	4,148.72	67.29	23.34
Fertilizer,except grp272*	Chemicals	102,138.61	76,590.71	60,064.71	82,011.74
Explosives,pyrotechnics	Chemicals	4,482.72	5,796.78	3,320.00	6,876.66

Marginals are products in which Philippine RCA has been low in both earlier and recent periods; the implication is not clear whether these products have strong potential, but they should be observed and allowed to grow particularly machinery products such as ship, boat and float structures and aircraft and associated equipment as well as chemical products such as soap, cleaners, polish, etc. (see Table 17.3). As Figure 18 indicates, a gradual rising trend is evident especially in the more recent period under study. Disappearances are products in which Philippine RCA in the earlier period is high but is low in the most recent period; this implies declining competitiveness. The policy implication is to move up the value chain, product or technology ladder to more sophisticated products (see Table 17.4).

Applying the product space framework (Hausman), Usui (2012) identified a total of 663 products representing the Philippines' unexploited opportunity set and where the country's comparative advantage may be developed and can thus be candidates for product diversification (see Table 18.1-18.8). Usui (2011) classifies these products into three groups: nearby, middle, and far-away. Nearby products can be developed with relative ease since they can intensively utilize existing capabilities embedded in the current export structure. Nearby products with the highest level of sophistication and spillover effects include labor-intensive products like jewelry and machinery products such as complete digital data processing machines, watches, photographic cameras, TV, radio-broadcasting, etc. (see Table 18.1).

Far-away products can aggravate difficulties since they need quite different capabilities that the country has not yet developed. Examples of far-away products are chassis fitted with engines (with highest level of sophistication) as well as other parts and accessories for vehicles (highest spill-over effects). Middle products with highest level of sophistication include metal products such as angles, shapes, sections and sheet piling, of iron or steel and chemical products like salts of metallic acids and compounds of precious metals. A realistic policy option for developing far-away and middle products is through foreign direct investment which allows transfer of technology and capabilities that can be deployed for the production and export of other products.

SITC Code	Description	Leamer Classification
7522	Complete digital data processing machines	Machinery
8851	Watches, watch movements and case	Machinery
8811	Photographic cameras, flashlight apparatus, parts, accessories, nes	Machinery
7643	Television, radio-broadcasting, transmitters; etc.	Machinery
8852	Clocks, clock movements and parts	Machinery
6531	Fabrics, woven, of continuous synthetic textile materials	Capital intensive
7641	Electrical line telephonic and telegraphic apparatus	Machinery
7622	Portable radio receivers	Machinery
0350	Fish, dried, salted or in brine; smoked fish	Animal products
7642	Microphones; loudspeakers; audio-frequency electric amplifiers	Machinery
7512	Calculating, accounting, cash registers, ticketing, etc., machines	Machinery
0344	Fish fillets, frozen	Animal products
0612	Refined sugar, etc.	Tropical Agriculture
8973	Precious jewellery, goldsmiths' or silversmiths' wares	Labor intensive
6664	Porcelain or china houseware	Labor intensive
8981	Pianos, other string musical instruments	Labor intensive
0814	Flours and meals, of meat, fish, etc., unfit for human; greaves	Cereals
7243	Sewing machines, furniture, needles, etc., and parts thereof, nes	Machinery
7757	Domestic electromechanical appliances, and parts thereof, nes	Machinery
8952	Pens, pencils, and fountain pens	Labor intensive

Source: Usui (2012)

SITC Code	Description	Leamer Classification
6674	Synthetic or reconstructed precious or semi-precious stones	Labor intensive
8981	Pianos, other string musical instruments	Labor intensive
6522	Knitted, not elastic nor rubberized, of fibers other than synthetic	Capital intensive
8952	Pens, pencils, and fountain pens	Labor intensive
8998	Smallwares and toilet articles, nes; sieves; tailors' dummies, etc.	Labor intensive
6531	Fabrics, woven, of continuous synthetic textile materials	Capital intensive
8852	Clocks, clock movements and parts	Machinery
8973	Precious jewellery, goldsmiths' or silversmiths' wares	Labor intensive
8851	Watches, watch movements and case	Machinery
6664	Porcelain or china houseware	Labor intensive
8811	Photographic cameras, flashlight apparatus, parts, accessories, nes	Machinery
0350	Fish, dried, salted or in brine; smoked fish	Animal products
0344	Fish fillets, frozen	Animal products
7243	Sewing machines, furniture, needles, etc., and parts thereof, nes	Machinery
7522	Complete digital data processing machines	Machinery
7641	Electrical line telephonic and telegraphic apparatus	Machinery
7643	Television, radio-broadcasting, transmitters; etc.	Machinery
0814	Flours and meals, of meat, fish, etc., unfit for human; greaves	Cereals
7642	Microphones; loudspeakers; audio-frequency electric amplifiers	Machinery
7622	Portable radio receivers	Machinery

Source: Usui (2012)

SITC Code	Description	Leamer Classification
5415	Hormones, natural, or reproduced by synthesis, in bulk	Chemicals
5148	Other nitrogen-function compounds	Chemicals
6733	Angles, shapes, sections and sheet piling, of iron or steel	Metal products
8996	Orthopedic appliances, hearing aids, artificial parts of the body	Labor intensive
5851	Modified natural resins etc; derivatives of natural rubber	Chemicals
7362	Metal forming machine-tool	Machinery
0015	Equine species, live	Animal products
5146	Oxygen-function amino-compounds	Chemicals
8744	Nonmechanical or electrical instruments for physical, etc., analysis	Machinery
7923	Aircraft of an unladen weight from 2,000 kg to 15,000 kg	Machinery
5826	Epoxide resins	Chemicals
6647	Safety glass consisting of toughened or laminated glass, cut or not	Labor intensive
0013	Swine, live	Animal products
7741	Electro-medical equipment	Machinery
5841	Regenerated cellulose	Chemicals
5233	Salts of metallic acids; compounds of precious metals	Chemicals
6643	Drawn or blown glass (flashed glass), unworked, in rectangles	Labor intensive
7499	Other non-electric parts and accessories of machinery, nes	Machinery
5139	Oxygen-function acids, and their derivatives	Chemicals
5411	Provitamins and vitamins	Chemicals

Source: Usui (2012)

SITC Code	Description	Leamer Classification
7492	Cocks, valve and similar appliances, for pipes boiler shells, etc.	Machinery
7431	Air pumps, vacuum pumps, and air or gas compressors	Machinery
6571	Felt, articles of felt, nes, whether or not impregnated or coated	Capital intensive
6573	Coated or impregnated textile fabrics and products, nes	Capital intensive

8935	Articles of electric lighting of plastic	Labor intensive
5821	Phenoplasts	Chemicals
6422	Correspondence stationery	Forest products
8922	Newspapers, journals, and periodicals	Labor intensive
6785	Tube and pipes fittings, of iron or steel	Metal products
6289	Other articles of rubber, nes	Capital intensive
6572	Bonded fiber fabrics, etc, whether or not impregnated or coated	Capital intensive
6282	Transmission, conveyor or elevator belts, of vulcanized rubber	Capital intensive
7499	Other non-electric parts and accessories of machinery, nes	Machinery
7112	Auxiliary plant for boilers of heading 7111; condensers	Machinery
6997	Articles of iron or steel, nes	Metal products
8939	Miscellaneous articles of plastic	Labor intensive
6996	Miscellaneous articles of base metal	Metal products
7239	Parts, nes of machinery and equipment of headings 72341 to 72346	Machinery
5822	Aminoplasts	Chemicals
8989	Parts, nes of and accessories of musical instruments; metronomes	Labor intensive

Source: Usui (2012)

SITC Code	Description	Leamer Classification
2786	Slag, scalings, dross, and similar wastes, nes	Raw materials
2772	Other natural abrasives	Raw materials
2925	Seeds, fruits and spores, nes, for planting	Animal products
8989	Parts, nes of and accessories of musical instruments; metronomes	Labor intensive
0430	Barley, unmilled	Cereals
0811	Hay and fodder, green or dry	Cereals
0411	Durum wheat, unmilled	Cereals
0452	Oats, unmilled	Cereals
8794	Other articles of precious metals or rolled precious metals, nes	Labor intensive
9610	Coin (other than gold coin), not being legal tender	Labor intensive
6416	Fiber building board of wood or other vegetable material	Forest products
6352	Casks, barrels; other cooper's products and parts, including staves	Forest products
6330	Cork manufactures	Forest products
6553	Knitted, or crocheted fabrics, elastic or rubberized	Capital intensive
0013	Swine, live	Animal products
0015	Equine species, live	Animal products
2682	Wool degreased, uncombed of sheep or lambs	Cereals
2681	Wool greasy or fleece-washed of sheep or lambs	Cereals
6571	Felt, articles of felt, nes, whether or not impregnated or coated	Capital intensive
6572	Bonded fiber fabrics, etc, whether or not impregnated or coated	Capital intensive

Source: Usui (2012)

SITC Code	Description	Leamer Classification
5147	Amide-function compounds excluding urea	Chemicals
5155	Other organo-inorganic compounds	Chemicals
6412	Printing paper and writing paper, in rolls or sheets	Forest products
7368	Work holders, dividing head for machine tools, etc.; tool holders	Machinery
5157	Sulphonamides, sultones, and sultams	Chemicals
5416	Glycosides, glands, antisera, vaccines, and similar products	Chemicals
7412	Furnace burners; mechanical stokers, etc., and parts thereof, nes	Machinery
0121	Bacon, ham, other dried, salted or smoked meat of domestic swine	Animal products
5838	Ion exchangers of the polymerization or copolymerization type	Chemicals
6880	Uranium depleted in U235, thorium, and alloys, nes; waste and scrap	Raw materials

7452	Other non-electrical machines and parts thereof, nes	Machinery
8821	Chemical products and flashlight materials for use in photography	Machinery
5827	Silicones	Chemicals
5156	Heterocyclic compound; nucleic acids	Chemicals
5982	Anti-knock preparation, anti-corrosive; viscosity improvers; etc.	Chemicals
7841	Chasis fitted with engines, for vehicles of headings 722, 781-783	Machinery
7269	Parts, nes of machines falling within headings 72631, 7264, 7267	Machinery
6832	Nickel and nickel alloys, worked	Raw materials
7281	Machine-tolls for specialized industries; parts or accessories, nes	Machinery
5145	Amine-function compounds	Chemicals

Source: Usui (2012)

SITC Code	Description	Leamer Classification
5162	Aldehyde, ketone, and quinone--function compounds	Chemicals
3345	Lubricating petroleum oils, and preparations, nes	Petroleum
7439	Parts, nes of the machines falling within headings 7435 and 7436	Machinery
5163	Inorganic esters, their salts and derivatives	Chemicals
7732	Electrical insulating equipment	Machinery
7412	Furnace burners; mechanical stokers, etc., and parts thereof, nes	Machinery
7212	Harvesting and threshing machines; fodder presses, etc.; parts nes	Machinery
7188	Engines and motors, nes (wind, hot air engines, water wheel, etc.)	Machinery
7429	Parts, nes of pumps and liquids elevators falling in heading 742	Machinery
7849	Other parts and accessories, for vehicles of headings 722, 781-783	Machinery
5335	Glazes, driers, putty etc.	Chemicals
6579	Special products of textile materials	Capital intensive
7423	Rotary pumps (other than those of heading 74281)	Machinery
0913	Lard, pig, and poultry fat, rendered or solvent-extracted	Cereals
6418	Paper and paperboard, coated, impregnated, etc., in rolls or sheets	Forest products
7224	Wheeled tractors (other than those falling in heading 74411, 7832)	Machinery
7129	Parts, nes of steam and power units	Machinery
7269	Parts, nes of machines falling within headings 72631, 7264, 7267	Machinery
5824	Polyamides	Chemicals
7435	Centrifuges	Machinery

Source: Usui (2012)

SITC Code	Description	Leamer Classification
2741	Sulphur (other than sublimed, precipitated or colloidal)	Raw materials
2234	Linseed	Cereals
2652	True hemp, raw or processed but not spun, its tow and waste	Cereals
6591	Linoleum and similar floor covering	Capital intensive
6579	Special products of textile materials	Capital intensive
8121	Central heating equipment, not electrically heated parts, nes	Capital intensive
7187	Nuclear reactors and parts thereof, nes	Machinery
6635	Wool; expanding or insulating mineral materials, nes	Labor intensive
6632	Abrasive power or grain, on a base of woven fabrics	Labor intensive
7842	Bodies, for vehicles of headings 722, 781-783	Machinery
7913	Mechanically propelled railway, tramway, trolleys, etc.	Machinery
7849	Other parts and accessories for vehicles of headings 722, 781-783	Machinery
7919	Railway track fixtures, and fittings, etc., parts nes of heading 791	Machinery
6953	Other hand tools	Metal products
6940	Nails, screws, nuts, bolts, rivets, etc., of iron, steel or copper	Metal products
6954	interchangeable tools for hand or machine tools (tips, blades, etc.)	Metal products

6999	Other base metal manufactures, nes; and of cermets	Metal products
7929	Parts, nes of the aircraft heading 792	Machinery
8822	Photographic film, plates and paper (other than cinematograph film)	Machinery
6418	Paper and paperboard, coated, impregnated, etc., in rolls or sheets	Forest products

Source: Usui (2012)

B. Most Binding Constraints to Growth: What is preventing us from taking advantage of the potential opportunities

A total of 18 manufacturing industries submitted their sectoral roadmaps to the DTI-BOI. These covered the following sectors: rubber, copper, biodiesel, furniture, engineered bamboo, chemicals, petrochemicals, cement, motorcycle, motorcycle parts, automotive, automotive parts, tool and die, iron and steel, plastics, paper, metal casting, and shipbuilding. Based on the review of the roadmaps and industry consultations that were conducted, the most common horizontal constraints that were identified were in the areas of infrastructure and logistics particularly the high cost of power and domestic shipping as well as in governance and regulation specifically smuggling, bureaucracy and red tape and the lack of streamlining and automation of interrelated government procedures.

Table 19: Major Horizontal Constraints

Major Area	Main Issues & Constraints
Infrastructure & Logistics	High cost & unpredictability of power High cost of domestic shipping
Governance & Regulation	Smuggling, corruption, bureaucracy/red tape Lack of streamlining/automation of interrelated business procedures
SME development	Access to finance, technology upgrade, inability to comply with product standard regulations
Human resource development	Lack of skilled workers, training
Innovation	Industry-academe linkages new product development, R&D facilities

The high cost of power has been raised by almost all sectors, in particular copper, cement, paper, auto and autoparts, chemical, petrochemical, biodiesel and iron and steel sectors. High shipping and transportation costs are important concerns in the copper, furniture, chemicals, and iron and steel sectors. Improvement in infrastructure is of high importance to automotive, autoparts, chemical and petrochemicals, and cement industries. The problem of smuggled products has been cited by almost all industries specifically copper, automotive, auto parts, chemical, petrochemical and iron and steel sectors. The proliferation of counterfeit

products and parts has been raised by the motorcycle industry. The industries have also indicated the lack of streamlining in government procedures particularly at the Bureau of Customs.

SMEs continue to face lack of access to finance, access to technology as well as difficulties with product quality standards. The lack of skilled workers remains a major constraint particularly in industries such as metal casting, tool and die, auto and motorcycle parts, furniture, chemical, rubber, plastic, iron and steel industries. The need to create linkages between industry and academe in product development and R&D activities has also been highlighted.

In terms of vertical or industry specific constraints, the analysis showed that firms in various sectors continue to face major constraints such as lack of domestic raw material suppliers, parts and components; as well as lack of highly skilled workers. The underdevelopment of parts and components industries and high cost of raw materials have severely affected their competitiveness. In the face of increasing competition from imports, the lack of adjustment measures like temporary industry support measures and training and job search assistance for displaced workers has led to the inability of firms to cope with the new operating environment.

Table 20 summarizes the vertical constraints into five major areas consisting of issues affecting the industry supply/value chain; domestic market base; SME development; human resource development; and innovation. As already indicated in the overall analysis in Part II of the report, broken linkages in the supply/value chain characterize many of our industries. The lack of materials processing has severely affected the competitiveness of the Philippine parts and supplies industries and hampered the ability of high-technology industries to move up the value chain. Due to weak backward linkages within the manufacturing industry, automotive and electronics have continued to rely on imported parts and remained at the assembly stage of the supply chain.

Table 20: Major Vertical Constraints

Major Area	Main Issues & Constraints	Industries
Supply/value chain gaps	Absence of raw materials (upstream); weak parts & components sector (mid-stream); downstream	Furniture, paper, copper, iron and steel, plastic, automotive
Domestic market expansion as base for exports	Need economies of scale, build on domestic supply base as platform towards expansion into exports	Auto, motorcycle, ship building

In the iron and steel industry, which is critical for the manufacture of parts and equipment, competitiveness issues have remained due to the high cost of raw materials (apart

from the high costs of power and logistics, unabated smuggling, and limited government capacity to monitor product standards). With the shutdown of Global Steel, local production of hot-rolled coil/sheet, cold-rolled coil sheet, tin plates and wire rods have been completely displaced by imports.

In terms of forward linkages, the local tool and die industry has to compete heavily against imported dies and molds while its backward linkages are weak due to the unavailability of most raw materials, equipment, and software. Special steels and castings, general and specialized metal machining equipment, and software are all imported. Labor is the only component of the value chain that is locally sourced. Though the country has natural resources that would provide important metals like iron and copper, there are no processing plants (capital-intensive blast furnace, steel making facility) that would produce the form of metal that the industry requires. There is no reliable aluminum casting facility for molds used in molding large plastic components like refrigerator liners.

In the export-oriented copper industry, firms have hardly any linkage with the domestic economy. Copper ores are all exported and although the country has a copper smelting facility, it imports 100 percent of its copper ore requirements and exports 100 percent of its output due

to the absence of a copper rod facility. Manufacturers of wiring harness, a major export product and user of copper rods, import all of their copper rod requirements.

Box 2: Automotive Industry Roadmap

The automotive industry is a highly global and technology-driven industry. It is complex with large number of parts and components (textiles, glass, plastics, electronics, rubber, steel, and other metals) involving different production processes. Given these interlinkages, the promotion of the automotive industry can lead to an expansion of many complementary investments by automotive parts firms and help lay the foundation for broad-based industrial growth.

In the last 10 years, the Philippine automotive industry has seen intense import competition as a result of trade liberalization. Through the ASEAN Trade in Goods Agreement (ATIGA), tariffs were eliminated in early 2010. With increasing regional integration, domestic assemblers in the country have been shifting away from assembly or completely knocked down (CKD) operations toward completely built units (CBU) imports. As its CKD operations declined from 92 percent of total sales in 2003 to 49 percent in 2009 and further to 41 percent in 2011, Ford Motors decided to close down its assembly plant in the Philippines.

The industry has been facing competitiveness issues due to the absence of economies of scale and a weak supply base. These are the fundamental issues that must be addressed in order to strengthen the industry and integrate it with regional production networks of foreign automakers. To achieve this, there is a need for strategic industrial upgrading policy and carefully designed temporary support that would target improvement of firm competitiveness as well as rebuilding the market for domestically assembled vehicles. Moreover, strong political will be needed to address the illegal entry of new and used vehicles.

Amid these challenges, there are market opportunities that globalization brings and which the industry can take advantage of. Forecasts show that Asia will be the most dynamic market in the world especially with the steady growth of China, India, and the Southeast Asian countries. The creation of the ASEAN Economic Community in 2015 offers increased trade and investment opportunities. There are also strong growth potentials in specializing in certain core processes and alternative fuel and E-vehicles and parts. Investors will not put all their eggs in one basket especially in the light of the supply chain disruptions that occurred after the Japan quake and Thai flooding. The Philippine auto industry must be ready as investors search for alternative locations.

As the country aspires to become a regional hub like Thailand, large investments would be necessary in critical parts like body panel stampings, large injection moldings, and engines. Three major strategies are proposed to be implemented: (i) enhance the competitiveness of Filipino parts and components firms; (ii) create an incentive program to support the adjustment of the automotive industry as it transforms from completely knocked down assembly to full manufacturing; and (iii) establish a more predictable environment for business operations. Through the effective implementation of these policy measures, the auto industry is expected to realize its potential of being one the key drivers of manufacturing growth by 2020, producing not only for the domestic market but also for the regional and world markets.

Sources: PACCI (2012); Aldaba (2012)

Lack of integration also characterize the pulp and paper industry as firms continue to face high cost of raw materials due to the absence of a pulp mill in the country. The furniture industry also attributed their inability to compete due to the high cost and lack of raw materials. Though the potentials are high for engineered bamboo products, the shortage of bamboo poles has been a major constraint preventing the industry from taking part in the global market for bamboo products.

Domestic market base expansion is important for the automotive, motorcycle, and shipbuilding industries. For instance, the automotive industry has been facing competitiveness issues due to the absence of economies of scale and a weak parts supply base (see Box 2). These are the fundamental issues that must be addressed in order to strengthen the industry and integrate it with regional production networks of foreign automakers. In the case of shipbuilding, Nomura (2012) indicated the strong potential of the Philippines especially in view of plans by Korea and Japan to expand their overseas market. By expanding the domestic base, the country can be an attractive site for foreign shipbuilding companies.

V. Manufacturing Industry Roadmap and Recommendations

A. SWOT Analysis

Given its popularity and high trust rating, the Aquino administration is expected to continue implementing solid reforms and actions to overcome the difficult challenges in realizing the country's potentials. Now seen as a new growth area, the Philippines is well positioned to attract new investments that would catalyze growth and development especially in the light of our recent investment upgrade. Many see the impressive 6.8 percent growth in gross domestic product for 2012 and 7.8% growth during the first quarter as a sign of increasing economic momentum that is necessary to drive the country toward a higher growth path in the succeeding years.

Table 21: Analysis of Strengths, Weaknesses, Opportunities, and Threats (SWOT)

Strengths <ul style="list-style-type: none"> • Good macro environment • Political stability • Abundant young, skilled, English speaking workers • Export zones' legal framework & incentives 	Weaknesses <ul style="list-style-type: none"> • High power cost • Inadequate infrastructure • Weak competitiveness of industries
Opportunities <ul style="list-style-type: none"> • 2011 flooding in Thailand that drove investors to seek alternative locations • Earthquake in Japan leading to supply chain disruptions • Rising labor cost in China • Increasing tension between Japan & China due to maritime territorial dispute • ASEAN Economic Community 2015, ASEAN+1FTAs: ASEAN represents a large potential market of 600 million people 	Threats <ul style="list-style-type: none"> • Strong peso • Global uncertainty, economic slowdown in the developed world

Large market opportunities for our industries are offered by the ASEAN Economic Community market of 600 million people. At the same time, there are also opportunities for the Philippines as an alternative investment site given the rising costs in China, conflict between China and Japan, and the calamities in Japan and Thailand that affected their industry supply chains. One important threat, however, is the peso appreciation, although recently, the peso has been depreciating (refer to the SWOT Analysis).

With strong collaboration among national agencies, local government units, and the private sector to improve the country's infrastructure and investment climate; strengths such as low and stable wages, abundant, young, skilled, English speaking workers and a Roadmap providing the strategy and direction for the upgrading, diversification and transformation of the manufacturing industry; the Philippines is well positioned to attract new investments that would catalyze growth and development of the manufacturing industry.

A new industrial policy is needed not only to generate jobs and reduce poverty but also to take advantage of these market opportunities. To lay the foundation of becoming a major growth driver, technology upgrading and transformation of the manufacturing industry would be required. Structural transformation refers to the process of climbing the industrial ladder, moving into higher value added sectors as sources of production advance. Industrial and technological upgrading are best promoted by a facilitating government, a government that facilitates private sector's ability to exploit the country's comparative advantage.

B. Necessary Conditions for Industry Upgrading

The main components of the new industrial policy are described in Table 22. Good infrastructure and efficient institutions are necessary to support the new economic environment. The government should substantially increase investment spending and strengthen its weak institutional and regulatory environment. Note that removing the obstacles to growth is not enough, a growth oriented action is needed as an accompanying strategy. Efficient resource allocation would require a competitive exchange rate, an open trade regime and institutions that can enforce contracts and enable markets to function. To attract capital accumulation, government should have sustainable macroeconomic policies, sound tax policies and administration and an efficient bureaucracy. Moreover, the private sector would require secure property rights, stable macro economy, and access to finance. To encourage technological catch-up, institutions that promote adaptive research and patent regime along with trade and investment policies that attract foreign direct investment are necessary. To make growth more inclusive, focus on SME development as well as on growth outside the economic centers of NCR, Central Luzon and CALABARZON. Equally important is the need to increase the productivity of the agriculture sector and strengthen its linkages with the manufacturing industry towards the development of the agribusiness sector.

Table 22: Strategic Elements and Required Policy Actions

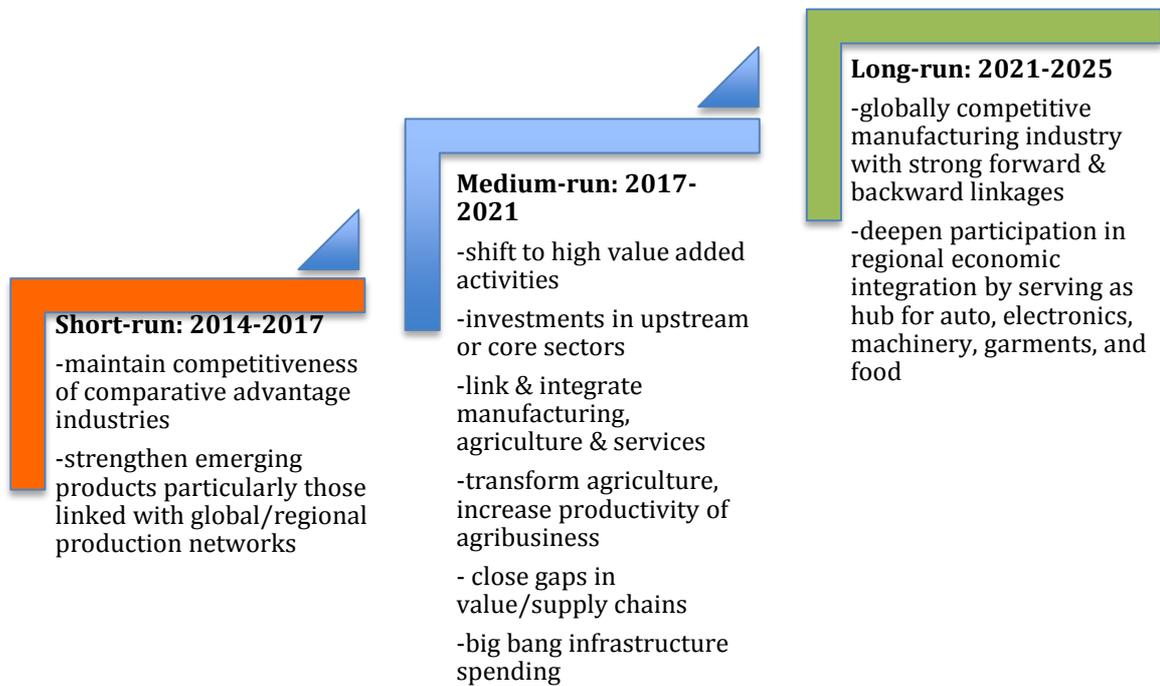
Strategy	Required Actions
Remove obstacles to growth	Address supply-side constraints, increase infrastructure spending, strengthen weak institutional & regulatory environment
Efficient resource allocation	Competitive exchange rate, open trade regime, institutions that can enforce contracts & enable markets to function; flexible labor market policy to allow workers to move to new, high productivity jobs; improve access to finance
Capital accumulation	Government: sustainable macro policies, sound tax policies & administration, efficient bureaucracy Private sector: secure property rights, stable future expectations, stable macro economy, access to finance
Technological catch-up	Institutions that promote adaptive research & patent regime; trade & investment policies that attract FDI
Shared growth benefits	MSME growth & development; growth outside of NCR, CALABARZON, and Central Luzon areas would be crucial for inclusive or broad-based growth; increase agriculture productivity & strengthen links with manufacturing & develop agribusiness sector

Industrial policies are crucial to enhance firm productivity, deepen linkages of domestic firms and SMEs with large domestic and multinational companies, and aggressively court more investment. Policies will also be necessary to boost the survival of new entrants and provide assistance for the growth and development of SMEs. To enable firms to move up the technology scale, programs should be formulated to improve technological and human resource capabilities as well as to strengthen supply chains.

C. Vision, Goals and Policy direction

Figure 22 presents the specific goals, phases and policy focus of the Manufacturing Industry Roadmap. The long-term vision is to develop a globally competitive manufacturing industry supported by strong backward and forward linkages within the economy. In the short run, the policy focus should be on strengthening existing industries especially those with strong potentials to generate employment, address missing gaps, move up the product ladder and create linkages and spill-over effects in sectors such as automotive, electronics, food, garments, motorcycle, shipbuilding, chemicals, and allied or support industries. During this initial stage, policies and programs should aim at exploiting economies of scale and learning by doing. Automotive, electronics and garments are industries characterized by global/regional production networks. Deepening our participation in these networks would be crucial for industries and SMEs in particular to benefit from the on-going regional economic integration in ASEAN and East Asia.

Figure 22: Manufacturing Industry Roadmap for Structural Transformation And Inclusive Growth: Specific Goals and Policy Guidelines



In the medium-term and as domestic capacities are reached, efforts in the initial stage should lead to expansion and new investments especially in the upstream, intermediate or core sectors such as iron and steel and other metals as well as in parts and components industries. By linking manufacturing with agriculture, mining, and services; supply chain gaps will be addressed and forward and backward linkages will be strengthened.

Note that strengthening the manufacturing industry would require a more comprehensive approach aimed towards the same goal of transforming the agriculture sector towards the growth and development of agribusiness (which is strongly linked to manufacturing). Similarly, productivity increases in the services sector must also be pursued. The services sector goes beyond the IT and IT enabled services sub-sector and covers a broad range of sectors such as transport, education, health, construction, tourism, and others. Intensified focus should be given to increasing infrastructure investment, a necessary condition to generate supply-side responses arising from market reforms. A “big bang” infrastructure spending is crucial in order to address main problems of infrastructure development contributing to the poor performance of industries. Improvements in infrastructure facilities and services translate into productivity gains and competitiveness increases in industries notably in manufacturing, agriculture, and tourism.

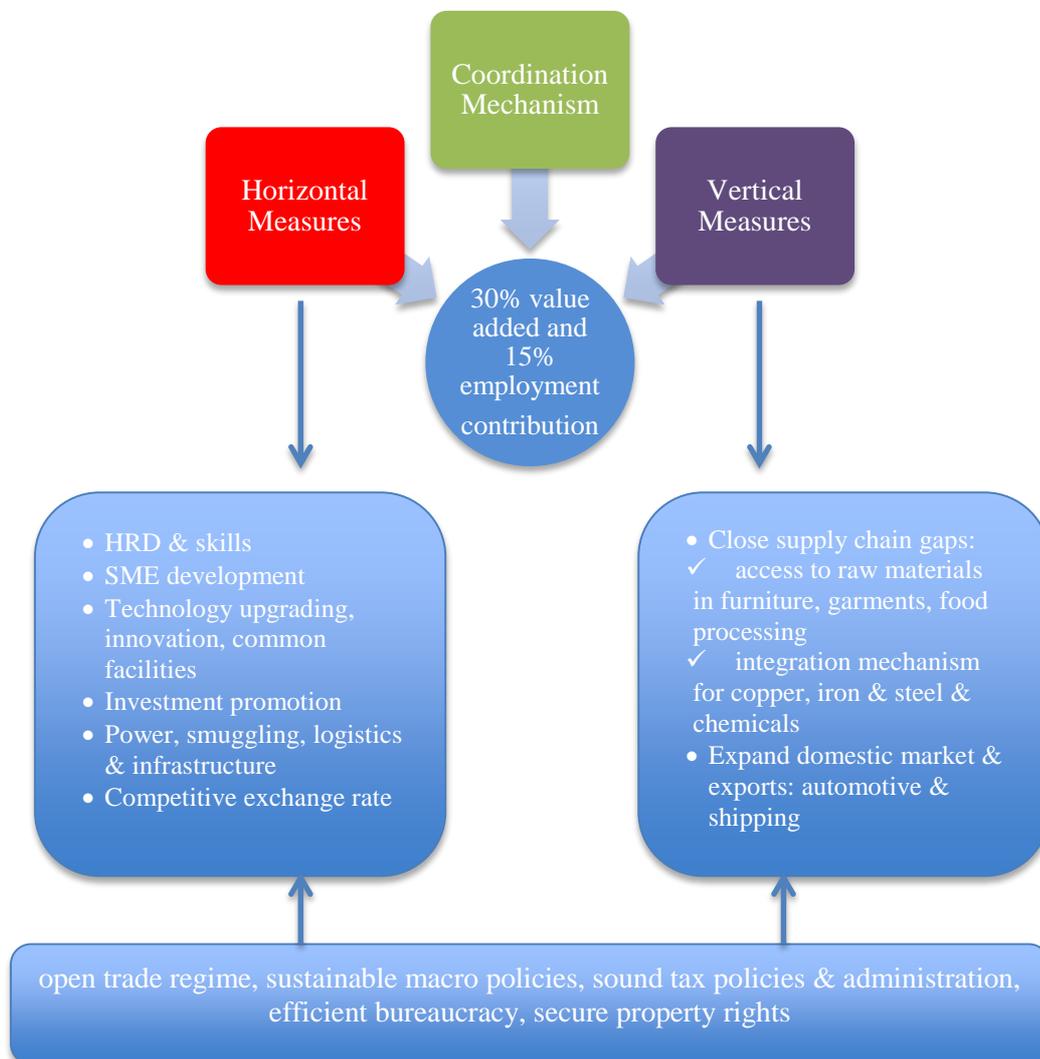
In the long-run, a globally competitive manufacturing industry with strong forward and backward linkages is envisioned to increase its contribution to 30% of total value added and 15% of total employment. Supported by a strong parts and components sector and inputs from

a productive agriculture sector as well as well-managed supply chains, the Philippines is expected to play a vital role in the regional and international production networks of companies engaged in automotive, electronics, garments and food.

D. Three Pillars of the Roadmap: Vertical Measures, Horizontal Measures and Coordination Mechanism

The Manufacturing Industry Upgrading Roadmap aims to increase the contribution of manufacturing to 30 percent of total output and 15 percent of total employment. There are three main pillars to achieve these targets: vertical measures, horizontal measures, and government-industry coordination mechanism (see Figure 23).

Figure 23: Three Pillars of the Manufacturing Industry Upgrading Roadmap



1. Vertical Measures

To achieve the specific objectives outlined in Figure 22 and to overcome the most binding constraints to growth, upgrade industries and make markets work; the following **vertical or industry specific measures** are recommended:

a) Address gaps in industry supply chains

- Copper: establish an institutional mechanism to fully integrate the industry
- Furniture: establish supply hubs for raw and natural materials
- Tool and die: access to raw materials, equipment, & software
- Iron and steel: full integration of the industry up to mining; reliable supply of iron ore and coal
- Motorcycle and motorcycle parts: strengthen local parts industry to improve its linkage with assembly

- Petrochemical: enhance the competitiveness of downstream products
- Plastic: encourage the growth of the recycling industry; provide incentives for upgrading
- Biodiesel: develop feedstock through seedling development for high yield coconuts and other energy crops; map suitable areas for biodiesel feedstock production
- Paper: expand fiber raw material base, develop massive tress plantations and commercial agro forestry integrated with virgin wood pulp production
- Engineered bamboo: establish plantations where processing will also be carried out; create a task force to find 100,000 hectares of land and a working group of scientists to identify the plantations to be used as source of quality planting stocks

b) Expand the domestic market base and exports

- Automotive: fiscal and non-fiscal incentives to rebuild the domestic market.
- Ship building: implement RA 9295 (retirement of old vessels, restrictions on vessel importation); demand development in domestic offshore and maritime sectors.

Note that industry upgrading is fraught with market failures and to allow the market to work, a pro-active government to address externalities and coordination problems such as access to raw materials, access to finance or measures to encourage first movers in new areas to address information externalities would be crucial. To address information externalities, the first mover has to be compensated. Entry into a new area can yield two results, success or failure; both provide a source of information. If entry is successful, a signal is sent to other market players that the activity is profitable and society benefits. But if entry leads to a failure, costs are borne by the firm alone. Given this asymmetry, the government must intervene.

For instance, the necessary parts and supplies for motor vehicles are not yet present in the country. The production of vehicle engine would be brought in the country only when it becomes feasible to assemble vehicles at a certain volume. To rebuild domestic automotive production, temporary and limited fiscal support along with non-fiscal measures would be needed in order to expand domestic market and achieve scale economies that would allow the industry to participate in the international and regional production activities of global automakers. Government support will be crucial if we want to become a major player in the third wave of motorization which is expected to take place in the Philippines by 2016.

Under similar circumstances, limited fiscal incentives and other support may be granted to the first mover. The granting of temporary incentives would be based on strict criteria and guidelines on the potential of the activity to (i) generate employment, (ii) address missing gaps in the supply/value chain or to move up the value chain or product ladder, (iii) generate spill-over effects to the economy, and (iv) promote a competitive market environment.

2. Horizontal Measures

To overcome the cross-cutting constraints, the following **horizontal measures** are recommended:

a) HRD and skills training programs

Design human resource development and training programs to improve skills in the and at the same time, establish tie-ups with universities and training institutions. Note that with educated and well-trained workers, it is easier to learn new skills and enter new trades. The following skills have been identified as crucial for the development of industries:

- Auto parts; tool and die: design, tool making, prototyping, molding, die & casting
- Chemical, rubber, plastics: chemical engineering, materials engineering
- Furniture: supervisory, managerial, consultancy for improved productivity
- Metal casting: foundry technology, metallurgical engineering, mechanical engineering, industrial engineering, metal casting engineering
- Iron and steel: vocational trainings from TESDA

b) SME development and innovation

Support SME development through appropriate innovation incentives and mechanisms such common service facilities (for example, quality testing) and R&D facilities, clustering, and industry-academe linkages for new product development and applied technology for indigenous products/raw materials. Grants, loans, innovation vouchers, and counterpart funding to innovative firms and technical assistance to promote long-term research collaboration between universities and business are also important.

c) FDI promotion

Pursue aggressive and strategic promotion and marketing programs to attract more foreign direct investments especially those that would bring in foreign technologies. Consolidate and intensify the investment promotion efforts of BOI, PEZA, Clark, and Subic.

d) Business environment improvement

Improve the business environment by addressing smuggling, high cost of power, high domestic shipping (including port charges), inadequate infrastructure. Speed up and facilitate the implementation of Private Public Partnership programs to finance ports, airports, highways, electricity grids, telecommunications and other infrastructure along with improvements in institutional effectiveness particularly in curbing smuggling.

e) Competitive exchange rate

Maintain a competitive exchange rate¹⁷ in order to support and strengthen the new industrial policy of the government. Manage the exchange rate to tip the balance slightly in favor of exports, prevent surge of capital inflows and avoid excessive appreciation of the peso. Aware of these concerns, the BSP has implemented some measures such as the ban on foreign funds in special deposit accounts (SDA), lowering of SDA interest rates, and cap on non-deliverable forwards for banks (to take effect in March 2014); although many still perceive these measures to be relatively mild and suggest more stringent forms if inflows persist and the need to balance the inflation objective versus the competitiveness goal.

3. Coordination Mechanism

While the private sector is seen as the major driver of growth, the government has an important role to play in coordinating policies and necessary support measures that will address the obstacles to the entry and growth of domestic firms. In the short-run, except for a very few sectors (automotive) and SME support mechanisms such as innovation and common support facilities; the granting of temporary hard industrial policy measures like fiscal incentives is not the most binding constraint affecting the growth of most industries. Industry analysis and consultations show that coordination failures are the most crucial factors that must be addressed to catalyze industry development in the country. For instance, implementation of approved legislations (RA 9295 in shipping); strict enforcement of product quality standards; measures providing access to raw materials, intermediate inputs and common service facilities; and aggressive investment promotion and marketing to attract investments are some of the measures

¹⁷ The peso has been depreciating recently after the US Federal Reserve's announcement that it would end its aggressive monetary stimulus along with jitters over China's economic slowdown.

that can be implemented by the present administration. In all these, close coordination among government agencies and the private sector as well as effective policy implementation would be vital for industry development. Equally important is for the government to focus its efforts in addressing the high cost of power, domestic shipping, and smuggling which are the most binding horizontal constraints affecting most industries.

It is within this context that coordination mechanisms will be designed to allow more interaction between government agencies and industries in identifying obstacles and determining the most appropriate interventions. The Department of Trade and Industry will lead the process of coordination with the different government agencies, local government units and industries. Industry and government champions have been identified by the DTI-BOI in carrying out these coordinative functions. Table 23 identifies the roles of the different agencies in implementing the roadmaps of the different industries.

Table 23: Government Coordination Needed in the Implementation of Vertical Measures

Sector	Policy Area	Agencies Responsible
Auto	<ul style="list-style-type: none"> fiscal & non-fiscal incentives to attract manufacturers 	DTI-BOI, DOF
Auto parts	<ul style="list-style-type: none"> fiscal & non-fiscal incentives competitiveness measures SME access to finance 	DTI-BOI, DOF, DTI-SBC
Engineered Bamboo	<ul style="list-style-type: none"> 100,000 hectares of land for bamboo plantations R&D support 	DOST, DA, DENR
Biodiesel	<ul style="list-style-type: none"> implement mandate for B5 	DOE
Chemicals	<ul style="list-style-type: none"> industry clustering 	DTI, PEZA, DILG
Ceramic Tiles	<ul style="list-style-type: none"> implementation of mandatory certification rule 	DTI-BPS
Copper	<ul style="list-style-type: none"> mechanisms for industry integration & clustering 	DTI-BOI
Furniture	<ul style="list-style-type: none"> supply hubs for raw materials, marketing and promotion support 	DILG, DTI
Iron & Steel	<ul style="list-style-type: none"> support for transition to high value products 	DOST, DTI
Metal casting	<ul style="list-style-type: none"> establish foundry institute, training & education programs; SME finance access 	CHED, TESDA, DTI-SBC
Motorcycle assembly	<ul style="list-style-type: none"> streamlining BOC and LTO regulations, testing facility upgrade 	BOC, LTO, DTI, DOST
Motorcycle parts	<ul style="list-style-type: none"> capacity building & technology upgrade 	DOST, DTI
Paper	<ul style="list-style-type: none"> expansion of fiber raw material base, tree plantations & integration of agro-forestry-pulp production 	DA, DENR, DTI-BOI
Petrochemicals	<ul style="list-style-type: none"> review of EO61 	NEDA, DTI, TC
Plastics	<ul style="list-style-type: none"> support for recycling industry; research-based waste management programs 	DTI, DILG
Rubber Products	<ul style="list-style-type: none"> EO for Phil Rubber Industry Council; testing facilities 	DA, DOST
Shipbuilding	<ul style="list-style-type: none"> investment promotion campaign; retirement of old vessels 	DTI, MARINA

Tool & Die	<ul style="list-style-type: none"> inclusion in IPP, fiscal incentives; SME finance access 	DTI-BOI, DOF, DTI-SBC
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For the roadmap to be successfully implemented, the support of the following government agencies would be critical:

- DOE: energy plan; cost, supply adequacy and reliability
- DPWH, PPA, PPPC: infrastructure development (roads, airports, ports)
- DOLE: policies affecting hiring and firing of workers; movement of workers towards new, high productivity jobs
- TESDA, DOLE, PRC, CHED, DepEd: human resource development, training of workers, skilled workers needed (supply gap)
- DOST: innovation strategy, R&D, common facilities/laboratories for product testing and certification, expansion of incubation facilities
- NEDA: national development plan
- DA: agriculture roadmap
- Tariff Commission: review tariff structure to address distortions, implementation of anti-dumping and safeguard measures
- DTI-BPS, DOH-BFAD, DA-BAFPS: establishment and enforcement of product standards
- Bureau of Customs: smuggling, trade and customs facilitation
- IPOPHIL: patents, secure intellectual property rights
- Department of Finance, DBM: temporary incentive measures
- BSP: exchange rate policy
- BOI, PEZA, Clark, Subic and other Investment Promotion Agencies: industry promotion
- DTI-MSMED, DOST: MSME development
- LGUs: business permits and regulations (double taxation)
- DENR: environmental permits, plantations
- PPA and MARINA: regulatory and port charges; domestic shipping policy

E. Concluding Remarks

The Roadmap is about facilitation and coordination to remove the most binding constraints to growth and creation of the right policy framework to encourage the development of the private sector along the lines of our country's latent comparative advantage. The government is not the proximate cause of growth but private sector, entrepreneurship and investment. The roadmap implementation will be private-sector led while the government acts as facilitator. As facilitating government, it will encourage producers to take risks, correct

market and government failures and address changes in policies and institutions. Support programs will be regularly monitored and evaluated in terms of performance and contribution to growth and employment.

Through the creation of industry councils, government and industry can collaborate in continuously pursuing technological upgrading and sustained growth. By creating the proper environment and strengthening industries to ensure that they are not disadvantaged by international competitors, the government can promote the success of domestic firms in both the local and international markets that will lead to economic transformation. Firms, in turn, are expected to put innovation (product, process, marketing) and technology upgrading at the apex of their strategy in order to improve their productivity that can lead to “smart” growth. Only with the right environment can manufacturing unleash its full potentials to take advantage of the market opportunities currently facing us and become an engine for sustained, inclusive, and smart growth, quality job creation, and ultimately, poverty reduction.

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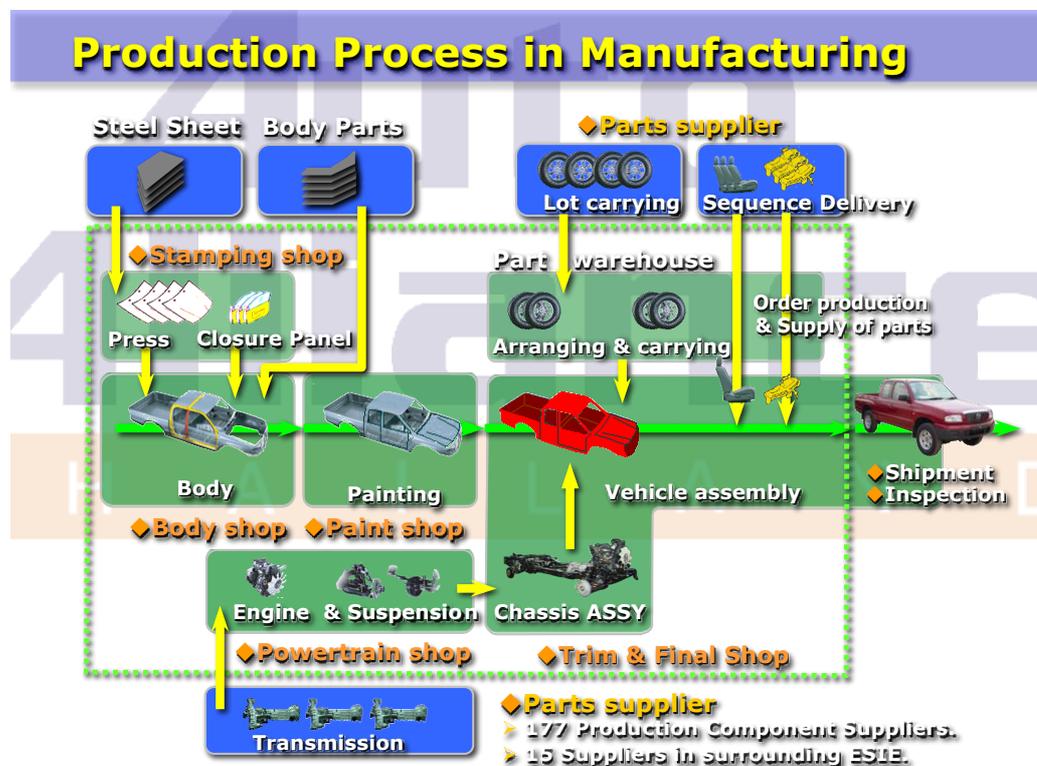
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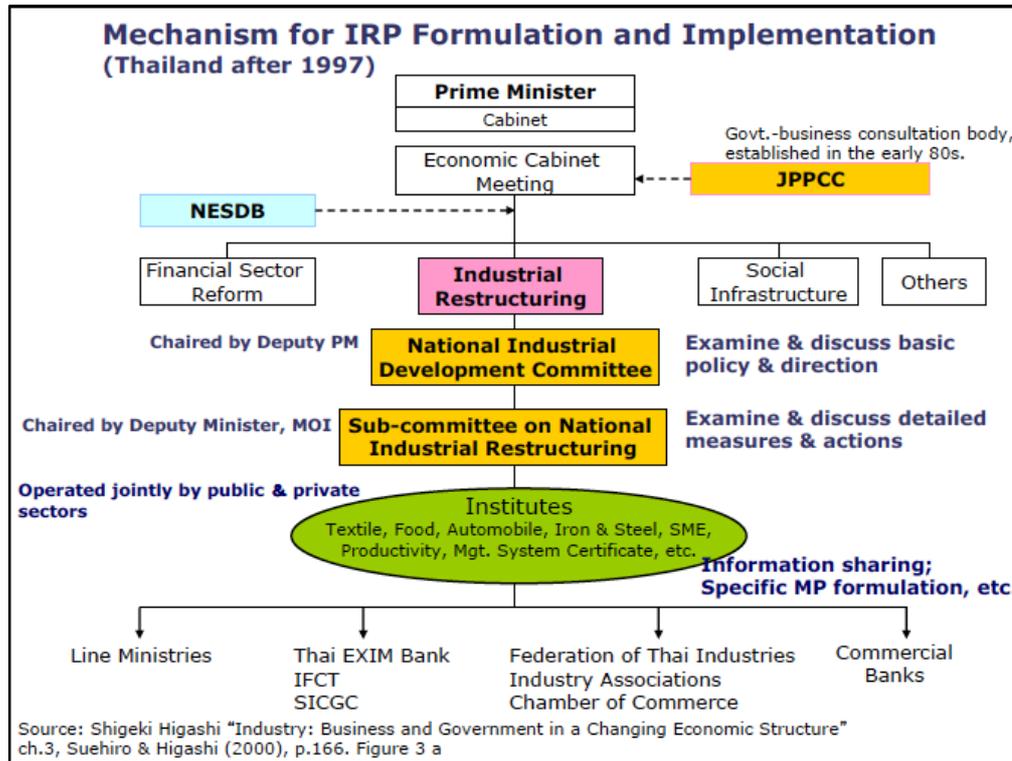
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Appendix 1: Production Process in Auto Manufacturing



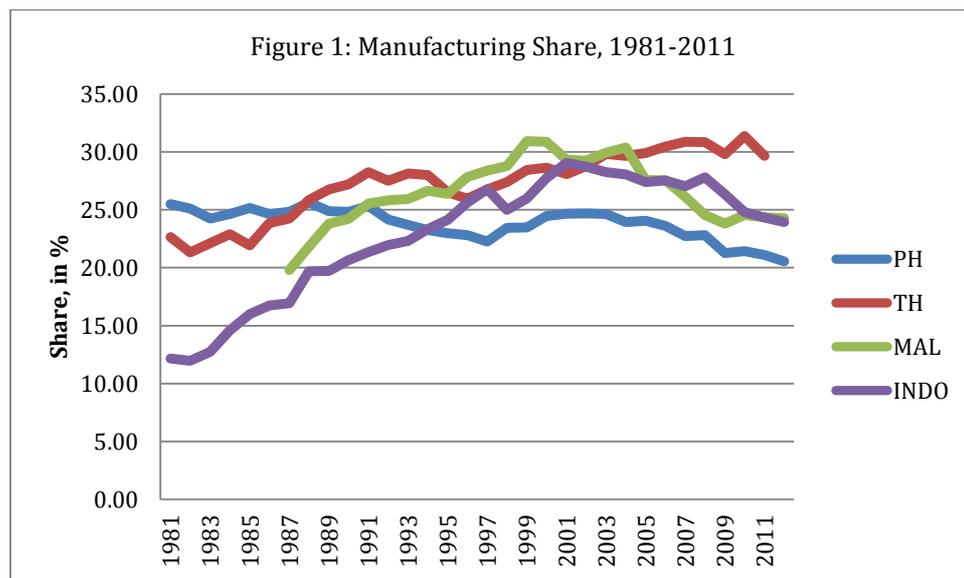
Source: Auto Alliance Thailand

Appendix 2A: Thai Mechanism for the Industry Restructuring Plan Formulation and Implementation



Appendix 2B: Philippines and Thailand

Figure 1 compares the manufacturing shares of the Philippines, Thailand, Malaysia, and Indonesia. Though the Philippines was ahead of Thailand in the early 1980s, after 1987, Thailand's manufacturing share started to rise and reached its peak at 30% during the period 2001-2005 and 31% in 2006-2010.



Thailand took about 20 years to increase manufacturing contribution from 22% to 30% and double its employment share from 7.5% to 15%. The table below shows that in Thailand, the average share of manufacturing went up substantially from 23.8% from 1981 to 1985 to almost 28% during the period 1991 to 1995, which is a span of about ten years. In the next decade, its average share increased from 27% during the period 1996 to 2000 to 30.38% in 2001 to 2005. In terms of its employment contribution

to the total, its average share also rose from 7.5% in 1981-1985 to 8% during 1991-1995 and 11% in 1996-2000. In the succeeding ten years, it reached almost 15% in 2001 to 2005.

Philippines and Thailand Manufacturing Value Added and Employment

	Philippines		Thailand	
	Average Value added share	Average Employment share	Average Value added share	Average Employment share
1981-1985	24.93	9.71	22.18	7.48
1986-1990	24.96	9.93	25.58	8.05
1991-1995	23.89	10.27	27.68	11.09
1996-2000	23.29	10.10	27.44	13.47
2001-2005	22.90	9.49	30.38	14.77
2006-2010	22.38	8.73	30.67	14.85
2011	21.10	8.20	29.66	13.84
2012	20.55			14.09

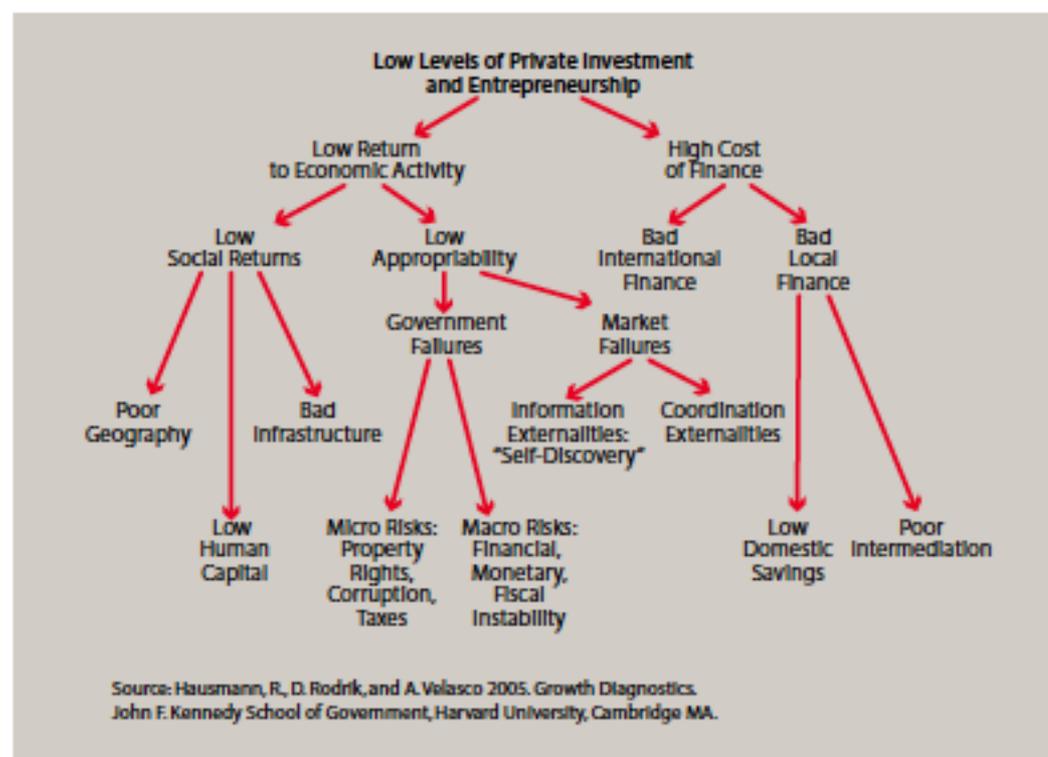
Source: ADB Statistics

Manufacturing Average Growth

Period	Philippines	Thailand
1982-1985	-4.2	4.7
1986-1990	5.1	15.10
1991-1995	2.1	12.14
1996-2000	3.2	3.02
2001-2005	4.3	6.52
2006-2010	3.9	4.74

Source: ADB Statistics

Appendix 3: Identifying Constraints to Industry Upgrading



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Based on the above framework, private investment will be weak if social returns to investments are too low, private appropriability of the social returns is too poor, and/or the cost of financing is too high. Low social returns to investment could be due to insufficient levels of complementary factors of production (human capital, technical know-how, and/or infrastructure). Poor private appropriability could be caused by government failures (like macroeconomic instability, excessive taxation, and poor property rights and contract enforcement) or market failures (information externalities and coordination externalities¹⁸). High cost of finance could result from low domestic savings, poor intermediation in the domestic markets, or poor integration with external financial markets.

¹⁸ An externality occurs when the activity of one person or firm affects the welfare of another person or firm in a way that is not transmitted by market prices. An externality may be negative (it imposes a cost on the other party that is not paid by the producer) or positive (it benefits or spills over to the other party). When private parties cannot solve an externality problem, then in principle, government intervention can enhance efficiency. In the presence of an externality, the market fails to produce the socially desired quantity of the good. In the real world, competition may not hold and not all markets may exist. Hence, the market-determined allocation of resources is not likely to be efficient. There are, then, opportunities for government to intervene and enhance economic efficiency. But while efficiency problems provide opportunities for government intervention in the economy, they do not require it. That the market-generated allocation of resources is imperfect does not mean that the government can do better.