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"Electronics production line"
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Philippines - Economic History

After its independence in 1946, Philippines was reliant on its former colonizer, the United States for revival of its economy. Opening its economy to American goods in exchange for aid resulted in huge trade deficits. This led the country to act on its protectionist instincts, first, through tariffs, import and foreign exchange controls, and peso exchange rate was fixed and overvalued to enable the protected industries to reduce the cost of their imported raw materials and capital equipment; and second, by capital market intervention favoring heavy industry over light industry. These created a bias in favor of import-competing manufacturing industries over exports and agriculture, and in favor of consumer goods over capital and intermediate goods. The adverse effects of protectionist regime could no longer be ignored as social and economic unrest grew in the country.

Philippines, thus adopted an "openness model" modestly in the early 1970's to eliminate the inefficiency of domestic industries arising from its previous protectionist policies and to promote development. The new model led by liberalization, deregulation and privatization was briefly interrupted by the debt crisis in the country from 1983–85 (which rose from US$2.3 billion in 1970 to US$24.4 billion in 1983) but accelerated in the late 1980s and has been the government's motto ever since.

The country pursued a series of Tariff Reform Programs (TRP) since 1981 to reduce the overall level of protection. It was geared towards reducing or phasing out tariff protection which were deemed excessive, obsolete, or which the burden of protection outweighed the returns. It involved narrowing the range of tariffs from zero to 100 percent to 0-50 percent, and phasing tariff adjustments on fourteen sectors which includes electrical and electronic industries. The current TRP (Phase III, launched in 1995), introduced a 5 percent uniform tariff.

Philippines signed a series of bilateral and multilateral free trade agreements to provide domestic firms access to markets abroad. Currently, the county has eleven active (or close to being in effect) free trade agreements and a few under proposal in the pipeline.[1]

The government has also sought greater foreign investment by expanding areas and industries open to foreign investors. Foreign Investment Act of 1991, liberalized foreign investment by allowing foreign equity participation of up to 100 percent in all areas, except those specified in the Foreign Investment Negative List (FINL).[i]

[i] FINL comprises of one, Negative List A, which includes areas reserved for Filipino nationals by virtue of the Constitution or specific legislation like mass media, cooperatives, or small-scale mining; and two, Negative List B, which includes areas relating to defense, risk to health and morals, and protection of local and small- and medium size industries like the manufacture of firearms and gunpowder, and sauna and steam bath houses.

Growth and Trade Competitiveness

Philippines is ranked 56th out of 137 economies in 2017 as per Global Competitiveness Index of the World Economic Forum.

From 2011 to 2015, the Philippines economy grew on average at 5.9 percent a year and in 2016 growth reached nearly 7 percent. At the same time, the manufacturing sector resurged with an average 6.9 percent growth from 2013 to 2015—surpassing services that posted an average 6.4 percent growth. Sustained economic growth has led to gains in employment creation and poverty reduction. A net total of 1.4 million jobs were created in 2016, driving the unemployment rate to a historic low of 4.7 percent.[2]

The country failed to fully capitalize on the opportunities of its economy and has performed relatively poorly in terms of industrial development and GVC integration. Annual import growth accelerated from 14.0 percent in 2015 to 17.5 percent year-on-year in 2016. Meanwhile, annual exports also grew steadily, 9.1 percent year-on-year in 2016, compared to 9.0 percent in 2015. Service exports contributed the most to export growth, accelerating by 15.6 percent in 2016, up from 15.3 percent in 2015. External demand of electronic components—the country's main export good—slipped from 20.1 percent in 2015 to 7.1 percent year-on-year in 2016 due to anemic recovery in advanced economies.[3]

Net exports raise concern as the expansion of imports exceeds exports. Trends in the electronics sector which is a primary contributor of the country's manufacturing export basket, suggest that the Philippines has missed an important opportunity to accelerate the growth. From 2000-2011, electronics grew by just 1.9 percent, compared to a remarkable 25.5 percent growth rate in Vietnam and a 23.1 percent growth rate in China.[4]

Electronics Sector

The electronics industry, which is the country's major source of exports, started in the 1970s attracting investment from Intel. After the initial wave of investment led by American and European companies, Japanese companies began their investment in the mid-1980s, while Korean investments began in the 2000s. Today, foreign investment in the industry compounds to almost 72 percent while 28 percent are Filipino owned.[5]

Most of the electronics businesses in the country operate in four key areas: Metro Manila, CALABARZON, Northern/Central Luzon and Cebu and the industry is classified into Semiconductor Manufacturing Services (SMS) and Electronics Manufacturing Services (EMS).

SMS consists of companies manufacturing integrated circuits, transistors, diodes, resistors, capacitors, coils, transformers, PCBs and other components for mobile phone chips and microprocessors and form 73 percent of the industry. While EMS consists of companies engaged in the manufacture of computers, peripheral storage and input/output devices and constitute 27 percent of the industry. Some of the finished products in this segment include laptops, desktop PCs, printers, computer monitors, and hard disk, optical, ZIP and CD-ROM drives.

Electronic companies in the country function in the sector with capabilities ranging from IC packaging, PCB Assembly and Full Product Assembly. Seventy percent of the industry exports go to Asia, 22 percent to the US and the EU, and 8 percent to other places.[6] Out of this, 19 percent of the country's electronics exports goes to Hongkong, followed by People's Republic of China and Japan, both at 13 percent and USA and Singapore complete the top five exports destination of electronics sector at 12 percent and 11 percent respectively.[7] Thus, the industry is vulnerable to economic downturns and crises of the global economy. In 2007 the Philippines exported US$31.1 billion worth of electronics products.[8] A year later, dragged down by the global financial crisis, exports stood at US$26.3 billion. By 2010 the industry had recovered, but declined again in 2013 to US$21.9 billion[9], only to rebound in 2015 to US$28.9 billion.[10]

The Philippine electronics industry began in the mid-seventies where it competed with Malaysia to attract electronics transnational companies but the insurgency under the Marcos rule raised political risks and undermined healthy competition in business, hence restricted relocation until the late 1980s.[11] Transnational companies relocated on a large scale in the 1990s to take advantage of the large reserves of literate labor there and because of rising production costs in Malaysia and Thailand.[12] The conditions that encouraged foreign electronics companies to turn to the Philippines have remained and the industry has grown rapidly and overtook agriculture as the leading export earning industry in 1996. From a predominantly Agri-oriented exporter in 1976, the country became exporter of billions worth of microchips and electronic devices.

Initiatives to Promote Sectoral Growth

The government has a number of support policies to facilitate and upgrade the trade competitiveness in the Philippine electronics industry. These include:

- **Applicable Investment Policies** including Omnibus Investment Code of 1987, Investment Priorities Plan, Special Economic Zone Act of 1995 to promote Philippines as a viable

location for foreign and domestic production investment.

- **Plans and Programs** to facilitate competitive manufacturing cost, establish human competencies throughout value chain, promote and expand supplier base and for aggressive investment promotion.

- **Incentives** via Board of Investments, Philippine Economic Zone Authority and Subic Bay Free Zone.

- Government's close working ties with **Support/ Cooperation of Industry Associations** such as Semiconductor and Electronics Industries in the Philippines, Inc. (SEIPI), Electronics Industries Association of the Philippines, Inc. (EIAPI) and Philippine Appliance Industry Association (PAIA).

- There are also close **Support Industry** that are functional to actively promote the sector's productivity such as Advanced Researched Center for Development, Inc. (ARCDI) and the Congressional Commission on Science and Technology and Engineering (COMSTE).

While these are all well intentioned, additional efforts will be needed for the industry to adjust to the changing nature of trade in the global context and expand its contribution. The government needs to reduce the amount of cluster initiatives it has proposed in order to focus and prioritize on key issues.

Some primary contributors focusing on the sector include:

- The **Advanced Device and Materials Testing Laboratory** (ADMATEL), launched in 2013, is a Department of Science and Technology (DOST) national testing facility. It's the first of its kind equipped with state-of-the-art analytical equipment for failure analysis and materials characterization. ADMATEL has already catered to 44 clients from the electronics and related sectors.

- With the objective to lend some support for local companies, start-ups, and academic institutions, DOST puts the **Electronics Product Development Center** (EPDC) on the spotlight. The Electronics and Product Development Center (EPDC) is the country's first electronics design facility that provides design, prototyping, and testing facilities for printed circuit boards (PCB), which is the primary electronics component that mechanically supports and electronically connects electronic components. This facility, launched in 2015, strengthens the local electronics and semiconductors industry by enabling local firms to conduct R&D, design, and prototyping of products.

- The electronics industry Technical Working Group (TWG) bridges, academicians, industry and government together both from the public and private sectors to address the challenges being faced by the industry.

  The **Product and Technology Holistic Strategy** (PATHS) is one such initiative under TWG which aims to strategize value chain upgradation in the electronic industry. It identifies specific products and technologies the industry must pursue in the next five to ten years and also identify economic and political solutions to address the requirements of the identified products and technologies.

  These programs specifically cater to upgrading and transforming the value added captured in the Philippines.

Workforce and Education/Training in Electronics Sector

SEIPI data shows that the electronics industry employed 344,450 workers in 2014 and on average electronics firms employ a large number of workers, 769 employees per establishment higher compared to the average 60 employees per establishment in other manufacturing firms. Also, electronics firms employ more females' workers compared to other manufacturing sectors and females are more prominent in assembly positions and males are more common in administration/management positions.[13]

In total, 77 percent of employees were production workers including technicians and operators. Production line workers typically have at least primary education as well as secondary education and some additional technical/vocational school at the technician level. The role of technicians, or employees with two-year vocational degrees appears to play a limited role for electronics firms in the Philippines. Non-production workers typically have a four-year university degree in engineering or a business administration field.[14]

Based on data from 2014, the number of certifications (including national certifications and certificates of competency) issued in the electronics sector has doubled since 2010 (39,832 certifications in 2014), and the certification rate has also increased from 69 percent to at least 80 percent.[15]

SEIPI and TESDA also have a Teen for Work Scholarship (TWSP) training program. Companies hire high school graduates, train them for two weeks (one in the classroom and one on the manufacturing line), and then students are deployed to work. TESDA pays for the program with the minimum requirement that 80 percent of students are hired. Thus far placement has not been an issue, over 90 percent of participants have been placed and over 3,300 have gone through the program.[16]

Working Conditions in the Electronics Sector

Philippines has ratified 37 ILO conventions on Decent Work Agenda, of which 30 are already in effect. Philippines has also formulated a Labor Code for the country which aims to protect and promote the interests of workers and nature of employment in all sectors of the country.

The Centre for Trade Union and Human Rights (CTUHR) conducted interviews with 34 workers in all major electronics industry in the Philippines to suggest the following concerns:

- **Ban on the Right for Collective Bargaining:** Absence of trade unions in the Philippines semiconductor and electronics industry. On some cases, employers openly tell applicants that they do not tolerate worker associations.
- **Forced Labor:** Mandatory overtime without legally required rest days as a condition for continued employment or renewal of contractual employment.
- **Overtime:** Workers interviewed reported two to four hours of overtime per day, often seven days a week.
- **Child Labor:** While the industry generally does not employ workers below 18 years, on-the- job trainees are usually between 16 and 17 years of age. These trainees are exposed to hazardous working conditions and are often exploited working unpaid extra hours and being denied premium for night time or holiday work.
- **Health and Safety:** Workers are exposed to toxic chemicals without proper training on health hazards and prevention.
- **Termination:** Suspension and termination are used as disciplinary tools even when workers are absent due to overwork or fatigue, or as a threat against forming a union.

However, the interview did confirm that the semiconductor and electronics company in the country complied with the legally prescribed minimum wage and the workers also receive benefits based on performance.

Challenges in Electronics Sector

While the Philippines has been successful in building one of the world's largest electronics industries accounting for about 43 percent of the country's exports in 2012–a movement up the value chain is required to increase the sector's competitiveness and create higher-productivity employment.

Philippines electronics sector rely on imported parts and remains at back-end testing and assembly stage of the supply chain. Further, the imported components are then re-exported as intermediate products, particularly to China, extending its economic distance from the final consumer. Thus, the industry which accounts for over half of the country's merchandise exports is fairly isolated from the rest of the economy. Little transformation actually takes place in the sector in terms of value added captured along the value chains. Moreover, most of the value added within the electronics sector derives from semiconductor research and chip design that does not exist in the Philippines. Transfer of knowledge in schools and universities is not at par with technological advancement. Moreover, non-existent of knowledge stakeholders[ii] which can likewise stimulate technological learning and adoption is dampening the national innovation system.

Philippine electronic industry is also heavily dominated by multinational corporations. 72 percent of the industry comprises of subsidiaries to large foreign firms. Lack of own brand in the sector gives little strategic control to the Philippines and also prevents new investments for its local market. The industry is also characterized by high turnover of skilled engineers, accounted for between 8-12 percent of overall workforce in the sector. The inability of the country to produce high quality jobs that would keep these highly mobile top performers in the country, potentially constrains the country's productivity to move up the value chain and forms a vicious cycle.

The diversification of the Philippine export basket is concentrated on primary commodities, natural resources, and other goods at the periphery rather than the center of the product and service space. That, coupled with greater focus on slower growing sector such as hard disks, PCs, and semiconductor production makes the country sector expendable or easily replaceable by other countries catching up in the sector with cheap labor, better infrastructure and more sophistication.

Rampant corruption with poor implementation of government policies also hinders the growth prospect of the industry. Philippines ranked 95 in ease of doing business and ranks above Cambodia, Lao PDR and Myanmar and lower than other Southeast Asian countries.[17] Starting a business, getting electricity, getting permits, protecting minority investors, paying taxes, trading across borders, enforcing contracts are all still major roadblocks hindering foreign investments in the country. The government has lacked in improving the local business environment of the country.

Filipinos with quality manpower, language and education offer a very compelling and advanced workforce. In order to utilize this workforce and to expand the economic productivity of the nation several limiting factors need to be improved. Factors such as low innovation due to inadequate R&D in electronics sector, lack of domestically owned firms, limited SME product development

[ii] Stakeholders that are sources of science and technology ideas such as universities, public and private research institutions and industry associations

initiatives, limited financing, inadequate infrastructure and weak investments due to governance issues. These drawbacks have already led to loss of some elements of global value chains in the Philippines to regional competitors and there must be immediate effective initiatives to curb its impact.

Conclusion/Recommendations

Efficient linkages between the services sector and more traditional activities such as manufacturing and agriculture have remained tenuous and underdeveloped. Beyond seeing the evolution in the service and product space as a linear process, considering a third dimension—increased innovation and services content in the manufacturing sector, specifically the electronics industry—will allow the Philippines to make a double leap in value added and technology.

English language proficiency in the Philippines is higher compared to some other ASEAN countries and this can be one area which must be tapped on. The government has recently liberalized a chronically repressed telecoms industry to link in to the wave of technologically driven international outsourcing of services. But these must not be restricted to telecom industry.

Development of higher services content in goods, is the only effective strategy to upgrade value addition in trade in the electronics sector and penetrate newer markets but this could be one promising area which could be developed upon.

Philippines need to diversify and upgrade the industry's GVC participation through market upgrading characterized by moving from semiconductors to electronic manufacturing services (EMS), particularly in areas with high growth potential such as auto electronics, power electronics, electronic data processing and consumer electronics.

Nomura Research (2010) indicated that the Philippines has comparative advantage in electronics subsectors like printers, multifunction peripheral, projectors, scanners, and digital cameras. The same study also identified missing linkages in the electronics supply chain such as photovoltaic cell, LEDs, rechargeable batteries for hybrid electric vehicles, electric vehicles and mobile digital devices, and next-generation energy infrastructure.

To attract newer markets and investors in the sector, there is also merit in looking at the global trends.

- Solar energy is one segment in printed electronics which has impact in the form of local capital investment and creation of long-term jobs. Philippines has opportunities in manufacturing and in the downstream and applications areas of the value chain. Philippines is already home to two solar companies- SunPower Manufacturing Ltd. (SPML) and Solaria Corporation and must leverage its presence to jump-start its local solar industry manufacturing hub in Asia through innovation in manufacturing-process reengineering and optimization.
- Ever-growing mountain of discarded cell phones, computers, televisions, MP3 players, and other electronics equipment has put electronic companies in Asia and elsewhere in a scramble to respond. Innovation of green technology to boost recycling of old electronics, curtail use of hazardous substances in manufacturing, and improve the environmental performance of producers offers significant opportunities.
- Innovation in other areas such as chip design and biomedical electronics would also help the Philippine electronic industry to move up the value chain and attract new investment.[18]

Endnotes

1 Asian Development Bank (ADB) (2015), Integrating SMEs into Global Value Chains: Challenges and Policy Actions in Asia, 2015, Manila: ADB.

2 World Bank Group. 2017. Philippines Economic Update: Advancing the Investment Agenda, April 2017. http://documents.worldbank.org/curated/en/746271491832911953/pdf/114151-REVISED-4-17-Philippines-Economic-Update-FINAL.pdf

3 World Bank Group. 2017. Philippines Economic Update: Advancing the Investment Agenda, April 2017. http://documents.worldbank.org/curated/en/746271491832911953/pdf/114151-REVISED-4-17-Philippines-Economic-Update-FINAL.pdf

4 OECD-WTO TiVA database, WB staff estimates

5 Agarwalla, Gokul, "Philippines: Electronics Equipment Manufacturing and Production," http://siteresources.worldbank.org/INTPHILIPPINES/Resources/Agarwalla-word.pdf

6 Agarwalla, Gokul, "Philippines: Electronics Equipment Manufacturing and Production," http://siteresources.worldbank.org/INTPHILIPPINES/Resources/Agarwalla-word.pdf

7 SEIPI http://www.seipi.org.ph/homepage/

8 Philippine Foreign Trade Statistics, 2007, Special Release No. 337, June 12, 2008, https://psa.gov.ph/old/data/ sectordata/sr08337tx.html

9 Department of Trade and Industry. 2013. "Securing the Future of Philippine Industries," 2013, http://industry.gov.ph/ industry/electronics/

10 Mercurio, Richmond. 2016. "Electronics exports on track level," June 16, 2016, http://www.philstar.com/ business/2016/06/16/1593272/ electronics-exports-track-record-level

11https://www.dropbox.com/sh/wj6b9fm9szx8jgh/AADUUcAC9wDKesT9AlM82dUSa/Older percent20sector percent20evidence?dl=0&preview=2004-electronics_foreignlocal_ASEAN.pdf

12 https://www.dropbox.com/sh/wj6b9fm9szx8jgh/AADUUcAC9wDKesT9AlM82dUSa/Older percent20sector percent20evidence?dl=0&preview=2004-electronics_foreignlocal_ASEAN.pdf

13 Frederick, S. and Gereffi, G., 2016. The Philippines in the electronics and electrical global value chain. Retrieved September, 19, p.2016.

14 Philippines NSO. 2013. 2010 Annual Survey of Philippine Business and Industry (ASPBI) - Manufacturing Sector: Final Results, Volume III-A. In P. N. S. O. (NSO) (Ed.), Annual Survey of Philippine Business and Industry (ASPBI). Manila, Philippines.

15 Frederick, S. and Gereffi, G., 2016. The Philippines in the electronics and electrical global value chain. Retrieved September, 19, p.2016.

16 Frederick, S. and Gereffi, G., 2016. The Philippines in the electronics and electrical global value chain. Retrieved September, 19, p.2016.

17 World Bank. 2018. "Ease of Doing Business Report"

18 Tangonan, Gred. 2008. "COMSTE Electronics Panel Report on New Partnerships to Create High Value Added Electronics," Paper presented during the Filip innovation seminar held on 26 November 2008 at the Sofitel Hotel, Manila, 229 Philippines.

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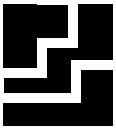

Whitespace35
www.whitespace35.com
venkatesh@whitespace35.com
+91 97414 51309