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# Auto and Car Parts Production: Can the Philippines Catch Up with Asia?*

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**Abstract:** *The Philippines pioneered the establishment of automotive assembly in Southeast Asia in the 1950s. But Thailand, Indonesia and Malaysia lead the region since the 1990s. The foremost reasons for the decline are policy incoherence and unchecked inflows of smuggled cars, which is reflected in the erosion of the domestic automotive components supply base. Japanese assemblers are increasingly sourcing them from abroad through global production networks (GPNs, which has also made the Philippines a global producer of selected auto parts. Institutional support is necessary for the Philippines to take advantage of GPNs to catching up with the leading countries.*

***Keywords*:** Automotive, global production networks, comparative advantage, supply chain
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# 1. Introduction: Can a lagging Philippine auto industry catch up with Asia?

The Philippines was a pioneer in Southeast Asia in the auto assembly industry. The industry took roots in the early 1950s, after the government adopted an import-substituting industrial (ISI) policy by banning the importation of finished industrial products, including the completely-built-up (CBU) units. Protected initially by a regime of outright import controls and subsequently by a system of high tariff walls, the assembly industry grew continuously throughout the 1950s and 1960s (Ofreneo, 2008). By the early 1970s, a Filipino assembler of Volkswagen cars was proudly proclaiming his ambition to produce a "Filipino car" dubbed as *"sakbayan"* (short for "*sasakyangkatutubongbayan"* or "native national car") without depending on imported "completely-knocked-down" (CKD) and semi-knocked-down (SKD) parts.

The *"sakbayan"* project never took off. Worse, a string of auto development programs, instituted by different Philippine administrations from the 1970s to 2000s, all failed to meet the target goal of developing Philippine capacity to assemble auto vehicles with a local content as low as 60 and as high as 80 per cent (see section on see-sawing policies on the auto industry). The Philippines auto industry, Number One in Southeast Asia in the 1960s, was down to Number Four by the turn of the millennium, eclipsed by Thailand, Malaysia, Indonesia, and since 2007, by a surging Vietnam (see Table 1).

**Table 1: Motor vehicle production in ASEAN, 2006-2011**

| Country | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 |
|---|---|---|---|---|---|---|
| **Indonesia** | 296,008 | 411,638 | 600,844 | 464,816 | 702,508 | 837,948 |
| **Malaysia** | 503,048 | 441,678 | 530,810 | 489,269 | 567,715 | 533,515 |
| **Philippines** | 54,315 | 60,936 | 63,621 | 62,523 | 80,477 | 64,906 |
| **Thailand** | 1,188,044 | 1,287,346 | 1,394,029 | 999,378 | 1,645,304 | 1,457,795 |
| **Vietnam** | 35,087 | 75,249 | 115,038 | 107,760 | 106,166 | 100,465 |

*Source*: ASEAN Automotive Federation.

What has happened to the car assembly industry of the Philippines? Can she still catch up with ASEAN's big three, namely: Thailand, Malaysia and Indonesia?

The last question is relevant in light of the bold production targets outlined by the auto industry in the "Philippine Automotive Manufacturing Industry Road Map"

(2013), which was submitted by the Philippine Automotive Competitiveness Council, Inc. (PACCI) and the Chamber of Automotive Manufacturers, Inc. (CAMPI),to the Board of Investments (BOI) of the Department of Trade and Industry (DTI). The Road Map seeks to treble car assembly production, from 65,000 units in 2011 to 213,000 by 2016, and to double the latter to 435,000 by 2020. By 2022, production is projected to be 506,000 units a year, with over one-third of the total (156,000) exported. Value of auto parts exports is estimated to reach US$7 billion a year.

Are these production targets realistic in the light of the globalization of the auto sector and the GPN links of the leading Philippine assemblers and parts producers? Are the Philippine assemblers and parts producers investing on capacity building, skills upgrading and production modernization to meet these ambitious targets?

## 2. Data gathering

To answer the foregoing questions, we compiled statistical data on investment, production, sales, employment, imports and exports of the auto industry in the last ten years or so. The author also analyzed historical data on the evolving policy regimes related to the production and trade of CBUs and CKDs/SKDs (henceforth, lumped together as CKDs). A survey questionnaire developed by the ASEAN-ERIA research group for the car, garments and semiconductor industries in the Association of Southeast Asian Nations (ASEAN) was circulated to all car parts producers registered with the Philippine Export Processing Zone (PEZA) as well as those who are listed as members of the Motor Vehicle Parts Manufacturers Association of the Philippines (MVPMAP). PEZA and MVPMAP assisted the author in sending out the questionnaire.

The statistics and survey results were supplemented by case studies and in-depth interviews of key informants of select firms, namely: two Japanese car assemblers (out of the five active), two big parts producers-exporters (a wire harness producer and a transmission assembler), a big Filipino car parts producer and two small car parts producers.

The author also validated some observations when he served as a facilitator in a Tripartite Roundtable on "Embedding Decent Work in Industrial Policy: The Philippine Automotive Industry as Illustration", which was organized jointly by the International Labor Organization (ILO) and the Department of Labor and Employment (DOLE) on January 31, 2013.

## 3. Analytical Framework

The Philippines and other developing countries have been aspiring for the full development of a national car industry. First, it is seen as one industry with a big multiplier impact on jobs and wealth creation. Second, it is considered a barometer of a country's upward march towards industrialization. Lall (2000) put automotive products under the "medium technology (MT) products" because they are "linkage-intensive" and have "complex technologies, with moderately high levels of R & D, advanced skills needs and lengthy learning periods".

However, the auto assembly industry and its twin auto car parts industry have changed radically and continue to evolve since the 1970s (Humprey, 2003; Lall, 2003; Sturgeon, Viesebroeck and Gereffi, 2008; Sturgeon and Florida, 2000; Veloso and Kumar, 2002; and Wad, 2009). One great defining reality is the globalization of these two industries, with the auto multinationals (MNCs) playing an increasingly central role in shaping the manufacturing landscape for the car assembly and auto parts production in the different host countries in the developing world through a complex and evolving GPN system. Hence, Rasiah, Kimura and Oum (2013) have posed a critical question: are these industries raising the industrial capacity of the host developing countries? If so, how is this happening in the context of the MNCs' GPNs?

In this article, the author adopted the view of Lall (2003) that industry competitiveness in the automotive and other industries located in developing countries need "to be built up", for simply opening up the markets for foreign domestic investments lead to weak market "insertion" in the MNC-dominated global value chains. While there are "sticky places" for participating countries in the "slippery" global production processes dominated by the MNCs, these places need to be strengthened and raised at the higher rungs of the value chain ladder through

technology capability upgrading, infrastructure development and enhancement of the needed supporting institutions in the host countries. The role of government, with its coordinative power, is central in this process.

Rasiah (2007) put all the upgrading and capacity-building elements together in his "systemic quad" model. He pointed out that scaling up the industrialization-technology ladder requires the development of skills capacity and scientific-technical knowhow in the targeted industries. In turn, building up such capacity and knowhow requires an enabling environment made possible not only by basic supporting infrastructures (e.g, communication, utilities, customs, etc.) and integration in a globalized production system (e.g., value chains, competition, etc.) but also, and more importantly, the presence of institutions to drive learning and innovation (e.g., R&D, training, etc.) and the positive coordination and cooperation among public and private institutions and actors. On the coordinative role of the government, Rasiah (2008, pp. 4-5) explains that governments of host countries have three major policy tasks: understanding the dynamics of FDI-local interface in the host country production sites; understanding the motives of MNC production investment, especially in the context of a host country's domestic and export markets; and framing strategies to nudge the MNCs to drive learning and innovation in the host sites. In short, the government should and must provide the directions on how to deepen and broaden the industrialization process in a globalized economic environment dominated by the MNCs. For the government to be able to do all this, it must have a clear auto industrial development vision and the political will to pursue consistently this vision.

## MAJOR RESEARCH FINDINGS

### Puzzling Development 1: Rising car sales, stagnant assembly industry

In 1991-98, car sales trebled, from 47,949 in 1991 to 162,095 in 1996 and 144,435 in 1997 (see Table 2). After the "lost decade" of the 1980s[1], the country was hungry

[1] The Philippine economy went into a recession in 1980-82 and plunged into a depression in 1983-85. Economic recovery in the second half of the 1980s was rendered difficult by the tumultuous political divisions and the debt problems left behind by the Marcos Administration (Ofreneo, 1993).

for new cars. The domestic car assembly industry, which was still recovering from the crisis-ridden 1980s, supplied most of the new cars sold in the market.

Then the Asian financial crisis broke out in 1997 and the total industry sales went southward again, to five digits annually (1998-2006). They returned to pre-crisis levels only in 2007 onward. With a large population of around 100 million, a low car density compared to the big three ASEAN producers and as one of the "emerging economies" in the Asia-Pacific, the Philippines clearly has the potentials to become a big domestic car market like Thailand and Malaysia, both of which have smaller populations than the Philippines.

**Table 2. Sales of motor vehicles, 1991-2010**

| Year | Total Unit Sales (A) | Locally-Assembled | CBU Imports (B) | Per cent B/A |
|---|---|---|---|---|
| **1991** | 47,949 | 47,008 | 941 | 2 |
| **1992** | 60,360 | 58,899 | 1,461 | 2.4 |
| **1993** | 83,811 | 82,202 | 1,609 | 1.9 |
| **1994** | 103,471 | 99,346 | 4,125 | 4.0 |
| **1995** | 128,162 | 127,016 | 1,146 | 0.9 |
| **1996** | 162,095 | 137,365 | 24,730 | 15.3 |
| **1997** | 144,435 | 120,488 | 23,947 | 16.6 |
| **1998** | 80,231 | 67,903 | 12,328 | 15.4 |
| **1999** | 74,414 | 64,635 | 9,779 | 13.1 |
| **2000** | 74,000 | 70,851 | 3,149 | 4.3 |
| **2001** | 76,670 | 65,202 | 11,468 | 15.1 |
| **2002** | 85,587 | 74,734 | 10,853 | 12.7 |
| **2003** | 92,336 | 85,388 | 6,948 | 7.5 |
| **2004** | 88,748 | 58,822 | 29,926 | 33.7 |
| **2005** | 97,063 | 58,566 | 38,497 | 39.7 |
| **2006** | 99,541 | 56,050 | 43,491 | 43.7 |
| **2007** | 117,903 | 61,128 | 56,775 | 48.2 |
| **2008** | 124,449 | 61,513 | 62,936 | 50.6 |
| **2009** | 132,444 | 64,498 | 67,946 | 51.3 |
| **2010** | 168,490 | 74,509 | 93,981 | 55.8 |

*Source*: CAMPI.

The irony, however, is that the booming car sales has not been accompanied by an expansion in domestic car assembly. As reflected in Tables1 and 2, Philippine CKD

production has been stagnant since the 1997-98 Asian crisis, with the CBU importsoutnumbering the locally-assembled since 2008. The latter do not include yet the smuggled cars (see discussion below).

## ***Why the stagnant assembly industry***

There are three major explanations for the stagnant assembly industry:

**First explanation: liberalized entry of CBUs.** In the 1950s and 1960s, the car assembly industry grew around the CBU import ban and the high tariff walls. In the 1970s, the Marcos Administration maintained the CBU ban while requiring the five participants in the Progressive Car Manufacturing Program (PCMP) to deepen local content production.

However, in the 1980s-1990s, the Philippines liberalized its trade regime in a wholesale manner under a World-Bank-assisted "structural adjustment program" (SAP). Import quotas were removed and the high tariffs erected in the 1960s were drastically reduced. In the case of CBUs, tariffs went down to 70 per cent in 1981, 50 per cent in 1982, 40 per cent in 1993 and 30 per cent by 2001 (Ofreneo, 2008). In the case of car parts, tariff reductions were slashed down at a more radical pace – 30 per cent in the 1980s, 20 per cent in 1993-94, 10 per cent in 1995, and 3 per cent in 1996-97. In short, the Philippine auto liberalization program was deeper and way ahead of the tariff liberalization program adopted by the big three ASEAN producers (see table 3). This accelerated liberalization weakened the position of the Philippine assembly industry in its own home market and squeezed the growth of the domestic parts industry. The limited supply base is one reason raised by Ford Motors[2]in justifying

[2]The December 2012 closure was the second for Ford, a PCMP participant in the 1970s. It shut down its assembly plant in the early 1980s, at the height of the Philippine economic crisis. It returned in the late 1990s with the promise to make the Philippines as Ford's production hub for the ASEAN region. The government gladly extended fiscal incentives to Ford. More than 80,000 CBU units (Mazda 3, Escape and Focus models) worth US$1 billion were shipped out to Indonesia, Malaysia and Thailand from 2002 to 2012. However, there was a big gap in production capacity and sales. In 2011, Ford was able to sell 9,778 units although its Philippine assembly plant could churn out 25,000 units a year (Remo, 2012; Rappler.com, 2012).

the closing down of its Philippine assembly plant in December 2012 after only ten years of production (Remo, 2012).

**Table 3: MFN Car Tariff Rates in ASEAN Countries with Assembly Facilities (per cent, 2000)**

| *Products* | *Indonesia* | *Malaysia* | *Thailand* | ***Philippines*** |
|---|---|---|---|---|
| CKDs | 35-50 | 42-80 | 33 | 10 |
| CBUs | 45-80 | 140-300 | 80 | 30 |

*Source*: Department of Trade and Industry, 2001.

**Massive car "smuggling"**

In February 2013, Senate President Juan Ponce Enrile was pilloried by his political enemies in the Senate regarding the allegation that Port Irene, a freeport established through a law sponsored by Enrile, was defying a Supreme Court decision upholding the legality of Executive Order (EO) 156 (Gascon, M., 2013). The EO, issued in 2002 by then President Gloria Macapagal-Arroyo, banned the importation of second-hand vehicles because of government concerns on pollution and safety hazards.

One indicator of the massiveness of car smuggling is the wide gulf between the total of newly-registered cars reported by the Land Transport Office (LTO) and the total of the cars sold by the local assemblers and the licensed CBU importers (see Table 4). The difference includes the Filipino "jeepneys" produced by backyard producers, who churn out a total of around 25,000 units a year per estimate by CAMPI. The jeepney producers lament that they are also affected by the flood of imported second-hand vehicles, which precipitated the closure of big jeepney assemblers such as Sarao (Madrona, 2011).

**Table 4: Industry-reported sales versus LTO-reported new registration of motor vehicles, 1991-2009**

| Year | Total industry-reported sales (A) | Total LTO-reported newly-registered cars (B) | Difference | Per cent A/B |
|---|---|---|---|---|
| **1991** | 47,949 | 118,822 | 70,873 | 60 |
| **1992** | 60,360 | 146,112 | 85,752 | 59 |
| **1993** | 83,811 | 165,881 | 82,070 | 49 |
| **1994** | 103,471 | 189,532 | 86,061 | 45 |
| **1995** | 128,162 | 219,635 | 91,473 | 42 |
| **1996** | 162,095 | 242,067 | 79,972 | 33 |
| **1997** | 144,435 | 240,662 | 96,227 | 40 |
| **1998** | 80,231 | 160,798 | 80,567 | 50 |
| **1999** | 74,414 | 152,753 | 78,339 | 51 |
| **2000** | 74,000 | 172,053 | 98,053 | 57 |
| **2001** | 76,670 | 196,355 | 119,685 | 61 |
| **2002** | 85,587 | 199,336 | 107,749 | 56 |
| **2003** | 92,336 | 214,245 | 121,909 | 57 |
| **2004** | 88,748 | 217,782 | 129,714 | 60 |
| **2005** | 97,063 | 167,689 | 70,626 | 42 |
| **2006** | 99,541 | 167,898 | 68,359 | 41 |
| **2007** | 117,903 | 186,161 | 68,258 | 37 |
| **2008** | 124,449 | 177,,451 | 53,002 | 30 |
| **2009** | 132,444 | 182,589 | 50,145 | 27 |

*Source*: CAMPI.

Smuggling became big business in the 1990s, when the Subic Freeportallowed Auctioneering Unlimited to import thousands of second-hand vehicles from Japan and South Korea and to auction these vehicles to outside or non-Freeport-registered buyers. A study of Chiu and Shioji (2007) shows that an importer earns from a low of US$2,400 for an ordinary car to as much as US$5 million for a luxury car. The technique is in the mis-declaration (technical smuggling) of the cost of the imported car, usually a slightly-used imported vehicle, for example, a Mitsubishi Pajero selling for US$7,600.00 (1998 model) in the Philippine domestic market is given an acquisition cost of only US$450.00.

PACCI and CAMPI have filed cases against the used car importers, most of which have been using the country's industrial freeports such as the Subic Bay Freeport Zone and the Cagayan Special Economic Zone and Freeport in order to avoid payment of

duties and taxes. Because of powerful political patrons, these importers are able to obtain court injunctions stopping the implementation of EO 156 (Joint Foreign Chambers, 2010). The legal battles have remained unresolved 11 years after the issuance of EO 156!

**Policy incoherence**

From the foregoing discussion, one can easily deduce two major problems facing the domestic automotive industry -- one, the absence of a clear automotive industrial vision and,two, the absence of political will to enforce established policies such as the EO 156's ban on the importation of second-hand used vehicles! A historical review of the Philippine automotive industrial promotion program shows how badly the country has performed, policy-wise, through the decades (based on historical notes of Aldaba, 2008; Medalla, 2004; Ofreneo, 2008; Tecson, 2004; and Raymundo, 2005):

*CBU importation period* (1916-1950) – As a colony, the Philippines became an importer of varied industrial products from the United States, including vehicles of all types. The first car importation was recorded in 1916.

*CBU import ban period* (1951-1972) -- Due to a severe balance-of-payments crisis after the war, the newly-independent Philippines was adopted a series of import and foreign exchange control measures in 1949-51. These control measures eventually became instruments in the promotion of the ISI industrial program. A ban on imported CBUs forced American companies like Ford, General Motors and Chrysler to set up Philippine "manufacturing" plants to assemble CKDimports. The CKD importation-assembly business was later copied by a score of Filipino companies and joint ventures with other foreign car makers such as Volkswagen. In the 1960s, the import and foreign exchange controls were lifted by President Diosdado Macapagal, only to be replaced by high tariffs of over 100 per cent.

*Local content promotion I*(1972-1986) – President Ferdinand Marcos launched the PCMP whose participants were given a "progressive" schedule of local content targets, initially at 15 per cent but eventually reaching 40 to 60-80 per cent by the 1980s. The participants were also mandated to earn some foreign exchange through the establishment of factories producing auto parts for export, to partly offset the foreign

exchange outflow caused by CKD importation. The privilege to import CKDs was limited to PCMP participants.

The Ministry of Trade and Industry calculated that only two firms were needed to make the PCMP program viable because of the limited domestic market (Lee, 2005). However, the government was worried in excluding any of the big European, Japanese and American car makers. Hence, the number eventually mushroomed to five composed of General Motors, Ford, Canlubang Automotive Resources/PAMCOR (joint venture of Chrysler and Mitsubishi), Delta Motors (joint venture with Toyota) and DMG Inc./Nissan Motors Philippines.

Nonetheless, the PCMP registered concrete gains in the 1970s. Local content went up from 15 to 30 per cent. Domestic car parts makers mushroomed from 34 in 1974 to over 200 in 1979. Some assemblers set up plants to produce parts for export such as the Asian Transmission Corporation (ATC) established by PAMCOR/Mitsubishi.

However, the PCMP, catering mainly to the domestic market, collapsed in the first half of the 1980s because of the prolonged Philippine economic crisis. By 1985, only PAMCOR/Mitsubishi and Nissan were left standing.

*Local content promotion II* (1987-2001) – In 1987, President Corazon C. Aquino tried to revive the localization program by replacing the PCMP with the CDP. The local content target for assembled vehicles was set at 32.26 per cent for 1988, rising to 40 per cent in 1990. Among the original CDP participants were Japanese automotive companies: Mitsubishi, Nissan and Toyota.

In 1990, the CDP program was amended with the inclusion of the "People's Car Program" (PCP). This paved the way for the entry of new CDP players: Honda Motors, Columbian Autocar (Kia), Transfarm (Norkis Gurkel), Italcar Pilipinas (Fiat) and Asian Carmakers (Daihatsu).In 1992, another CDP amendment -- the "Luxury Car Program" -- enabled Volvo and Daimler Benzto become CDP participants.In 1994, still another amendment was made, this time to allow Proton of Malaysia to join the CDP because of the ASEAN Industrial Joint Venture (AIJV) program. Thus by 1994, there were 13 accredited CDP participants, all licensed to produce cars with high local content requirement for a Philippine market that was able to absorb only around 100,000locally-assembled units a year (see tables 3 and 6).

When the 1997-98 Asian crisis broke out, only the five Japanese car makers were left standing: Toyota, Honda, Isuzu, Nissan and PAMCOR/Mitsubishi. And yet, none of those who abandoned the CDP program were punished, or their licenses revoked (Gonzales, 2003). They have, in fact, become CBU importers in the deregulated Philippine automotive market.

*Confused period (2002-present)* – The period 2002 to the present is a confused period, policy-wise. EO 156 was issued by the Macapagal-Arroyo Administration as the blueprint for a "new" car development program. To encourage domestic assembly, the EO provided CDP participants additional fiscal incentives, CKD import privileges and assurance against used-vehicle importation. And yet, at the same time, EO 156 phased out the "performance requirements" (progressive local content and foreign exchange earnings) of the PCMP and the CDP in compliance with the World Trade Organization's agreement on "Trade-Related Investment Measures" or TRIMs[3].

Secondly, EO 156 pushed for a value-based excise taxation system prescribed by the International Monetary Fund. The higher the car's value and the bigger its engine, the higher the excise tax. This seemingly equitable proposal was beguiling. It ignored the fact that the best-selling locally-assembled vehicles were the Asian utility vehicles (AUVs), which have high local content. These AUVs were popular among the middle-income Filipino families because they can seat the big families because of folded seats at the rear. They have also become "mega taxis" and vehicles of choice for small and micro enterprises. Thus, the shift to excise taxation was a disincentive to the AUV producers which were slapped double-digit tax rates. On the other hand, the new excise taxation, enacted in 2003, benefited the lower-priced bantam cars priced at P500,000 or lower because the tax rate was only two (2) per cent. These bantam cars happened to represent the bulk of Philippine CBU imports. The unions in the Japanese car assembly plants, aware of the job implications of the excise tax measure, launched a noisy campaign against the shift in taxation. Their plea was not heeded.

[3]Ironically, the government requested for exemption from the TRIMs conditionalities up to 2000, which was extended up to 2003. The exemption was rendered meaningless by EO 156 (Ofreneo, 2008).

**Puzzling Development 2: Eroding supply base, growing parts exports**

With the failure of the PCMP and CDP to take off, the parts industry supplying the domestic assembly industry has likewise failed to grow. And yet, a puzzle comes in: the Philippines, a laggard in the assembly business, ranks third in the ASEAN, after Thailand and Indonesia, when it comes to the export of auto parts. In the 1990s, it even became a leading supplier of parts to Japan among the ASEAN countries.[4]Some explanations are clearly in order.

***Filipino domestic parts producers: barely surviving***

The BOI claims that there are 256 parts makers (BOI, 2009). The MVPMAP explains that majority of these 256 parts producers are small and medium enterprises (SMEs) which form the second and third tiers of the auto supply pyramid. However, many are doing parts production on a limited and even part-time basis because the demand from the assemblers is limited and intermittent. For example, Lino Yu of Ambrose Enterprises disclosed that his involvement in the auto business is only "10 per cent", for his firm devotes 90 per cent of its working time on the non-auto precision metal parts and painting for the construction industry and other industries. He opined that the active parts makers constitute only half of the 256 listed by the BOI.

The globalization of parts production has also intensified competition in domestic car parts trading. The procurement program of the local assemblers has become regional and global, meaning Filipino parts makers have to compete with the ASEAN (e.g., Thai, Indonesian and Malaysian) and global suppliers when they participate in the bidding to supply the requirements of local assemblers. The Filipino parts producers usually lose out if the bidding is for the supply of parts that are produced in bulk or supplied in large quantity or involves a higher level of technological sophistication because Filipino parts makers have no economy of scale and have limited investment on technology. Parts importation is further facilitated by the fact that MFN tariff rates for CKDs and other goods is now five (5) per cent and even less under the ASEAN Free Trade Agreement (AFTA). Advances in logistics have also

[4]In 1999, the Philippines was considered the biggest source of auto parts destined for Japan (See Mori, 1999).

made importation cheaper and hassle-free for assemblers who follow strict time schedules.

Finally, globalization has forced car makers to keep a tight hold on the design and production of needed critical parts to insure that global standards are met. This forces the Japanese assemblers to nurture their own parts producers at home or overseas for high-technology parts. What is offered to the local suppliers are the non-strategic and less technologically-sophisticated parts such as mufflers and seat covers. In this context, it is understandable that the bigger and more stable parts makersare those formed by the assemblers themselves or by their global parent companies, either as wholly-owned subsidiaries or as joint ventures with Filipino companies, because they are producing parts for their respective assemblers on a dedicated basis. The domestic assemblers -- Toyota, Honda, Mitsubishi, Nissan and Isuzu -- have also organized their respective "suppliers' clubs", whose core members are their own affiliated parts manufacturers. The tasks of the suppliers' club are obvious: to strengthen the assembler's supply chain management, ensure the "just-in-time" (*kanban*) delivery of parts, orient the suppliers on the changing requirements of the various models being assembled, and assist the suppliers in upgrading their production in order to meet the assemblers' global production standards.

## ***Rise of the global parts makers and Revealed comparative advantages (RCAs)***

However, there are also parts producers which are catering not only to the domestic market but also to the larger regional and global market. These are the firms that have put the Philippines on the auto GPN map because they have become giant producers of parts, i.e., Yazaki-Torres Manufacturing, Inc., EDS Manufacturing, Inc. and International Wiring Systems for the wire harness; Continental Temic for the brake system; and Asian Transmission Corporation for transmission. They have also become the biggest employers in the whole automotive industry, employing thousands of workers in giant factories. For example, Yazaki-Torres has now close to 10,000 workers whereas assemblers like Mitsubishi has less than a thousand workers. The Toyota Group (Toyota Motors plus 13 Toyota parts makers) have also announced that

they are on course to meet the goal of $1 billion export earnings a year (CACMF, 2013), the total export figure earned by Ford Philippines cumulatively in ten years of CBU exportation.

The export-oriented auto parts producers stand out because their sales to the local assemblers constitute only a fraction of their global sales. For example, Yazaki-Torres is able to export annually wire harness packages that can fit over a million cars assembled overseas (mainly US, Japan and ASEAN) while its sales to the domestic assemblers is just enough for 50,000-80,000 cars given the small size of the local assembly market. Moreover, these global parts exporters, in contrast to the local assemblers and the domestic-oriented 2nd/3rd tier suppliers, had expanded robustly in recent years (see table 5). Through these auto parts exporters, the Philippines has become an active participant in the GPNs of auto MNCs.

**Table 5: Philippine exports and imports, automotive products, 2000-2008 (US$M)**

| Year | Trade in CBU Vehicles (in million USD) | | Trade in Parts and Components (in million USD) | |
|---|---|---|---|---|
| | Export | Import | Export | Import |
| **2006** | 96 | 666 | 2,439 | 41 |
| **2007** | 64 | 1,011 | 2,981 | 90 |
| **2008** | 96 | 1,256 | 3,502 | 133 |
| **2009** | 96 | 1,270 | 2,605 | 151 |
| **2010** | 128 | 2,000 | 3,319 | 578 |
| **2011** | 90 | 1,796 | 3,751 | 689 |
| **2012** | 58 | 1,940 | 3,506 | 702 |

*Source*: Kabigting, R. 2013, "Statistics in the Automotive Industry Roadmap".

The Philippines has a distinct revealed comparative (RCA) in auto parts such as wiring harness, brake systems, transmissions and some motor vehicle parts (Table 6), as computed by the World Bank's World Integrated Trade Solutions (WITS). And while the RCA for the manufacture of parts and accessories for bodies of motor vehicles is low, their export potential has been growing through the years.

The auto parts with high RCAs have close links to the GPNs of automotive MNCs. This explains why the top importers of Philippine-made parts are not necessarily the ASEAN countries. For wiring harness, the main markets are Japan, USA and Canada, and for the brake systems, Germany, Japan and the USA. The transmissions are the

ones exported heavily to Asia, particularly to Thailand. This means the transmissions are brought into Thailand by Japanese assemblers, which have a GPN system in the ASEAN and the Asia-Pacific.

## ***Skills as drivers in global parts production***

Why then does the Philippines have high RCAs on transmissions, brake systems and wiring harness? One answer is historical. During the 1970s, the PCMP participants were required to go into parts production not only for domestic assembly but also for export in order to earn foreign exchange. PAMCOR/Mitsubishi organized the Asian Transmission Corporation (ATC) while Ford went into body stamping. Later, in the 1990s, the Philippines registered the ATC as a project under the ASEAN Industrial Cooperation Scheme (AICO), which seeks to promote complementary sharing of industrial activities among ASEAN-based companies.

***Another explanation is the technical skills and proficiency of the Filipino workers in doing manual tedious electronic assembly work.*** The Japanese auto investors discovered that Filipino workers have shown their capacity to assemble the numerous tiny gear parts (e.g., seals, springs, shafts, interlock assemblies, pinions, etc.) that make up the gear system/box of a vehicle. Such assembly work requires manual dexterity and technical skills. The MitsubishiATC transmission experience was replicated in the 1990s by Toyota and Honda, which also established their respective transmission assembly plants for the domestic and export markets.

**Table 6: RCAs of select auto parts produced in the Philippines (2000-2012)**

| Year | Wiring Harness | Brake systems | Transmissions | Motor vehicle parts | Parts and accessories of bodies |
|---|---|---|---|---|---|
| **2000** | 8.8881 | 3.6328 | 1.3084 | 0.5661 | 0.0027 |
| **2001** | 8.1436 | 4.8578 | 1.2471 | 0.9955 | 0.0002 |
| **2002** | 7.5118 | 3.2963 | 1.3242 | 1.3448 | 0.0005 |
| **2003** | 7.3874 | 3.5851 | 1.4278 | 1.7431 | 0.0006 |
| **2004** | 10.6889 | 4.5713 | 1.6701 | 1.9586 | 0.0002 |
| **2005** | 10.0568 | 5.1973 | 2.0516 | 2.1845 | 0.0003 |
| **2006** | 9.9760 | 5.1899 | 1.3022 | 2.1165 | 0.2912 |
| **2007** | 10.8763 | 6.2283 | 1.2308 | 2.3828 | 0.4402 |
| **2008** | 12.4717 | 9.1912 | 1.9600 | 3.0672 | 0.6680 |
| **2009** | 13.7686 | 7.4115 | 2.2587 | 2.7987 | 0.7028 |
| **2010** | 14.0489 | 3.2942 | 2.3979 | 2.7363 | 0.7580 |
| **2011** | 14.8567 | 9.3329 | 2.5325 | 2.8353 | 0.6698 |
| **2012** | 16.4506 | 1.1441 | 2.0500 | 2.3670 | 0.6673 |

*Source*: WITS, World Bank.

As to the brake system, the pioneer is Telefunken, a microelectronic German company which set up shop in the Philippines in the 1980s. After a crippling strike in 1996, Telefunken set up Temic to specialize in the production of the anti-lock brake system (ABS) and electronic security sensors. Like in the transmission, the assembly of the ABS involving tiny parts like calipers, ball screws, nuts, pistons, valves, etc. requires manual dexterity and technical skills by Filipino workers and supervisors.

However, the requirements for manual dexterity and technical skills are most prominent in the case of wire harness assembly, which is difficult to automate. Wiring harness manufacturing requires cutting of wires to prepare circuits of different colors, terminals, etc.; crimping of wire terminals; splicing of different circuits; molding and

assembly; and electrical testing. Clearly, wire harness manufacturing is both labor-intensive and skills-intensive. Somehow, Filipino wire harness workers, mostly high school graduates with post-secondary technical skills training, have established global proficiency in wire harness manufacturing. This explains why Yazaki-Torres and other Japanese wire harness manufactures keep expanding their facilities in the Philippines. One Dutch wire harness company, Lear, also keeps expanding. Today, the Philippines is considered the wire harness capital of Southeast Asia.

In a way, Philippine RCA in wire harness also explains why electronics assembly has remained for over three decades the country's biggest export industry because the assembly work in the two industries is somewhat similar. But can the Philippines graduate at a higher level of assembly work? There is some possibility, as illustrated by Denso, a manufacturer of auto instrumentation electronic materials and parts assemblies such as radiator and fuel pump. In 2005, Denso decided to set up a Denso Techno design and software engineering center in the Philippines. The idea is to take advantage of Filipino ICT talents in the designing of electronic circuits embedded in cars, developing appropriate software programs, and testing the designs and programs. What Denso is doing is to take advantage of Filipino skills in electronics assembly and ICT-related services by focusing production on auto electronics parts assembly and auto software programming.

**A non-puzzler: Japanese assemblers have stayed on**

The Japanese assemblers – Toyota, Mitsubishi, Honda, Nissan and Isuzu – have refused to join Ford and the non-Japanese CDP-registered assemblers in exiting the assembly industry of the Philippines. They have stayed on by assembling in the Philippines one to three (1-3) models that are indemand in the country, e.g. Vios for Toyota, and supplementing these assembled units with imported CBUs, mostly coming from Japanese plants in Thailand. None of the five Japanese companies are exporting CBUs.

It is clear that the Japanese do not only think long term. They look at the Philippines in a holistic and strategic manner. They see the Philippines as a profitable place to do business despite the limited market and limited supply base. In the first

place, they treat the Philippines as part of their overall GPN system for the ASEAN and the Asia-Pacific and a platform for export for certain auto parts. Hence, select parts production for domestic assembly and select parts production for export are both promoted. ***The main point is that sourcing of parts for the Japanese assemblers is flexible and obviously not dependent on the traditional pyramid involving local 1st - 2nd-and 3rd tier parts producers. Parts can be sourced from locally-based affiliated companies, overseas affiliated companies in the ASEAN, Filipino producers and independent global suppliers. It is all a question of allocation of contracts to a mix group of suppliers.*** The Japanese auto parts producers were able to identify much earlier in what areas of parts production can the Philippines excel such as in the wire harness assembly and electronic parts assemblies. And since, the Philippine economy is already deregulated, it is not difficult for Japanese assemblers to source needed inputs and parts from their production networks across the ASEAN and the Asia-Pacific.

**On learning and innovation in a segmented auto-sector**

To stay in the business, assemblers and parts makers need to continuously keep up with the latest in automotive technology and upgrade the skills of their workers, supervisors and managers. But how does one do it in a globalized industry known for the fragmentation of technology and extended division of labor? Moreover, how does one do it in the specific case of the Philippines?

To answer the above, a survey questionnaire was circulated to all car parts producers registered with PEZA as well as those who are listed as members of the MVPMAP. PEZA has 45 registered parts producers, while MVPMAP has 101 member enterprises. Many Filipino-owned 2nd/3rd tier enterprises are members of MVPMAP. However, the returns were few despite the active assistance of both PEZA and MVPMAP. Only a total of 41 firms (out of 45 or so responding companies) submitted complete answers. The PEZA's explanation for the low survey turnout: there has been one auto survey too many in recent years. But another explanation is that many in the 256 firms officially listed by the BOI as car parts producers are either inactive or part-time car parts producers.

To complete the inquiry on technology and skills upgrading, the author interviewed key informants (production and HR managers) of seven representative companies – two assemblers (Toyota and Mitsubishi), two big parts producer-exporters (Yazaki-Torres and Asian Transmission), one large local parts supplier (Laguna Car Parts) and two small parts producers (Ambrose Enterprises and Autofir).

## ***Findings from the survey***

A tally of the answers provided by the 33 responding companies supports some of the earlier observations. The salient ones include the following:

- More than half of the responding firms (63.3 per cent) were established in the 1990s, either as joint-ventures or as 100 per cent foreign-owned. This is understandable because the 1980s was a lost decade, economically. Four Japanese assemblers (Toyota, Honda, Nissan and Isuzu) established their assembly facilities in Sta. Rosa, Laguna only in the early 1990s; only Mitsubishi has maintained continuous operations since the 1970s.

- More than half (54.8 per cent) of the firms are foreign-owned, with the wholly-Filipino-owned and the joint venture firms accounting for 22.6 per cent each. Again, it should be pointed out that the active parts producers for the domestic assemblers and export markets are the assemblers' own affiliates and subsidiaries of giant auto parts makers producing for the global market.

- About 55 per cent said they export to Japan and 45 per cent to the ASEAN. This shows that production to meet the requirements of domestic assemblers is only part of the business mission of the parts producers. This reaffirms the observation that Philippine-based parts makers are in the GPNs of Japanese auto multinationals.

- All companies positively indicated efforts in promoting incremental innovation and quality control. The most common quality control and maintenance

systems are total preventive maintenance (TPM) and quality management system (QMS), both of which are considered part of *kaizen*. Most of the big auto companies (those with 200 plus employees) also try to secure ISO quality assurance certifications for their work processes because this is sine qua non for those engaged in export and those contracted to provide quality and error-free parts to assemblers. The auto assemblers also have TS 16949 certification on "Automotive Quality Management System".

- The firms gave a low score for government support to R&D. Government support is usually limited to fiscal (e.g., duty-free importation of raw materials) and non-fiscal (e.g., simplified customs procedures) incentives, which are also given by othe host countries.

## ***Findings from the case studies***

The firm visits and interviews with firm managers have given the author and his research colleague deeper insights on how auto assemblers and auto parts makers are upgrading and innovating in product development and work processes in a segmented and uneven auto sector. There is no space here to present in full the seven case studies. The following is a brief summary of key observations from the seven firms:

**Innovations among the assemblers: Toyota and Mitsubishi.** The only robotized section in the TMPC and MMPC assembly plantsis the painting section, to ensure that the manufactured vehicle's paint is of even quality. However, the managers and engineers of both TMPC and MMPC have been making innovations to make work more efficient and production flow smooth. For example, TMPC engineers developed an equipment called*wagon daisha*, literally a "push cart" that can transport a heavy material like transmission from one production end to the other. The *wagon daisha* supports the *kanban* system and is able to minimize the physical movement of the workers and prevent any scratches to materials.

The *wagon daisha* and other innovations aimed at reducing production costs and enhancing work productivity are consistent with the Toyota Production System (TPS), which is also imparted among the TMPC's local suppliers. To increase the latter's

technological and production capabilities, TMPC provides training and organizes inter-supplier *kaizen* competition to promote continuous improvement. An integrated skills training program for new and old workers is in place. In early 2013, TMPC also set up a Toyota automotive school, whose graduates are hired by Toyota facilities in Australia and other countries.

In the case of MMPC, its engineers have refurbished toolings that were abandoned by Mitsubishi plants in other countries such as stamping dyes, injection molds and roof tooling, which are now used in the assembly of Adventure and L300. Vehicle engineering has helped raise the local content for these vehicles. MMPC management and unions have also been requesting Mitsubishi Tokyo for more and higher-value car models to assemble in the Philippines. In granting such requests, Mitsubishi has been requiring MMPC to show the latter's capacity in meeting the strict global standards set for the production of more sophisticated car models.

Both TMPC and MMPC have invested heavily in cultivating better labor relations with its supervisory and rank-and-file employees and their unions. In 2000, TMPC suffered production damages due to a month-long strike, while MMPC experienced a debilitating strike in early 1998 that was triggered by a downsizing program in the wake of the Asian financial crisis. Both the TMPC and MMPC have overcome the labor relations tensions through increased dialogue with the unions.

**Innovations among parts exporters: Yazaki-Torres and ATC.** The big auto parts producers-exporters have also concentrated on continuous work improvement and better labor-management relations, as exemplified by Yazaki-Torres Manufacturing Inc. (YTMI) and ATC.

YTMIis the country's oldest and biggest producer of wire harness. Renato Almeda, YTMI's VP for Human Resources credits "sound and stable industrial relations" for its production success because positive relations is essential in insuring that workers are able to produce wire harness en masse at a high level of productivity and with zero defect outcomes. The workers are unionized.On R & D, YTMI explains that as a contract assembler, YTMI does not have to develop its own R & D and design center for product innovations. What it does is to continuously improve and maintain good work processes and methods, including team work, quality circles and so on. In the past, YTMI sent teams to train in Japan and other countries; today, a growing

number of Yazaki affiliates from other countries have been visiting YTMI to do benchmarking.

As to ATC, it had stormy labor relations in the 1980s, with the union filing a notice of strike every three years during the renewal of their collective bargaining agreement (CBA). The hostile labor relations was transformed into positive and cooperative ones when the company and the union decided to intensify union-management dialogue. In 1997-1998, ATC survived the Asian financial crisis with the company and the union sharing the pain of reduced work and exerting efforts to minimize production cost, e.g., waste reduction and materials optimization.

**Innovations among domestic parts producers: Laguna Carparts, Autofir and Ambrose.** To participate in the auto business as suppliers, Laguna Carparts Mfg., Inc. (LCMI), Autofir and Ambroseinvest on better machines to produce non-core auto parts such as mufflers or safety belts. They market their products to the assemblers and importers by showing pictures of the relatively modern machines they have acquired such as the hydraulic machines LCMI has bought (e.g, YCT-800 Tons and a 700 Tons Hydraulic). All have also invested in better labor-management relations and varied productivity programs. However, Ambrose and AutoFIR, both small enterprises,have diversified into non-auto business lines.

**Conclusion: Can the Philippines catch up with Asia?**

In 2009, the BOI came up with *A Value Proposition for Motor Vehicle Industry: Focus on Parts Manufacturing.* The whole strategy is to encourage FDIs by dangling new and old fiscal incentives such as the income tax holiday and tax credits. These proposed incentives will not be enough to push the automotive sector to greater heights as envisioned in the PACCI-CAMPI proposed Roadmap. The BOI's *Value Proposition* does not specify, as Lall and Rasiah put it, how the capacity of the sector, particularly in the area of technology and innovation, can be built up. Right now, the Philippines is occupying some sticky places such as transmission and wire harness assembly in the globalized automotive slope courtesy mainly of Japanese multinationals.

Yes, the country can move up the auto industrialization ladder; however, it can also slide downward or simply stagnate, as what happened for the Philippine auto

sector in the last three decades or so. As Rasiah (2007) outlined in his "systemic quad" model, building up industrial capacity and knowhow requires an enabling environment made possible not only by basic supporting infrastructures and integration in a globalized production system but also by the development of institutions to drive learning and innovation (e.g., R&D, training, etc.) and "network cohesion" among public and private institutions and actors. The Philippine auto sector has weaknesses in virtually all the four areas. Policy and network incoherence is exemplified, among others, by the weak government resolve to eliminate or minimize car smuggling and the illogical imposition of higher excise taxes on vehicles with high local content. There is no clear industrial vision and modernization strategy, apart from the vague campaign for FDI entry through fiscal incentives, on how production expansion can be achieved.The assemblers and the big parts makers are the ones doing the R&D and setting up training schools, with minimal participation by the Philippine government. The BOI and PEZA do not even have auto experts to monitor how the globalization processes are affecting the sector and how the Philippines should respond to these changes.

And yet, ironically, there are growth potentials for the auto sector. The RCAs in certain auto parts have revealed that the Philippines has competitiveness in products requiring workers with manual dexterity, high technical aptitude and skills in electronics. Denso Techno and Temic have also discovered Filipino talents in developing software for auto instrumentation and embedded electronic materials. Verily, the government and the private sector can and should work together in developing capacity in the production of higher value-adding electronic and ICT-based auto parts.

However, all the foregoing are meaningless if the Philippines has no sense of where it wants to go, industrially, in a globalized world, with or without FDI. Rebuilding the auto sector requires an Industrial Policy for the 21st century.

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