**Arndt-Corden Department of Economics**
**Crawford School of Public Policy**
**ANU College of Asia and the Pacific**

Australian National University

# The Philippines in global manufacturing value chains: A tale of arrested growth

Prema-chandra Athukorala

Arndt-Corden Department of Economics

Crawford Scholl of Public Policy

Australian National University

Prema-chandra.athukorala@anu.edu.au

September 2021

**Working Papers in Trade and Development**

**No. 2021/22**

This Working Paper series provides a vehicle for preliminary circulation of research results in the fields of economic development and international trade. The series is intended to stimulate discussion and critical comment. Staff and visitors in any part of the Australian National University are encouraged to contribute. To facilitate prompt distribution, papers are screened, but not formally refereed.

Copies are available at https://acde.crawford.anu.edu.au/acde-research/working-papers-trade-and-development

# The Philippines in global manufacturing value chains: A tale of arrested growth

Prema-chandra Athukorala*

Abstract

This paper aims to broaden our understanding of how the overall investment climate of a country conditions its potential for export-oriented industrialization through global production sharing by examining the Philippines' experience from a comparative Southeast Asian perspective. In the early 1970s, the Philippines had promising preconditions for benefiting from the regional spread of Singapore-centered electronics production networks: deep-rooted colonial ties with US investors, geographical location, a large relatively better educated labour pool with widespread English-language proficiency, and an education system with potential for generating the required technical manpower. However, the industrialisation trajectory over the subsequent years has not lived up to the initial expectations. Manufacturing exports from the country have become increasingly reliant on low-end assembly process undertaken within export processing zones (EPZs) against the backdrop of deteriorating comparative performance within global production networks. The upshot of the analysis is that the lack-luster performance record is rooted in the dualistic incentive structure of the economy that 'arrested' the country's participation in global production networks within the enclave EPZs. The EPZs, which were initially conceived as a harbinger of global integration of domestic manufacturing, eventually became 'enclaves' within the economy.

*Keywords*: Global production sharing, global manufacturing value chain (GMVC), foreign direct investment (FDI), free trade zones (FTZs), the Philippines, industrialization

*JEL Codes*: F13, F21, F23, O14, O53

* I am grateful to Hal Hill, Arianto Patunru and Jim Roumasset for excellent comments and suggestion

# The Philippines in Global Manufacturing Value Chains: A Tale of Arrested Growth

Prema-chandra Athukorala

## 1. Introduction

Cross-border dispersion of different stages/slices of the production processes within vertically integrated global industries has been a key structural feature in economic globalisation in recent decades. This process of international division of labour, which we label 'global production sharing' in this paper, opens opportunities for countries to specialize in different slices (tasks) of the production process within the global manufacturing value chain (GMVC). Trade based on global production sharing, that is trade in parts and components, and final assembly traded within GMVC[1], has been the prime driver of the dramatic shift in the geographical profile of world manufacturing exports from developed to developing countries. High-performing developing countries in East and Southeast Asia have been the main beneficiaries of this structural shift in world trade. In the early 1970s, the Philippine had a promising start in export-oriented industrialisation by engaging in GMVCs. But the subsequent growth trajectory has not lived up to the initial expectations.

The purpose of this paper is to document and analyse Philippines' engagement in GMVCs from a comparative Southeast Asian perspective. The paper has been motivated by two related

[1] The term 'global manufacturing value chain' (GMVC), rather than the widely used term 'global value chain' (GVC), is used in this paper to reflect its specific focus on *global production sharing in manufacturing*. The term GVC was popularized by economic sociologists working on the 'structure of governance' (interaction among different actors) involved in the value chain of *both* primary products and manufactured goods. It is important to distinguish GMVC from this broader concept of GVC because, unlike in the case of primary commodity trade, a specific focus on trade and investment policy regimes of individual countries and developments in the on-going process of global production sharing is needed in order to broaden our understanding of the process of industrialisation in this era of global economic integration.

objectives: to inform the policy debate in the Philippines on the feasibility and desirability of export-oriented industrialisation through joining GMVCs, and to contribute to the wider literature on joining GMVCs as a vehicle for global economic integration of developing countries and the related policy issues. The importance of this phenomenon for designing national industrialisation strategies is now widely acknowledged in both academic and policy circles. However, there is a dearth of time-profile studies of individual countries, which are needed to broaden our understanding of how the government policies and the overall investment climate condition a country's potential for export-oriented industrialization by joining GMVCs. The Philippines, given its engagement in global production sharing since the early years of the arrival of GMVCs in the region and the mixed achievements over the ensuing years compared to the other countries in the region, provides a valuable laboratory for a case study of this subject.

The paper begins with a brief typology of GMVCs in order to provide the analytical context for the ensuing analytical narrative. This is followed by an overview of the Philippines engagement in global production sharing focusing on the interplay of the unfolding development of global production sharing and the Philippines' political and policy setting. The next two sections examine trends and patterns of Philippine exports within GMVCs ('GMVC trade') and the implications of global production sharing for growth and structural changes in domestic manufacturing. This is followed by a brief discussion on policy options for effective participation in GMVCs. The concluding section summarizes key findings and draws some policy inferences.

## 2. Typology of GMVCs

In terms of the organizational structure of production sharing, GMVCs take two major forms: buyer-driven production networks and producer-driven production networks (Gereffi 1994). This distinction is important for understanding the policy options for effective participation in GMVCs and assessing the resultant implications for the process of economic development.

Buyer-driven GMVCs are common in diffused-technology based consumer goods industries such as clothing, footwear, travel goods, toys and sport goods. In these networks the 'lead firms' in the production networks are international buyers (large retailers such as Walmart, Marks & Spencer, H&M) or brand manufactures such as Victoria's Secret, Gap, Zara, Nike). Production sharing in these networks takes place predominantly through arm's length

relationships, with global sourcing companies (value chain intermediaries) playing a key role in linking producers and the lead firms. Therefore, there is room for local firms to directly engage in exporting through links established with foreign buyers, without direct involvement of foreign direct investment (FDI). If foreign investors are involved, usually it is through joint-ventures with local entrepreneurs (not though forming fully-owned subsidiaries). Input procurement is monitored by the lead-firm, but there is room to use domestic inputs that meet the required quality standards. As the East Asian experience indicates, joining buyer-driven production networks is a promising start for export-oriented industrialisation.

Producer-centred production networks are common in vertically integrated global industries such as electronics, electrical goods, automobiles, and scientific and medical devices. In a producer-centered production network the 'lead firm' is a multinational enterprise (MNE) (such as Intel, Motorola, Apple, Toyota, and Samsung). Global production sharing takes place predominantly through the lead firms' global branch network and/or its close operational links with established contract manufacturers (such as Foxconn, Flextronics) that undertakes assembly for these global corporations.

In these high-tech industries production technology is specific to the lead firm and is closely protected to limit imitations. Also, the production of final goods in these industries requires highly customized and specialized parts and components whose quality cannot be verified or assured by a third party. The bulk of global production sharing, therefore, takes place through intra-firm linkages rather than in an arm's-length manner. This is particularly the case when it comes to setting up production units in countries that are newcomers to global production networks. As the production unit becomes well established in the country and it forges business links with private- and public-sector agents, arm's length subcontracting arrangements for components procurement could develop, but this would depend very much on the domestic business climate.

Export-oriented industrialisation in the high-performing East Asian economies (South Korea and Taiwan) began with engagement in buyer driven production networks. From about the early 1960s international buyers, first from Japan and then from the other mature industrialized

countries played a pivotal role in the expansion of labour-intensive standard consumer goods (garments, toys and sport goods) from these countries. Until about the late 1970s, the activities within producer driven production networks in these countries were basically limited to subcontracting arrangements between Japanese electronic and electrical goods producing companies and fledgling local firms (Hone 1974, Feenstra and Hamilton 2006. Hobday 1998). By contrast, export-led industrialisation in Southeast Asian countries began with engagements in producer driven GMVCs (Athukorala and Kohpaiboon 2013). Buyer-driven production networks began to spread to some low-wage Southeast Asian countries from the East Asian countries only from about the late 1970s (Wells 1983, Gereffi 1999). This was propelled by a combination of a rapid increase in wages in the East Asian countries and the tightening by developed countries of quotas imposed on apparel imports from these countries under the Multi-fiber Arrangement.

## 3. The Philippines in GMVCs: A Brief history

The embrace of 'the MNE-led development strategy' (*a la* Hobday 2013) by Singapore after its separation from the Malaysian Federation in 1965 set the stage for the Southeast Asian economies' participation in global production networks. The process started in 1968 when two US companies, National Semiconductors and Texas Instruments, arrived in Singapore to assemble semiconductor devices. By the early 1970s, Singapore had become the main offshore assembly base for the US and European semiconductor manufacturers. During the next five years there was a notable change in the composition of the island's electronics industry with computer peripherals, especially hard disk drives, becoming relatively more important compared to semiconductor assembly. By the late 1980s, Singapore accounted for almost half of the world production of hard disk drives (Athukorala and Kohpaiboon 2015, McKendrick *et al*., 2000).

As early as 1972 some multinational enterprises (MNEs) with production facilities in Singapore began to relocate some low-end assembly activities in neighbouring countries, in response to Singapore's rapidly rising wages and rental costs. The emergence of Singapore-centred regional production network was aided by the embrace of the MNE-led development strategy by other Southeast Asia countries following the Singaporean experience. Subsequently, many new MNEs also set up production bases in these countries, bypassing Singapore.

The Philippines had promising preconditions for benefiting from the regional spread of production networks. As part of the colonial inheritance, the strong presence of US MNEs was a

significant force in the Philippine economy with manufacturing as the major recipient (Lindsay and Valencia 1982; Golay 1966). In spite of a restrictive approach to FDI during the first two decades of the post-independence era, the colonial ties of MNEs continued to remain much stronger in the Philippines compared to the other Southeast Asian countries. Under the Laurel-Langley Agreement of 1955, US investors enjoyed the unique privilege of investing in the Philippines on equal terms with Filipino citizens (Suhrke 1975). The favourable geographical location of the country, a large relatively better educated labour pool with widespread English-language proficiency, and a relatively strong education system with potential for generating technical manpower[2] were the other advantages of the country (Abrenica and Tecson 2003, Phan and Coxhead 2015).

In the early 1970s, towards the end of the second term of the Marcos regime (labelled the 'new society' regime), that began in 1969, there were some prospects of a transition to export-oriented industrialisation (Bautista 1988; Shepherd and Alburo 1991). The policy regime had become relatively more favourable to FDI. Professional economists, the so-called 'technocrats', occupied key economic portfolios in the cabinet, giving the business community a sense of 'right' policy directions in the country. Setting up of export processing zones (EPZs) with attractive incentives with government guarantees was the main item of the agenda of a Board of Investment established in 1971 (Warr 1989). The Bataan EPZ was established in 1969 and started operating in 1973. Under the martial law imposed in September 1972, the government was able to achieve some political tranquility by reducing violent urban crime and suppressing the Communist insurgency in most areas, and by silencing some of the nationalist critics of foreign aid and investment. Therefore, the response of the international investment community to the martial-law regime was initially favourable.

The first wave of semiconductors assembly in the Philippines began with the arrival of Intel Corporation in 1974 to set up its second offshore assembly and testing factory in Makati City (later moved to a larger factory in the Cavite EPZ), after two years of successful operation in Penang, Malaysia. Intel's arrival was a symbolic vote of confidence that paved the way for other electronic companies to come to the Philippines: Motorola (1979), Texas Instruments (1979), Temic Telefunken (1974), Philips Semiconductors (1981) and some others. Following the arrival of lead electronics firms, a network of ancillary industries began to emerge to meet their

[2] Until the 1990s, the Philippines was the regional leader in tertiary education (Phan and Coxhead 2015).

requirements: stamped metal components, automation equipment, gigs and fixtures, machine tools and moulded rubber products. At the beginning these supporting industries were dominated by SMEs from Japan, Singapore and Taiwan. Subsequently, some local subcontracting firms began to emerge. On November 2, 1979, The *Philippines Daily Express* carried a theme article under the title 'Electronics Fervor Hits Philippines Zones'.[3]

The 'electronic fervor' did not last long, however. From the early 1980s through to the early-1990s, the domestic investment climate became inhospitable to FDI. Preferential treatment accorded the U.S investors ended with the termination of the Laurel-Langley Agreement on July 4, 1974, and divestment of U.S. equity and landholdings led to some legal disputes and alleged political interference in supreme court rulings (Lindsay and Valencia 1982). Under the Martial Law regime, there was an unprecedented concentration of power around the president, with rampant allegations of 'cronyism' (Hill 1982). Trade protection increased markedly across industries, often penalizing labour intensive actives in which the country could be expected to have comparative advantage (Bautista 1998). Following the ending of Martial Law in 1981, the Philippines was mired in political uncertainty: there were increased student demonstrations and violent urban guerrilla activities. In the context of a deteriorating overall business climate of the country, the growth spurt created by the entry of electronics MNEs remained arrested within the EPZs which were cushioned against the distorted overall business environment by EPZ-specific liberal trade regime and attractive incentives. Thus, the EPZs, which were initially conceived as an integral part of economic liberalisation reforms, became 'enclaves' within the economy (Kleibert 2018, Bautista and Power 1979, Warr 1989).

The People's Power movement toppled the Marcos regime in early 1986, ushering in an unstable era of democratic governance. Political uncertainly extended well into the Aquino administration (1986-1992), which faced considerable internal dissension and repeated coup attempts, charges of corruption and human-right abuses. Well-publicized kidnaping of Japanese executives in December 1989 shattered the investment climate.

Overall, 1980s were a lost decade of foreign direct investment and engagement in global production networks for the Philippines. There were three important developments in the regional GMVCs, which the Philippines missed benefitting from during this period. First, there was the first wave of hard disk drive (HDD) investment in the region. Starting in the late 1980s, most

[3] As cited in Grunwald and Flam (1985, p. 77)

major players in the HDD industry, including Seagate, Maxtor, Hitachi Metals, Control Data, Applied Magnetic and Conner Peripherals, first came to Singapore and then spread their operations to Malaysia and Thailand (McKendrick *et al.*, 2000). Second, after the Plaza Accord in 1985 there was a massive outward FDI from Japan to countries in Southeast Asia in response to the appreciation of the yen (Batalla 2011). Third, with the targeting of import quota restrictions by the major importing countries under the MFA, apparel exporting firms in Taiwan, Hong Kong and South Korea started shifting production bases to the other low-wage countries in the region. The foreign investors and international buyers involved in these three waves of production relocation bypassed the Philippines (Wells 1994).

The environment for doing business in the Philippines improved significantly during the Ramos administration (1992–1998). Political stability was restored through successful negotiation with military rebels and Muslim separatist movements. The trade and foreign investment regimes were significantly liberalised. The operation of EPZs was streamlined by passing a new Foreign Investment Act in 1991. While industrial peace prevailed in the country on the whole, employment and working conditions were much more conducive and firms continued to enjoy free-trade status within zones than outside (Remedio 1996, Bernardo and Tang 2008).

The regime shift paved the way for a wave of hard disk drive (HDD) investment in the Philippines' EPZs, with the dominance of Japanese firms (Mody et al 1999, Batalla 2011).[4] The HDD boom began with the arrival of Hitachi in 1994, followed by Fujitsu, Toshiba and NEC. Japanese firms selected the Philippines because of the proximity to Japan, the relatively abundant supply of engineers of technical grades, and the pool of relatively cheap English speaking semi-skilled trainable labour (Amano 2010). However, the US firms ignored the Philippines, other than Seagate that started producing some of its HDD heads through subcontracting arrangements. By

[4] In the 1990s until the onset of the East Asian financial crisis in mid-1997, there was a marked appreciation of the real exchange rate (RER) of the Philippine pesos, eroding relative profitability of tradable production (Bautista and Tecson 2003). The advent of the HDD boom against the backdrop of RER appreciation is consistent with the available evidence that global production sharing has weakened the link between trade flows and relative prices: site-selection decisions of MNEs are fundamentally based on long-term considerations that govern their global operations (Athukorala and Khan 2016).

this time, US HDD firms had already consolidated their presence in Singapore, Thailand and Malaysia following the initial operations in Singapore in the early 1980s. (McKendrik at al 2000, p. 110).

During the period from 1998, financial and budgetary reforms initiated during the Ramos era continued under a professional economic management in spite of political regime shifts (Bernardo and Tang 2008; Batalla 2018). However, there was a backsliding from policy reforms relating to trade and industry admits political divisiveness. Industrial peace continued to prevail in the four EPZs with more conducive working conditions than in the rest of the country. But, the investment and trade policy regime in the rest of the country suffered from the tension between the traditional aversion to foreign investment and the recognition of its role in economic development in this era of economic globalisation. The policy regime continued to restrict FDI to minority participation, except relating to activities defined as 'pioneer' under legislation, and investment in EPZs. Thus, the EPZ and non-EPZ divide in the overall incentive structure of the economy exacerbated over the years. The economy grew at an average annual rate of 6.4% during 2010-09, up from 4.8% during the previous decade.[5] However, the growth has been increasingly services oriented, fuelled by migrant-worker remittances and the expansion of business process outsourcing (BPO), which are not directly affected by the distorted domestic incentive structure (Batalla 2018).

From about the mid-1990s, here has been a significant boom in special economic zones (SEZs) run by the private sector. Unlike in the four state-run EPZs, the activities within SEZs are heavily concentrated in the services sector, predominantly in BPO (mostly call-centre) operations (Dumayas 2008, Ishikawa 2008). There is no evidence of significant new manufacturing investors arriving in the state-run EPZs. Export performance within GMVCs is predominantly driven by incumbent firms (that is, the 'intensive' rather than 'extensive' margin). Rates of new entry of firms have fallen sharply since 1999, and most new entrants are small firms with average revenues of only a third of those earned by the average (Balaoing-Pelhmans 2017).[6]

[5] Data compiled from ADB, Key Indicators for Asia and the Pacific (https://www.adb.org/publications/key-indicators-asia-and-pacific-2021).

[6] The study has stopped short of examining whether the lack of new entrants was partly due to market power of incumbent firms as well as the dualistic incentive structure. However, it is unlikely that market power of incumbent firms would have been a significant influence because most, if not all, of these firms are involved in 'relationship specific' assembly task within GMVCs rather than producing final products in a competitive market setting.

On April 2, 2008, the Intel Corporation, the largest exporting firm in the country during the previous two decades, announced its decision to close operations in the Philippines and move to a location in Ho Chi Minh City, Vietnam. Relatively higher wages and cost of electricity, and frequent supply interruption of electricity were the main reasons listed in the media speculations of Intel's departure. Presumably, the attractive investment incentive package offered by the Vietnam government (in particular land rent exemption), too, would have played a role (UNCTAD 2008). At the time of departure, the Intel subsidiary was employing 3,000 workers with an accumulated total investment of $1.5 billion. And its annual turnover in the previous year was over US$100 million (Calimag 2008). Intel's new Vietnam plant involved an initial investment in 2006 of US$ 605 million and additional investment of $475mn during the next four years. It is now the largest of Intel's assembly and test sites in the world (Turicum Investments Management 2021).

Recent years have been some early signs of integration of the domestic auto industry (which remained domestic market-oriented until then) within the emerging ASEAN auto production networks (Ofreneo 2016, Doner et al. 2021)). The media has already dubbed the Philippines the 'transmission capital' of Toyota: the Philippines accounts for 20% of total wiring harnesses used in Toyota's global production networks (Ofreneo 2016). Some car makers have begun to assemble certain models specially catered to the Philippine market but also sold in the other countries in the region (and beyond). For instance, Ford assembles Ford Focus, and Mazda assembles Mazda Tribute and Mazda 3 in the Philippines.

How can we understand this export story in the Philippine auto industry given the overall incentive bias in the economy against manufacturing and in the absence of new firms entering into other industries within global production networks (the absence of 'extensive margin' in export performance)? It seems to be a unique development associated with internationalisation of the automobile industry over the past few decades: restructuring of global operations of automakers in order to cater for rapidly increasing vehicle sale in emerging markets. The ASEAN region, with 660 million people and an increasing middle class, has been a key focus of this corporate strategy of global carmakers. Car makers have begun to locate different segments of the auto value change in individual countries in the region depending on their relative cost advantage for producing for the entire region and beyond. In this process of inter-regional division of labour within auto-production networks, the Philippines has become a producer of selected car parts such as wire harness and transmissions, brake systems, which are exported both regionally and globally.

This process of inter-regional division of labour in auto production has been aided by the ASEAN Industrial Corporation Scheme (AICO), which grants preferential tariff of 0-5% on imports of parts and components and assembled cars for companies with subsidiaries in two or more ASEAN countries (subject to 40% ASEAN content of the products) (Yoshimatsu 2002). The abolition of long-standing local content requirements for auto-part production and auto assembly by the Philippine government in the late 1990s as part of its WTO commitments also has facilitated the process. Following the abolition of the local content requirement auto part producers and auto assembler have the flexibility to determine their input mix to meet quality/standard requirements specified by the buyers.

## 4. Export performance

This section examines the Philippines' export performance within GMVCs using data compiled from the standard Customs record based data compiled from the UN *Comtrade* database.[7] By the time the electronic boom started in the early mid-1970s, manufactured goods accounted for about 10% of total merchandise exports of the Philippines. This had increased to 44% by the early 1980s following the 'electronic fever' in the second half of 1970s (Table 1). GMVC exports dominated by electronics accounted for nearly two thirds of total manufacturing exports during 1980-84. The second-GMVC boom dominated by HDD exports is clearly reflected in the export growth figures in the 1990s and early 2000s. During the interim years between the two booms and the years after the HDD booms, the growth of total manufacturing exports was much slower owing to slower growth of GMVC exports. However, interestingly, the share of GMVC products in total manufacturing exports increased continuously. By 2015-19, GMVC products accounted for almost 90% of total manufacturing exports, up from about 72% in the early 1980s.

Table 1: The Philippines: Key indicators of global production sharing and export performance

| | Export value (US$ million) | | Export growth (%) | | Mfg as % of total exports share (%) | GMVC products as % of mfg. | Producer - driven GMVC as % of total GMVC products | Parts & component in GMVC products (%) |
|---|---|---|---|---|---|---|---|---|
| | Mfg, exports | GMVC products | Mfg. products | GMVC products | | | | |
| 1970-74 | 210 | 68 | 34.2 | 32.1 | 11.8 | 32.6 | | |
| 1975-79 | 922 | 529 | 37.7 | 56.3 | 25.0 | 53.7 | 28.4 | 80.1 |
| 1980-84 | 2,562 | 1,850 | 13.7 | 17.9 | 41.6 | 71.8 | 63.5 | 87.3 |
| 1985-89 | 3,864 | 2,605 | 11.3 | 4.3 | 54.7 | 68.9 | 63.4 | 82.3 |
| 1990-94 | 8,052 | 6,661 | 17.4 | 28.8 | 67.8 | 82.0 | 62.4 | 86.1 |
| 1995-99 | 23,972 | 22,012 | 23.8 | 25.9 | 83.0 | 91.3 | 84.5 | 88.9 |
| 2000-04 | 43,554 | 40,955 | 10.2 | 10.4 | 88.8 | 94.0 | 91.9 | 88.8 |
| 2005-09 | 54,940 | 51,101 | -2.8 | -3.4 | 83.5 | 92.9 | 94.2 | 90.7 |
| 2010-14 | 59,954 | 53,955 | 9.3 | 9.2 | 78.2 | 90.0 | 95.1 | 88.2 |
| 2015-19 | 65,075 | 58,350 | 3.4 | 3.2 | 80.0 | 89.7 | 94.7 | 84.5 |
| 1970-19 | 26,311 | 23,808 | 15.4 | 18.2 | 61.4 | 76.7 | 75.4 | 86.3 |

Source: Data compiled from UN *Comtrade* database.

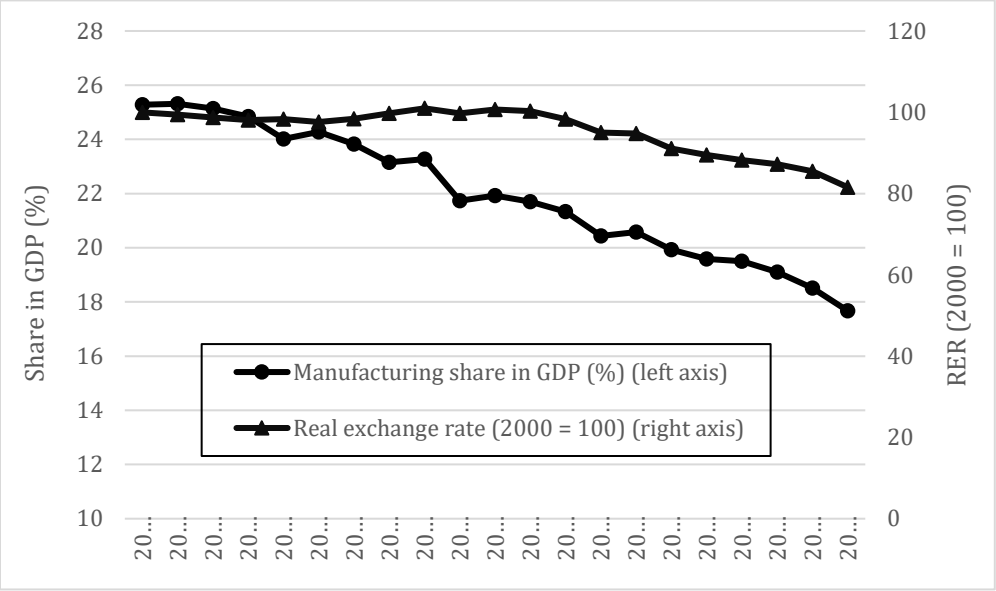
[7] The data classification system used for delineating parts and components and final assembly traded within GMVCs ('GMVC exports') from the standard trade data is discussed in the Appendix of Athukorala (2018).

This pattern of continued GMVC dominance in manufacturing exports throughout the period under study seems to reflect a combination of the site selection process of MNEs and the increasingly dualistic nature of the overall investment climate of the country. Setting-up of a production base in a given country and training workers involved a sizeable sunk cost. Moreover, workers who gained experience through on the job training become part of the valuable intangible assets of the MNE subsidiaries. Because of these reasons, there is a tendency for MNE affiliates to become deep rooted in a given host country based on their initial success. Relating to the overall investment climate, as already noted, the environment in the EPZs, where almost all MNE affiliates are located, has continued to remain much more conducive for export-oriented production compared to rest of the country. At the same time, the MNE dominance in export production seems to have been compounded by the incentive bias against manufacturing in the rest of the country, which deterred the emergence of export-oriented local enterprises, and the generous of fiscal incentives offered to firms operating under the Philippine Export Zone Authority (PEZA).

As depicted in Figure 1, the profitability of manufacturing production compared to nontradable production in the economy has declined continuously from the mid-2000s (Figure 1). Reflecting this incentive bias, the share of manufacturing in the economy contracted from over 25% in the early 2000s to about 17% in 2019. The remarkable stability of the nominal exchange rate of the peso[8] and growth of domestic demand, both underpinned by migrant-worker remittances and the BPO boom, seem to have contributed to the incentive bias against manufacturing.

[8] The average annual Peso-US$ exchange rate varied in the narrow range of 42 to 52 peso per US$ since 2000, with an average rate of appreciation of about 3% during 2010-09.

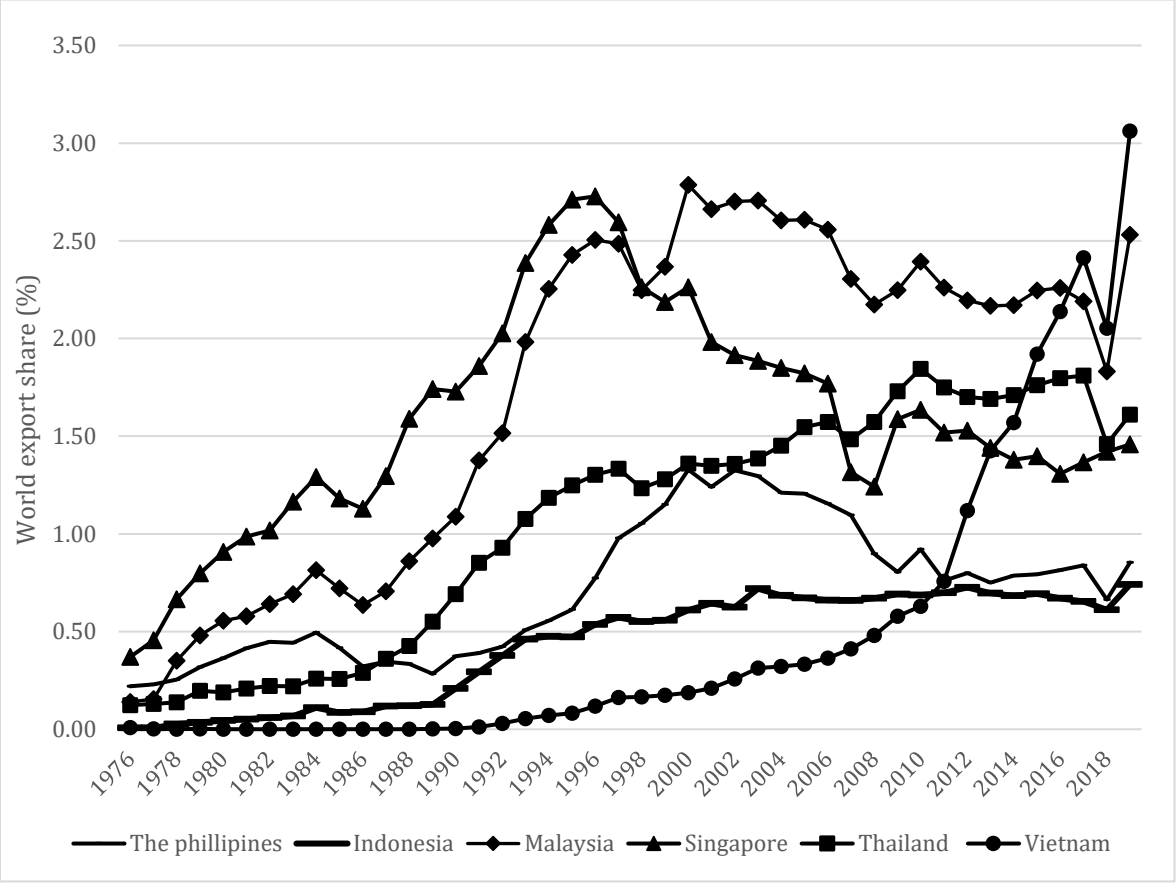
Figure 1: The Real exchange rate (RER)[1] and manufacturing share in GDP (%) in the Philippines, 2000-20




Note: Manufacturing price relative to price of nontradable (services, constriction and utilities).
Source and method: Price indices are derived as implicit deflators from current and constant-price sectoral GDP data extracted from ADB, *Key Indicators for Asia and the Pacific* (https://www.adb.org/publications/key-indicators-asia-and-pacific-2021).

Until about the mid-1980s, Philippines had the third highest share of total world exports of GMVC products among the six main countries in Southeast Asia after Singapore and Malaysia (Figure 2). Thailand accounted for a much smaller share compared to the Philippines. From then on, Thailand's market share has increased steadily, whereas that of the Philippines lagged behind, reflecting the adverse domestic investment environment. The HDD boom in the late 1990s brought the market shares of the two countries closer, but the gap has widened since then. By the mid-2010s, Thailand's export market share was 1.9 % compared to 0.8% of the Philippines.

Figure 2: The Philippine and other ASEAN countries: share in world exports of GMVC products 1976-2019 (%)




Source: Data compiled from UN *Comtrade* database.

The meteoric rise of Vietnam within GMVCs as a late starter is particularly noteworthy in understanding the emerging opportunities for export-oriented industrialisation through global production sharing. Vietnam's world market share, which was much smaller compared to the Philippines, had increased to over 3.0% by 2019. The only country among the Southeast Asian six whose export share has continuously lagged behind that of the Philippines is Indonesia. In the early 1970s, when labour and rental cost in Singapore started to increase rapidly, neighbouring Indonesia was an obvious alternative location considered by MNEs for relocating low-wage segments of production processes. Two of the major electronics MNEs operating in Singapore set up assembly plants there (Fairchild and National Semiconductor established plants in 1973 and 1974, respectively), but both plants were closed down in 1986 because of unresolved labour market issues. Since then major MNEs have continued to shun Indonesia as a potential host country. Indonesia's engagement in producer-driven GPNs has so far been limited mostly to low-end

electronic assembly activities undertaken mostly by Singaporean subcontracting companies in the Batam economic zone and Singapore-Johor-Riau Island (SIJORI) growth triangle, and some export spillover from predominantly domestic market-oriented automobile assembly plants (Athukorala & Kohpaiboon, 2014).

Products exported within producer driven GMVC have continued to dominate the commodity composition of GMVC exports from the Philippines (Table 2). Exports within buyer-driven GMVCs (predominantly apparel and other standard consumer goods), which generally involved greater local enterprise involvement, have continued to account for a small and shrinking share in the export composition. In 2015-19, producer-driven GMVC products accounted for 94% of total GMVC exports, up from 82% in the early 1980s. Producer driven GMVC exports from the Philippines are heavily concentrated in semiconductors, and electronics and electrical components (SITC 75 and 76). The commodity structure initially determined by the semiconductor boon in the early 1970s and reinforced by the HDD boom in the 1990s has basically endured over the past two decades. Semiconductor devices (SITC 776) have continued to account for over 40% of the total GMVC exports.

In a comparison with the other Southeast Asian countries, the commodity composition of GMVC exports from the Philippines is much more similar to that of Singapore and Malaysia than to that of Thailand and Vietnam (Table 3). This similarity is in contrast to what one would have expected based on the stages of economic advancement and labour market conditions: Thailand and Vietnam are obviously more appropriate comparators for the Philippines. As a relatively low wage country with a sizeable domestic labour pool, the Philippines would have become an attractive production base for buyer-drive GMVCs under a business environment conducive for international buyers to forge links with domestic entrepreneurs.

Table 2: The Philippines: Composition of GMVC exports, 1979-2019[1] (% and $ million)

| | 1979-80 | 1989-90 | 1999-00 | 2009-10 | 2018-19 |
|---|---|---|---|---|---|
| **Producer driven GMVC** | 82.1 | 66.1 | 90.6 | 95.3 | 94.6 |
| Chemical and related products (SITC 5) | --- | --- | 0.1 | 0.2 | 0.1 |
| Manufactured goods classified chiefly by material (SITC 6) | --- | 0.4 | 0.4 | 0.4 | 0.3 |
| Power-generating machinery and equipment (71) | 0.2 | 0.5 | 0.5 | 1.4 | 1.9 |
| Machinery specialized for particular industries (72) | 0.4 | 0.3 | 0.1 | 0.2 | 0.2 |
| General industrial machinery and equipment and parts (74) | 0.1 | 0.2 | 0.3 | 0.8 | 0.8 |
| Office machines and automatic data-processing machines (75) | 2.2 | 7.7 | 29.1 | 15.0 | 16.4 |
| Telecommunications and sound-recording equipment (76) | 2.5 | 8.5 | 4.6 | 6.3 | 6.4 |
| Electrical machinery, apparatus and appliances (77 other than 776)[2] | 3.1 | 8.2 | 7.8 | 11.8 | 17.5 |
| Thermionic, cold cathode or photo-cathode valves and tubes (776)[3] | 53.9 | 34.1 | 43.8 | 52.7 | 43.3 |
| Road vehicles (78) | 3.9 | 0.9 | 0.9 | 1.9 | 1.5 |
| Other transport equipment (79) | 0.7 | 0.4 | 0.1 | 0.7 | 1.2 |
| Professional, scientific and controlling instruments and apparatus (87) | 0.3 | 0.6 | 1.2 | 2.7 | 3.2 |
| Photographic apparatus, optical goods, and watches and clocks (88) | 11.8 | 3.2 | 1.4 | 1.1 | 1.7 |
| Miscellaneous | 2.9 | 0.9 | 0.2 | 0.2 | 0.3 |
| **Buyer driven** | 17.9 | 33.9 | 9.4 | 4.7 | 5.4 |
| Textile and textile products (other than apparel) (656 & 657) | 2.2 | 2.8 | 0.0 | 0.2 | 0.1 |
| Travel goods, handbags and similar containers (83) | 0.7 | 1.1 | 0.9 | 0.2 | 1.3 |
| Articles of apparel and clothing accessories (84) | 0.3 | 24.3 | 7.4 | 3.5 | 2.9 |
| Footwear (85) | 11.8 | 3.2 | 0.3 | --- | 0.5 |
| Toys, games and sporting goods (894) | 2.9 | 2.5 | 0.7 | 0.9 | 0.7 |
| Total GMVC | 100 | 100 | 100 | 100 | 100 |
| US$ million | 856 | 3436 | 34960 | 46689 | 58340 |

Notes: --- Zero or less than 0.045%. (1) Two-year averages, (1) Include auto parts, mostly wire harnesses. (2) Mostly semiconductors.

Source: Data compiled from UN *Comtrade* database.

Table 3: Composition of GMVC exports from the Philippines and other ASEAN,2018-19[1] (% and $ million)

| | Philippines | Indonesia | Malaysia | Singapore | Thailand | Vietnam |
|---|---|---|---|---|---|---|
| ***Producer driven*** | 94.6 | 60.9 | 95.8 | 99.4 | 93.7 | 67.5 |
| Chemical and related products (SITC 5) | 0.1 | 1.5 | 1.0 | 1.3 | 1.2 | 0.4 |
| Manufactured goods classified chiefly by material (SITC 6) | 0.3 | 2.4 | 0.6 | 0.3 | 1.8 | 1.2 |
| Power-generating machinery and equipment (71) | 1.9 | 2.5 | 0.5 | 5.3 | 3.5 | 1.0 |
| Machinery specialized for particular industries (72) | 0.2 | 1.1 | 1.1 | 2.5 | 0.6 | 0.2 |
| Metalworking machinery (73) | 0.0 | 0.2 | 0.0 | 0.1 | 0.1 | 0.0 |
| General industrial machinery and equipment and parts (74) | 0.8 | 2.2 | 1.3 | 1.9 | 5.6 | 0.8 |
| Office machines and automatic data-processing machines (75) | 16.4 | 5.0 | 7.9 | 10.3 | 11.5 | 4.5 |
| Telecommunications and sound-recording equipment (76) | 6.4 | 7.1 | 10.8 | 4.9 | 13.5 | 38.2 |
| Electrical machinery and appliances, (77 other than 776), | 17.5 | 15.4 | 10.3 | 8.1 | 11.8 | 6.4 |
| Thermionic, cold cathode valves and tubes (776) | 43.3 | 2.0 | 53.6 | 47.2 | 13.1 | 10.1 |
| Road vehicles (including air-cushion vehicles) (78) | 1.5 | 14.3 | 1.2 | 0.8 | 24.1 | 1.4 |
| Other transport equipment (79) | 1.2 | 2.6 | 1.0 | 5.6 | 0.3 | 0.3 |
| Professional, scientific and controlling apparatus (87) | 3.2 | 1.7 | 5.2 | 9.7 | 3.5 | 1.8 |
| Photographic and optical goods, and watches and clocks (88) | 1.7 | 0.8 | 0.8 | 1.5 | 2.6 | 0.4 |
| Miscellaneous | 0.3 | 2.2 | 0.4 | 0.1 | 0.6 | 0.7 |
| ***Buyer drive*** | 5.4 | 39.1 | 4.2 | 0.6 | 6.3 | 32.5 |
| Textile and textile products (other than apparel) (656 & 657) | 0.1 | 1.5 | 0.2 | 0.1 | 0.7 | 0.6 |
| Travel goods, handbags and similar containers (83) | 1.3 | 1.6 | 0.0 | 0.1 | 0.3 | 2.1 |
| Articles of apparel and clothing accessories (84) | 2.9 | 20.1 | 3.6 | 0.2 | 3.8 | 16.5 |
| Footwear (85) | 0.5 | 14.0 | 0.1 | 0.1 | 0.6 | 12.0 |
| Toys, games and sporting goods (894) | 0.7 | 1.9 | 0.3 | 0.1 | 0.9 | 1.2 |
| Total GMVC | 100 | 100 | 100 | 100.0 | 100 | 100 |
| US$ billion | 58.3 | 52.0 | 167.5 | 111.0 | 118.2 | 196.2 |

Note: (1) Two-year averages.

Source: Data compiled from UN *Comtrade* database.

It is important to note that the data reported here at the two-digit level hide notable variations among countries in the degree of industrial upgrading within the global manufacturing value chain. For instance, semiconductor production has three segments: design, manufacturing (fabrication), and assembly, testing and packaging. Among these segments, assembly and testing is much more labour intensive and has the lowest barrier to entry whereas the other two segments are capital and technology intensive and are of high value. In HDD production, head-stack assembly is semi-skilled and labour intensive compared to other stages of the production process. Firm-level data required for a study of product upgrading in the Philippines compared with that of the other Southeast Asian countries are not readily available. However, the available case-study based evidence suggests that the Philippines has lagged behind in 'industrial upgrading' (moving from simple assembly at the bottom of the value chain to high-value segments of the production process) compared to Singapore (Mathews and Cho 2000; Wong 2007; Diez and Kies 2006, Tecson 1999, Balaoing-Pelkmans 2017).[9]

## 5. GMVC participation and manufacturing performance

Data compiled from the Manufacturing Census of 2012 relating to the role of global production shares in the Philippines manufacturing are summarised in Table 4. It is not possible to directly link the production–side data available from this source with export data. The second-best approach followed here is to delineate industries in which global production sharing is heavily concentrated, as revealed by the analysis of trade patterns in the previous section. We focus on four products identified at the three-digit level of the Philippines Standard Industry Classification (PSIC): Manufacture of electronic components (PSIC 261), computers and peripheral equipment and accessories (PSIC 262) communication equipment (PSIC 263), and parts and accessories for motor vehicles (PSIC 293). These products roughly account for over 90% of total GMVC exports from the Philippines.

[9] Some early studies, which used conventional factor intensity classifications of export composition that failed to capture peculiarities of specialisation patterns within GMVCs, have come up with the puzzling inference that the Philippine had the most 'R&D-intensive' export structure in Asia (Lall 2000, Abrenica and Tecson 2003).

Table 4: Key indicators of GMVC participation in manufacturing in the Philippines, 2012

| | Employment (%) | Gross output (%) | Value added (%) | Value-added/gross output (%) | Labour productivity (Peso) | Female share of total employment (%) | Wage per worker[1] (US$) |
|---|---|---|---|---|---|---|---|
| Manufacture of electronic components (C261) | 12.0 | 17.0 | 27.8 | 42.9 | 53,409 | 83.4 | 5,213 |
| Computers and peripheral equipment and accessories (262) | 4.8 | 5.6 | 9.9 | 46.4 | 47,660 | 76.6 | 5,553 |
| Consumer electronics (C264) | 1.0 | 1.0 | 0.8 | 21.0 | 18,802 | 81.6 | 3,584 |
| Parts and accessories for motor vehicles C293) | 5.0 | 3.6 | 3.1 | 22.9 | 14,329 | 61.5 | 4,529 |
| GMVC products | 23.0 | 27.3 | 41.7 | 40.1 | 41,925 | 76.9 | 5,046 |
| Other manufacturing | 77.0 | 72.7 | 58.3 | 21.1 | 17,529 | 36.6 | 3,339 |
| Total manufacturing | 100 | 100 | 100 | 26.3 | 23,137 | 45.9 | 3,731 |

Direct exports +sales to exporters. In 2012 sales to exports amounts to about 11% of the total.
Annual direct compensation per worker. Compensation to direct labour

Source: Compiled from *The 2012 Census of Philippine Business and Industry: Manufacturing*, Manila: Philippines Statistical Authority.

The four industries taken together accounted for about 23% of total manufacturing employment, 27% of gross output and 47% of manufacturing value added. The strikingly large difference between the figures of gross output and value-added shares perhaps reflects the much greater profitability of GMVC operations within EPZs in the country. [10] Electronics (mostly semiconductor assembly and testing) is by far the largest GMVC industry in the Philippines, accounting for about half of the GMVC work force and over two thirds of GMVC manufacturing value added. According to the disaggregated Census data (not reported here), electronics is also the single largest industry in the country measured at the three digit level of PSIC.

Female workers account for 76% of the work force in GMVC production compared to 37% in non-GMVC production. Labour productivity in GMVC production (US$ 41 thousand per worker) is 160% higher than that of non-GMVC manufacturing (US$ 18 thousand): the average wage differential is about 60% (US$5,000 versus US$ 3,400 per annum).

Data on the geographical location of the four GMVC industries are summarised in Table 5. These industries are concentrated just in four of the 18 regions in the country, with Calabarzon accounting for over 72% of total GMVC employment and over 76% of GMVC gross output. At first blush, the geographical pattern is consistent with the popular perception that global production sharing in the Philippines is an enclave operation in the country. The underlying reasons for the heavy geographic concentration are, however, the vast differences between the EPZs and the rest of the country in terms of the nature of the incentive structure and the vast disparities among the regions in terms of infrastructure provision.

Table 5: Geographical profile of GMVC manufacturing in the Philippine: Employment and Gross output[1] (%)

| | Employment | Gross output |
|---|---|---|
| National Capital region | 3.0 | 2.2 |
| Cordillera | 1.4 | 12.8 |
| Central Luzon | 10.3 | 5.3 |
| Calabarzon | 72.8 | 76.2 |
| Central Visayas | 11.7 | 2.1 |
| Other 18 provinces | 0.9 | 1.5 |
| Philippines | 100 | 100 |
| | 272,228 | 28,477 |

Note: (1) Data relate to the four three-digit industries listed in Table 4.

[10] The standard national account definition used in the Manufacturing Census captures wages and profits. The share of intermediate inputs in production operations within GMVC is naturally higher compared to the other manufacturing and the MNE affiliates seem to pay higher wages on average.

Source: Compiled from *The 2012 Census of Philippine Business and Industry: Manufacturing*, Manila: Philippines Statistical Authority.

A popular criticism in the Philippines policy circles (and elsewhere) of specialisation within GMVC is that the resultant pattern of industrialisation is 'shallow' with limited linkages with the rest of the economy. The standard performance indicator used in this critique is the value added ratio, which is defined as the percentage of domestic retained value (domestic content) in gross output.[11] However, the application of this conventional value added criteria for assessing national gains from GMVC specialisation is questionable. Global production sharing essentially means geographical dispersion of total value added in a vertically integrated production process. Naturally, the percentage of value added of a given product in a particular location within the value chain is therefore going to be low compared to under horizontal specialisation (that is, when the product is entirely made in one country). Moreover, the input structure of component and final assembly in a given country within the global value chain is determined as part of the overall process of international production. It is virtually impossible to adapt it to suit the policy priorities of a given country. National gains for a given country in terms of addition to national income resulting from engagement in global sharing in a given country, therefore, depend predominantly (if not solely) on 'the volume factor', the expansion of sales turnover (and hence gross output) through access to a vast global market.

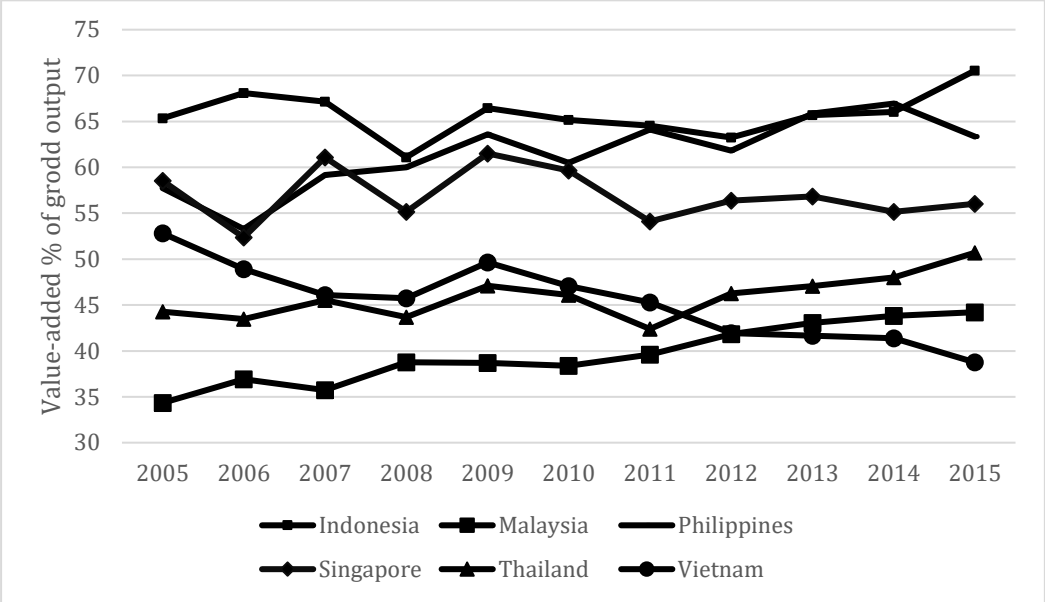
To illustrate this counter argument we tabulated data on the value-added ratio and total value added of the 'computer, electronics and electrical equipment industries' from the OECD TiVA data base. This is the 'industry' within which GMVC trade is heavily concentrated among the 22 two-digit industries for which disaggregate data are available in this database. The estimates cover both direct and indirect value added delineated using the standard input-output methodology. The data are plotted in Figures 3 and 4.

Interestingly, contrary to the popular perception, value added shares in gross output are higher in Philippines compared to the other five countries (Figure 3). This presumably reflects the fact that, at this level of data analysis, both exported and domestically sold products are lumped gather. This product aggregating is likely to have overestimated the domestic value

[11] Domestic retained value is the sum of domestically procured intermediate inputs, wage bill (worker remuneration) and profit. So it is different from the national account concept of value added which includes only the latter two components.

added ratio because there is much more scope to use locally sourced inputs in the production process in industries which are predominantly oriented to the domestic market.[12]

Figure 3: Southeast Asian countries: Value added share in gross output in computer, electronics and electrical equipment industries (%)

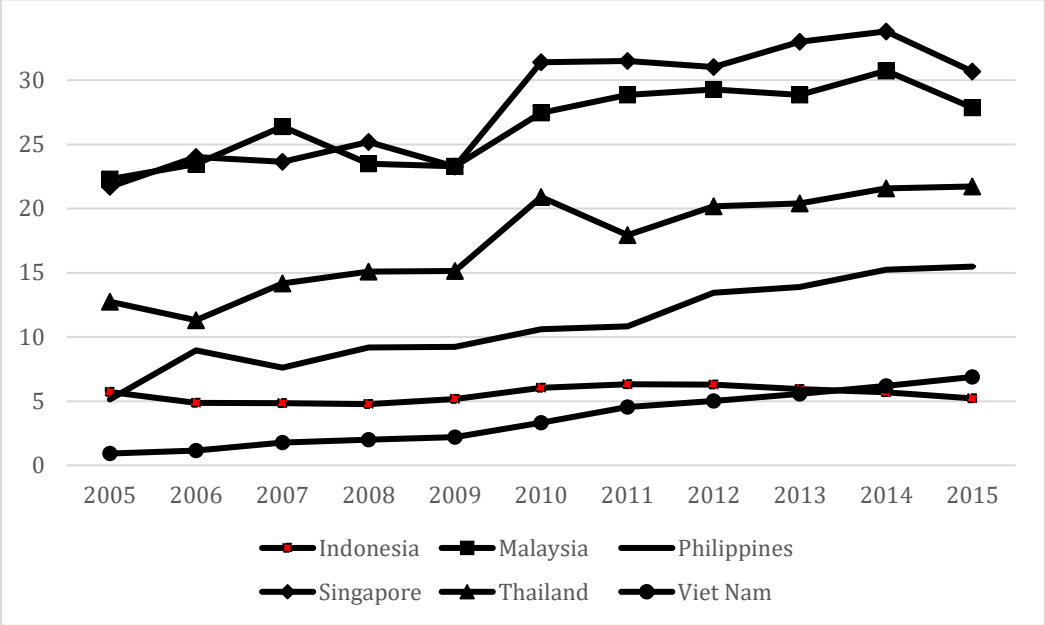



**Source: OECD Trade in Value Added (TiVA) database (https://www.oecd.org/industry/ind/measuring-trade-in-value-added.htm)**

The country ranking in Figure 4 in terms of total domestic value added (contribution to GDP) shows a contrasting pattern compared to that of the ranking in terms of the value-added to gross output ratio in Figure 3. Singapore and Malaysia, which have much lower value added ratios compared to the Philippines, top the ranking in terms of total value added (total retained value). Thailand occupies the third position even though its value added ratio is much smaller than that of the Philippines. Even when the data are taken at face value (ignoring the possibility of over estimation of the value added ratio), the Philippines is at the bottom of the country ranking.

[12] Estimates of value added in the TiVA are based on the assumption that the import content of export production in each industry is identical with that of production for the domestic market. But, the usual pattern is that even when industries are finely classified, import content in an industry's production for export is higher than in its production for the domestic market. The estimation bias would naturally be greater at the two-digit level of industry classification used in the TiVA database (Patunru & Athukorala 2021).

Figure 4: Total domestic value added of exports in computer, electronics and electrical equipment industries




Source: OECD Trade in Value Added (TiVA) database (https://www.oecd.org/industry/ind/measuring-trade-in-value-added.htm)

The other countries with a relatively poor GMVC record also rank poorly in total value added ranking in contrast to their high ranking in terms of the value added ratio. All in all, it seems that in an era of global production sharing, forging domestic industrial linkages (increasing domestic value added ratio) and achieving rapid growth through engaging in international production are not mutually consistent policy objectives.

## 5. Determinants of GPN Participation

Given that capital, managerial knowhow and technology are mobile within production networks, the relative wages of 'trainable' production workers are a key determinant of a country's participation in production sharing (Jones and Kierzkowski 2004). The term 'trainable' is important here because under global production sharing, developed countries normally shift low-skill-intensive parts of the value chain to developing countries. But, the least skill-intensive activities in the developed country can be more skill-intensive than the most-skill-intensive activities in the developing country.

The availability of trainable labour at competitive wages per se does not, however, ensure a country's successful participation in global production sharing. There are two other prerequisites: political stability and policy certainty and country-specific 'service link' costs associated with production sharing (Golub et al., 2007; Jones & Kierzkowski, 2004). Here the

term service link cost refers to costs involved in arrangements for connecting and coordinating activities in a given country with what is done in other countries within the production network. Service link cost is determined by the overall investment climate of a given country, encompassing foreign trade and investment regimes, and the quality of trade-related infrastructure and logistics, property right protection and enforcement of contracts.

How does the Philippines meet these preconditions required for successful participation in global production sharing within global production networks? The Philippines is a relatively low wage country in the region even though the average manufacturing wage is slightly higher than that of Vietnam (Table 4). As labour costs are rising sharply in the high-performing countries in the region, including China, The Philippines does have an opportunity to make inroads into global production networks, provided the other preconditions are met. The availability of a large labour pool is an advantage particularly for final goods assembly within global production networks, which require production in factories that employ large number of workers. Assembly processes within production networks (particularly in producer-driven networks) require much more middle-level (supervisory) workforce (in addition to the availability of trainable low-cost unskilled labour) than traditional labour-intensive manufacturing activities. The Philippines seems to have the capacity to meet this requirement (Phan and Coxhead 2015).

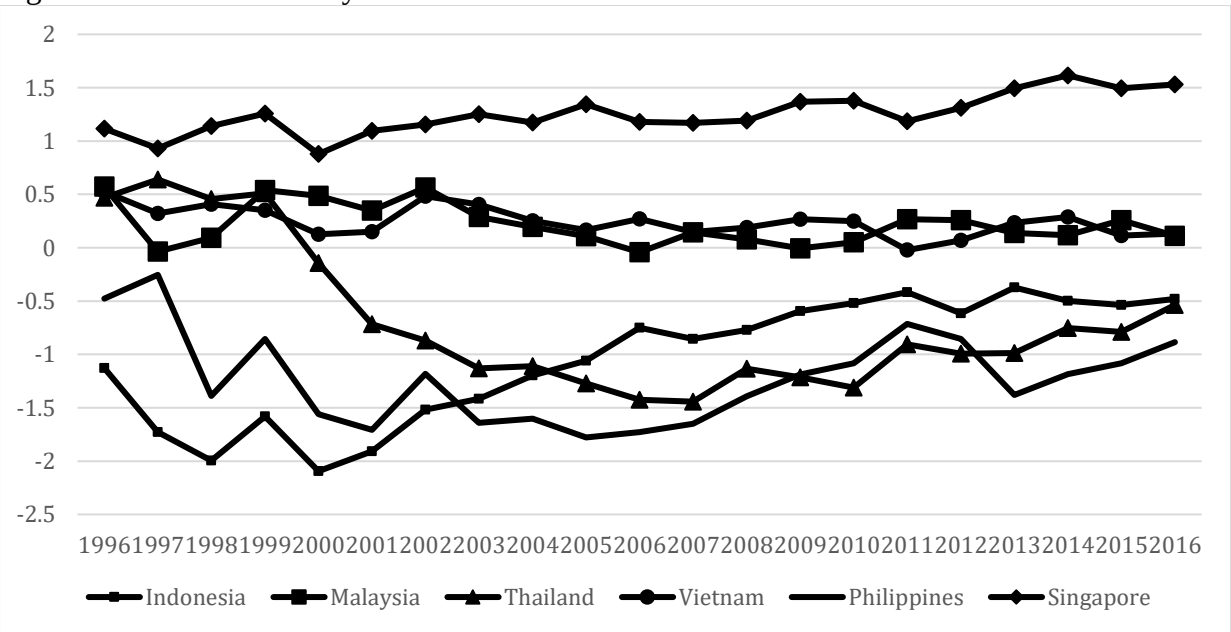
Foreign firms involved in vertically integrated assembly industries are particularly sensitive, unlike those involved in light consumer goods industries, as they view investment risk from a long-term perspective. In particular, they are sensitive to political stability because production disruption in a production base in the value change disturbs the functioning of the entire value chain. As we have observed, political instability and policy discontinuity in the Philippines have been a major deterrent to FDI during most years since independence. The electronics boom in the early 1970s and the HDD boom in the 1990s were times of relative political stability and perceived policy continuity. The political stability and rule of law sub-indexes extracted from the World Bank Government Effectiveness database are depicted in Figures 7 and 8, respectively. Over the past two decades there has not been any notable change in the Philippine position among the countries in the regions on this indicator.

Table 6: Nominal average monthly earnings[1] in the manufacturing sector (US$)

| | | |
|---|---|---|
| China | 2016 | 746 |
| South Korea | 2019 | 3405 |
| Taiwan | 2018 | 1756 |
| Indonesia[2] | 2016 | 169 |
| Malaysia | 2018 | 636 |
| Philippines | 2019 | 261 |
| Thailand | 2019 | 470 |
| Vietnam | 2019 | 287 |
| Cambodia | 2016 | 184 |
| Lao PDR | 2017 | 260 |
| Myanmar | 2017 | 127 |
| India | 2016 | 147 |
| Bangladesh | 2017 | 142 |
| Sri Lanka | 2018 | 167 |

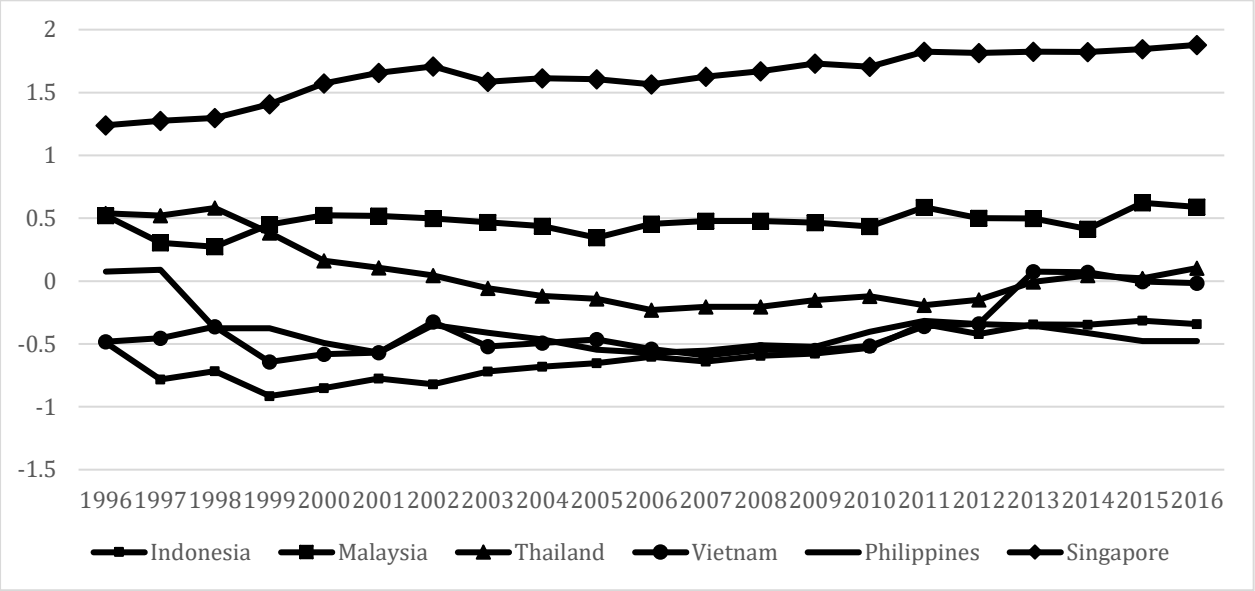
Note: (1) Gross remuneration in cash and kind.
(2) The figure for Indonesia is the average monthly earnings of workers in both organised and informal manufacturing.
Source: International Labour Organisation: ILOstat,ilo.org/topics/wages/ (update on 02 May 2021)

Figure 7: Political stability: Selected Southeast Asian Countries




Note: (1) Political stability and/or absence of politically motivated violence including terrorism. The index ranges from -2.5 (weak) to 2.5 (strong)
Source: World Bank, World Governance Indicator https://info.worldbank.org/governance/wgi/

Figure 8: Rule of law[1]: Selected Southeast Asian Countries




Note: (1) The extent to which agents have confidence in and abide by the rules of the society, and particular the quality of contract enforcement, and property rights. The index ranges from -2.5 (weak) to 2.5 (strong)
Source: World Bank, World Governance Indicators.
https://info.worldbank.org/governance/wgi/

It is not possible to come up with a single indicator of service link cost associated with global production sharing. However, in terms of the World Bank's *Doing Business* database[13], which ranks countries from 1 (the best performing country), the Philippines ranks well below the other Southeast Asian countries: Singapore: 2, Indonesia: 73; Malaysia 12; Thailand 21; Vietnam 70; Philippines 95. On the subindices relating to starting a business, trading across borders and enforcement of contracts, the Philippines in well below 100 among the 190 countries covered. Relating to the electricity, perhaps the Philippines rank (23) on the 'getting electricity' subindex does not accurately capture the relative cost of electricity in the Philippines. According to the price of electricity measured in US cents per KWH (DB16-20 methodology) the Philippines (18.10) is the second highest in Asia after Japan (23.70)[14]. The figures for the other five major ASEAN countries are Singapore 5.5, Indonesia, 10.7; Malaysia 12.0; Thailand, 13.7; Vietnam 12.5. On the World Bank's logistic performance index[15] which covers 160 countries, the Philippine rank is 60, compared to Singapore 7, Thailand (32) and

[13] World Bank, Doing Business: https://www.doingbusiness.org/en/doingbusiness

[14] World Bank, GovData360 (https://govdata360.worldbank.org/)

[15] https://lpi.worldbank.org/international

Malaysia (41), Vietnam 39. The cumbersome customs procedures and poor logistic services figure prominently on the Philippine list of obstacles to business.

## 5. Concluding remarks

In the early 1970s, the Philippines had a promising start in export-oriented industrialisation by engaging in GMVCs. In terms of initial prerequisites, the country was relatively better placed compared to most other countries in the region to reaping gains from the opportunities opened up by the ongoing process of production sharing. However, the subsequent growth trajectory has not lived up to the initial expectations, reflecting the country's failure to combine the favourable initial condition with a deep-seated commitment to international orientation. The lack-lustre performance record is rooted in the dualistic incentive structure of the economy that 'arrested' the country's participation in global production networks within the enclave EPZs. The EPZs, which were initially conceived as a harbinger of global integration of domestic manufacturing, eventually became 'enclaves' within the economy.

The trajectory of Philippines's industrialisation over the past five decades has been characterised by an increased reliance of export performance on global production sharing against the backdrop of lacklustre overall performance of the country within global production networks. The share of global production sharing based products in total manufacturing exports has increased from about 80% in the 1970s to over 90% in recent years, even though the country's share in total exports within production networks has varied in the range of 0.5% to 0.7%. At the same time the Philippine role within production networks is heavily concentrated in low-end tasks within semiconductor and hard disc undertaken by MNE subsidiaries located within export processing zones. Firms in export processing zones are protected from the constraints holding back export-oriented production in the rest of the economy. The critics of the EPZ-centred engagement in global production sharing have failed to understand that this lopsided (enclave) nature of export-oriented industrialisation has been rooted in the very nature of the overall investment climate of the country rather than a reflection of fundamental structural flaws of the ongoing process of global production sharing.

How can this performance record be reversed and set the stage for achieving industrial dynamism based on the country's unexploited potential? The critics of economic globalisation advocate building local firms' capabilities through horizontal specialization while keeping MNEs at arm's length. However, opportunities for industrialisation have dramatically changed by the ongoing process of global production share: 'lumpy industries' located within national

boundaries are now a vanishing breed. In this era of global production sharing, the policy challenge is to pursue industrialisation by building domestic entrepreneurial capabilities while remaining open to trade and MNE participation. This, in turn, requires economy-wide reforms to improve the overall business climate with a focus on redressing the incentive bias against tradable production and extending the EPZ incentives to the rest of the economy.

## References


Abrenica, Joy V. and Gwendolyn R. Tecson (2003), 'Can the Philippines ever Catch-up?', in Sanjaya Lall and Shujiro Urata (eds), *Competitiveness, FDI and Technological Activity in East Asia*, Cheltenham: Edward Elgar, 268-305.

Akinci, Gokhan, and James Crittle (2008), *Special economic zone: performance, lessons learned, and implication for zone development*. No. 45869. The World Bank, 2008.

Amano, Tomofumi (2010), 'Competitive Strategy of Japanese and US Multinationls in Global Production Networks and Clusters: The Case of the Hard Disk Drive Industry', in Prema-chandra Athukorala (ed), The Rise of Asia: Trade and Investment in Global Perspective, London: Routledge, 109-126.

Athukorala Prema-chandra (2014). 'Global production sharing and trade patterns in East Asia', in Kaur I, Shin N (eds.) *Oxford Handbook of Pacific Rim Economies*, New York: Oxford University Press, 334-360.

Athukorala, Prema-chandra, and Fahad Khan (2016), 'Global production sharing and the measurement of price elasticity in international trade.', *Economics Letters* 139, 27-30.

Athukorala Prema-chandra (2018). 'Joining global production networks: Experience and prospects of India'. Trade and Development Working Paper no. 08/2018, Arndt-Corden Department of Economics, Crawford School of Public Policy, Australian National University. Available from URL: https://acde.crawford.anu.edu.au/acde-research/working-papers-trade-and-development (Accessed on 8 July 2018)

Athukorala Prema-chandra and Archanun Kohpaiboon A. (2014). Global production sharing, trade patterns, and industrialization in Southeast Asia. In: Coxhead I (ed). *Routledge Handbook of Southeast Asian Economics*, London: Routledge, 161-183).

Athukorala, Prema-chandra and Arianto Patunru (2021), 'Measuring Trade in Value Added: How Valid is the Proportionality Assumption?', *Economic Systems Research* https://www.tandfonline.com/doi/full/10.1080/09535314.2021.1965549 (forthcoming).

Balaoing-Pelkmans, Annette O. (2017), 'A new look at Philippine export performance: a firm-level view.', *Philippine Review of Economics* 54 (1),1-31.

Batalla , E. Vincent C. (2011), 'Japan and the Philippine's lost decade: Foreign direct investment and international relations', V.R.F. Series, No 464, Tokyo: Institute of Developing Economies.

Batalla, Eric V. C. (2018), 'Bypassing industrial development." In Mark R. Thompson and Eric V. C. Batalla (eds) *Routledge handbook of the contemporary Philippines*, London: Routledge, 211-224.

Bautista, Romeo M. (1988), *Impediments to trade liberalization in the Philippines*. London: Gower Publishing Company.

Bautista, Romeo M., and Gwendolyn Tecson (2003). 'International dimensions.' In Arsenio M. Balisacan and Hal Hill (eds), *The Philippine Economy: Development, Policies and Challenges*, New York: Oxford University Press, 136-171.

Bautista, Romeo M., John H. Power and Associates (1979), *Industrial Promotion Policies in the Philippines*, Manila: Philippine Institute for Development Economics.

Bernardo, Romeo M and Marie-Christine G. Tang (2008), 'The Political Economy of Reform during the Ramos Administration (1992-98)', *Commission on Growth and Development Working Paper 39*, Washington DC: World Bank.

Calimag, Melvin G. (2008), 'Intel Prepares to Close Philippines Plant', Bloomberg, April 8. https://www.zdnet.com/article/intel-prepares-to-close-philippine-plant/

Diez, Javier R. and Matthias, M. ( 2006), 'Scaling innovation in South East Asia: Empirical evidence from Singapore, Penang (Malaysia) and Bangkok', *Regional Studies*, 40(9): 1005–23.

Doner, Richard F., Gregory W. Noble and John Ravenhill (2021), 'The Philippines and Indonesia: Extensive Development Arrested and Delayed', in Richard Doner, Gregory W. Noble and John Ravenhill (ed),*The Political Economy of Automotive Industrialisation in East Asia*, New York: Oxford University Press, 127-154.

Dumayas, Arianne Dela Rosa (2008), 'The evolution of economic zones in the Philippines', in Teshiharu Ishikawa (ed) *Locational Analysis of Firms' Activities from a Strategic Perspective*, New York: Springer, 151-174.

Feenstra, Robert C., and Gary G. Hamilton (2006), *Emergent economies, divergent paths: Economic organization and international trade in South Korea and Taiwan*, Cambridge: Cambridge University Press, 2006.

Golay, Frank H. (1966), 'Economic Collaboration: The Role of American Investment', in Frank H. Golay (ed.), *The United State and the Philippines*, Englewood, NJ: Prentice Hall, 95-124.

Golub S.S., Jones R.W. & Kierzkowski H. (2007). Globalization and country-specific service links. *Journal of Economic Policy Reform*, 10 (2), 63-88.

Grunwald, Joseph and Kenneth Flamm (1985), The Global Factory: Foreign Assembly in International Trade, Washington DC: The Brookings Institution.

Hill, Hal (1982), 'The Philippine economy under Marcos: a balance sheet.' *Australian Journal of International Affairs* 36, no. 3 (1982): 32-39.

Hill, Hal (2003), 'Industry' in Arsenio M. Balisacan and Hal Hill (ed) The Philippine Economy: Development, Politics and Challenges, New York: Oxford University Press, 219-253.

Hobday, Mike (2013), 'Learning from Asia's success: Beyond simplistic "lesson-making"' , in Szirmai, Adman, Wim Naude and Ludovico Alcorta (eds) Pathways to Industrialisation in the Twenty-First Century: New Challenges and Emerging Paradigms, Oxford: Oxford University Press,131-154.

Hone, Angus (1974), 'Multinational corporations and multinational buying groups: Their impact on the growth of Asia's exports of manufactures-myths and realities.', *World Development* 2 (2), 145-149.

Gereffi, Gerry (1994), 'The organization of buyer-driven global commodity chains: How US retailers shape overseas production networks', in Gerry Gereffi and Miguel. Korzeniewicz (Eds), *Commodity Chains and Global Capitalism*, Westport, CT: Praeger., 95-122.

Gereffi, Gary (1999), 'International trade and industrial upgrading in the apparel commodity chain,' *Journal of international economics* 48 (1), 37-70.

Jones Ronald W. and Henrik Kierzkowski (2004), 'Globalization and the consequences of international fragmentation', in Dornbusch Rudiger Galimore Calvo and Maurice Obstfeld (eds.), *Money, Factor Mobility and Trade: Essays in in Honor of Robert A. Mundell*. (pp. 365-381). Cambridge, Mass.: MIT Press, 365-381.

Khan, Saif M., Alexander Mann, and Dahlia Peterson (2021), 'The Semiconductor Supply Chain: Assessing National Competitiveness, *Washington, DC: Centre for Security and Emerging Technology* , Georgetown University https://cset.georgetown.edu/wp-content/uploads/The-Semiconductor-Supply-Chain-Issue-Brief.pdf.

Kleibert, Jana M., (2018), 'Exclusive development(s): Special economic zones and enclave urbanism in the Philippines', *Critical Sociology*, *44*(3), pp.471-485.

Lall, Sanjaya (2000), 'The technological structure and performance of developing country manufactured exports', *Oxford Development Studies*, 28(3). 337–69.

Lindsay, Charles and Ernesto M. Valencia (1982), 'Foreign Direct Investment in the Philippines: A Review of Literature', in Survey of Philippines Development Research 11, Manila: Philippine Institute for Development Studies,

Mathews, John A. and Dong-Sung Cho (2000) *Tiger Technology: the creation of a semiconductor industry in East Asia*, Cambridge University Press, Cambridge.

Mody, Ashoka, Susmita Dasgupta, and Sarbajit Sinha (1999), 'Japanese multinationals in Asia: drivers and attractors.' *Oxford Development Studies* 27, no. 2 (1999): 149-164.

Ofreneo, Rene E. (2016), 'Auto and car parts production: can the Philippines catch up with Asia?.' *Asia Pacific Business Review* 22 (1), 48-64.

Phan, Diep and Ian Coxhead (2015), Education in Southeast Asia: Investment, achievements, and returns', in Ian Coxhead (ed), *Routledge Handbook of Southeast Asian Economics*, London: Routledge, 245-269.

Philippine Statistical Authority (PSA) (2015), Census of Philippines Business and Industry: Manufacturing 2012, Manila: PSA. https://psa.gov.ph/content/census-philippine-business-and-industry-cpbi accessed on 12 May 2021)

Remedio, Elizabeth M. (1996), 'Export processing zones in the Philippines: A review of Employment, Working Conditions and Labour Relations.', *ILO Working Papers* 993146103402676.

Shepherd, Geoffrey and Florian Alburo ( 1991). 'The Philippines' in Demetris Papageorgiou, Michael Michaely and Armene M. Choksi (ed) Liberalising Foreign Trade: Korea, the Philippine and Singapore, Oxford: Basil Blackwell132-308.

Suhrke, Astri (1975), 'US-Philippines: the end of a special relationship,' *The World Today*, 31 (2), 80-88.

Tecson, Gwendolyn R. (1999), The hard disk drive industry in the Philippines and Japanese direct investments', *The Philippine Review of' Economics and Business: 36(2)*, 205-56.

**Turicum Investent Management (2021) Intel increases Vietnam chip investment by nearly 50%, January 27, 2021 https://timvest.ch/intel-increases-vietnam-chip-investment-by-nearly-50/**

Yoshimatsu, Hidetaka (2002), 'Preferences, interests, and regional integration: the development of the ASEAN industrial cooperation arrangement', *Review of international political economy* 9 (1), 123-149.

Warr, Peter G. (1989), 'Export processing zones: The economics of enclave manufacturing', *World Bank Research Observer* 4 (1): 65–87.

Wells, Louis T. (1994), 'Mobile Exporters: New Foreign Direct Investment in East Asia', in Kenneth A Foot (ed), Foreign Direct Investment, Chicago: Chicago University Press, 173-91.

Wheeler, David, and Ashoka Mody (1992), 'International investment location decisions: The case of US firms.' *Journal of international economics* 33 (1-2),, 57-76.

Wong, Poh Kam (2007). 'The Remaking of Singapore's High-Tech Enterprise System', in Henry S. Rowen, Marguerite G. Hancock, and Lilliam F. Miller (eds.) *Making IT: The Rise of Asian in High Tech.* Stanford, California: Stanford University Press. pp.123 –