Re-examination of the Growth and Dynamics of the Philippine Net-exports Using the Import-Adjusted Approach (1961-2000)

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A Changing Manufacturing Landscape

With appropriate government intervention, physical and human capital investment and export-oriented strategy adoption, East Asian economies were able to overtake the growth of the emerging markets in Latin America, Africa and elsewhere in the early 1960s (Sheng and Geng, 2012). This East Asian miracle shed light on the importance of exports to economic growth. Export push strategies such as free-trade regimes and export incentives induced the faster rate of productivity catch-up[1] in the region (Page, 1994).

The changing views on the importance of international trade and export as engines of economic growth were reflected by the slogan: "Trade not Aid." The slogan supported the idea that the best way to stimulate growth in a country is to engage in international trade and lessen the dependence from foreign aid. This was supported by the boost in China's economic performance after its abolishment of the closed door economic policy. The country's success contributed to a growing consensus among economists, policymakers and political leaders about the importance of foreign trade in a country's economic growth (Chow, 2004).

The change in the international markets where foreign direct investments were seeking for possible country hosts was an opportunity for the Philippines to generate more foreign exchange earnings, most especially following the 1973-1974 energy crises in which the country experienced external upward pressure on prices of petroleum. Thus, export orientation, which was encouraged in the post war period, became a major concern in the formulation of trade and investment policies (Philippine Four-Year Development Plan, 1971-1974[2]). The Republic Act 5186, Export Incentive Act and Presidential Decree 66 provided the economic policy framework for the outward-looking strategy. However, since the economy was still a captive to the repercussions of its previous mercantilist and protectionist policies, the initial attempts to promote exports failed (Llanto, 2012).

Thus, in order to address the problems, the government began to significantly reduce the average tariff and the variation in tariff protection across industries (Medalla, 2002). This was followed by a comprehensive trade liberalization program in 1982, which was implemented in three phases in the 1980s and 1990s, and in the different tariff reforms. The succeeding administrations further introduced economic reform programs focused on a deeper integration with the regional and global economies through liberalization, deregulation and privatization, specifically on the manufacturing sector (Llanto, 2012).

The pursuit for outward orientation in most parts of the world led to a rapid spread of international production networks. Open regimes facilitated the spread of fragmentation of production of the multinationals. This resulted in a new paradigm of production in which an

[1] Productivity catch-up is defined as the narrowing of the productivity gap between smaller economies and leading economies (Abramovitz, 1986).

[2] In the Philippines, there are different formats of development programs. Four-year and five-year development plans were published during the Marcos administration; medium-term development plans were pursued in the Aquino, Ramos, Estrada and Arroyo's administrations; while a six-year development plan is prepared by the current Aquino administration.

evolving good towards its finished form travels across borders in order to be processed by at least two countries before reaching the final consumer (Hummels, et al., 2001).

The increase in exports, especially Asian manufactures, was not always matched by corresponding increase in the countries' domestic manufacturing value-added. Rather, they were accompanied by significant increases in the imports used in the production, specifically of exports, and consumption (Akyuz, 2010). This could be reflected, for instance, in the change in the nature of the Philippine exports over the years. In 1961-1974, majority of the Philippine export basket was composed of domestically produced goods. On average, more than 70% of the total Philippine exports were made up of agricultural commodities such as coconut products, sugar and sugar products, forest products, abaca and products, fruits and vegetables and tobacco and products. However, import-dependent exports began to dominate the Philippine export basket in 1979. This was spearheaded by the miscellaneous manufactured articles which include prefabricated buildings, furniture, travel goods, footwear and apparatuses. Three decades after 1960s, the nature of the Philippine export basket changed completely – from being primarily domestically produced goods to being import-intensive -- brought about by deeper trade integration in manufacturing processes. By then, agricultural products comprised only 10% of the exports while 90% of the export basket was made up of miscellaneous manufactured articles electrical and electronic equipment, garments, chemicals, etc. (National Statistics Office, 1985; 2000). Commodities with high import content continuously characterize the nature of the country's exports at present.

Development of New Trade Accounting Indicators

The rise of international production networks as a production model led to a growing awareness that conventional trade statistics may be misleading when measuring the contribution of net exports to domestic product and the country's export performance in general (Cappariello, 2012). One of the traditional accounting methods is the net-export method (NEM), which attributes Gross Domestic Product (GDP) growth to the different components of final demand – consumption, investment, government expenditure and net exports. The net-export method relies on the demand-side growth-accounting which is based on *ex-post* national income identity. It involves decomposing income growth into its constituent parts, using observed growth rates of each component of aggregate demand and their shares in the total GDP (See Appendix A).

However, Kranendonk and Verbruggen (2005; 2008), Treasury and Economic Policy General Directorate of France (2006) et al, argue that the net-export accounting framework cannot accurately determine the real contributions of domestic demand and net exports to economic growth. As the method attributes all the intermediate and final imports to exports only, it ignores the fact that imports are also used, in part, for domestic consumption and investment. This can be observed in a country's composition of imports by end use. In the Philippines, for example, 88% of the Philippine imports were used by producer while 12% were consumed by private household (National Statistics Office, 2000). This in turn, may result in the possible overestimation of domestic demand's contribution to growth and an underestimation of the external trade's (Kranendonk and Verbruggen, 2008). It could even distort a country's evaluation about its trade, particularly its export performance (Treasury and Economic Policy General Directorate of France, 2006).

Consequently, with the objective of addressing the gaps of NEM, the import-adjusted method (IAM) was developed. The IAM re-attributes import to the final demand components namely private consumption, investment, government consumption and exports (Habib. Kranendonk and Verbruggen, 2008). Furthermore, since the import-adjusted method can extract the imports used for export production alone, it can directly shed light on how the globalization of production chain affect the magnitude of import content of exports and consequently on the contribution of net-exports to economic growth.

At present, IAM is mostly applied to European region only. Asian countries, including the Philippines, have difficulty in using the methodology since they have a more complete set of competitive IO tables. Thus, the study aims to (1) propose a means to enable the use of competitive IO tables when applying the import-adjusted methodology and (2) to employ such methodology in re-examining the growth and dynamics of Philippine exports in the four decades bounded by 1961-2000 using the available Philippine competitive IO tables[3]. It specifically evaluates the changes in the composition of the country's export basket and the changes in the contribution of the net-exports to GDP growth pre and post Philippine's participation in the global supply chain. It finally juxtaposes the findings of the IAM with the NEM.

Applying the IAM in the Philippines

IAM is also a demand-side accounting procedure. As aforementioned, it re-attributes imports to the different components of the final domestic demand before it calculates the contribution of each demand element to GDP growth (Kranendonk and Verbrugeen 2005; 2008):

$$M = MC + MI + MG + ME \quad (3)$$

where
M = imports
MC = final and intermediate imports for private consumption
MI = final and intermediate imports for investment
MG = final and intermediate imports for government consumption
ME = final and intermediate imports for exports

Such import content can be derived from the non-competitive input output (IO) table using the Cumulated Production Structure matrix (CPS):

$$CPS = P\,(I-A)^{-1}\,F + W \quad (4)$$

where
P = matrix of primary input coefficients
I = unit matrix
A = matrix of domestically produced intermediate demand
F = matrix of domestically produced final demand

[3] The 1961-2000 time frame is based on the availability of IO data in the country. All available Input-Output tables (1961, 1965, 1969, 1974, 1979, 1983, 1985, 1988, 1990, 1994 and 2000) were acquired and gathered from the Philippine National Statistics Coordination Board (NSCB).

W = matrix of primary inputs that are the same time final demand

After extracting the imports of each domestic demand component, the import-adjusted contribution of consumption, investment and exports to GDP will be therefore:

$$(5) \quad (A/Y)_{t-1} \quad \%\Delta A \quad - \quad (M_A/Y)_{t-1} \quad \%\Delta ma$$

where
A is C, I, G or E

To employ the two methods, it is crucial to prepare the Input-Output table database so as to ensure that all the 11 Input-Output tables have the same size, same industry classification and the same nature. The preparation is subdivided into three: (1) identification of export oriented industries, (2) formulation of the list of sector classification and aggregation of the IO table into 42 sectors and (3) modification of the IO tables from competitive type to non-competitive.

a.) Determining the Export Oriented Industries

Determining the export-oriented industries is important in order to isolate the industries which would be the focus of the analysis. Export-Oriented industries were defined as the industries whose export share to total exports exceeds 10 per cent in a specific year.[4] Since the Philippine Statistical Yearbook usually reports export by 10 major commodity groups (although the list of major commodity groups differ from one another), an industry whose share of greater 10 per cent would imply a relatively bigger share to total exports. Hence it may be said that the industry is relatively more export-oriented than the rest. See Appendix B for the export shares of the major commodity groups in 1961-2000.

Based on the export shares, the export-oriented Philippine industries since 1961 to 2000 were therefore coconut products, sugar and sugar products, forest products, mineral products, abaca and products, electrical and electronic equipment, garments, machinery and transport equipment and miscellaneous manufactured articles (i.e. those with export shares greater than 10%).

b.) Formulation of the List of Sector Classification and Aggregation

Keeping in mind the export-oriented industries, industries were aggregated into 42 sector classification which is presented in Table 1, where the marked industries are the export-oriented.

[4] Ad hoc. Gottsche (2002) refers to export-oriented manufacturing industries as industries that are characterized by low skilled, labor intensive work. They are predominantly made for export purposes and are typically low value-added goods, such as the production of textiles, footwear and clothing (TCF), electronic goods and toys; Plyer and Ortiz (2011) describes export industries as those that generate revenue from outside the country and support additional jobs in supplier industries and industries that serve local consumption needs; Ariff and Hill (1985) uses revealed comparative advantage indicator to determine export-oriented industries. While Trung et al. define export-oriented industries in their study as an industry with exports larger than its imports and its exports are more than 10 per cent of industry gross output, import-substituting if its imports are larger than its exports and imports are more than 10 per cent of industry gross output, and non-tradeable otherwise. Aldaba (2010) provides a list of industries classified as purely importable, purely exportable, mixed, or non-traded.

Table 1. 42-Sector Classification

01	Palay
02	Abaca and products*
03	Corn
04	Coconut and products*
05	Sugar and sugar products*
06	Coffee and cacao
07	Other crops and agricultural services
08	Fruits and Vegetables
09	Tobacco and products
10	Livestock and poultry
11	Fisheries
12	Forestry and logging*
13	Mining and Quarrying*
14	Food and beverages
15	Manufacture of Textile
16	Wearing apparel and footwear*
17	Wood and wood products
18	Furniture and fixtures
19	Paper and paper products
20	Printing and Publishing
21	Leather except footwear
22	Rubber, tire and rubber products
23	Chemical and chemical products
24	Products of petroleum and coal
25	Non-metallic mineral products
26	Metal products except machinery and transport equipment
27	Machinery, except electrical*
28	Electrical Machinery*
29	Iron and steel
30	Transport equipment*
31	Other manufacturing products
32	Miscellaneous manufacturing industries*
33	Construction
34	Electricity, Steam and water
35	Trade
36	Banks, non-banks and insurance
37	Tranportation and Communication
38	Real Estate
39	Government services
40	Private services
41	Other services
42	Unallocated

Note: "" denotes export-oriented industries*

c.) Modification: From Competitive to Non-Competitive IO Table

Henk Kranendonk[5] emphasized the necessity of using the non-competitive type of IO Table in order to make the Import-adjusted method work. Non-competitive IO table distinguishes imports as input of industries, rather than as final demand. This requirement implied the inapplicability of the Import-Adjusted Method to the Philippines and to other countries whose IO tables are mostly competitive. In order to address this limitation, this study provided a possible methodology of transforming a competitive IO table into non-competitive type. The modification of the competitive Philippine IO table was done following these steps: (a) get the import coefficient, (b) compute for the rate of self-sufficiency, (c) get the global technical coefficients, (d) get the domestic technical coefficient, (e) get the imported technical coefficient, (f) calculate the domestic intermediate input flows, (g) calculate the final demand flows and (h) set-up the non-competitive IO table.[6]

After the Input-Output tables were prepared the Net-export method and the Import-Adjusted method were then applied. The Net-export method used the competitive 42-sector IO tables while the Import-adjusted method utilized the non-competitive 42-sector IO tables. Results generated by the Import-Adjusted method estimates the contribution of net-exports to GDP in the light of economic integration and production fragmentation; whereas the results of the net-export method serve as benchmark for comparison of findings.

Growth and Dynamics of Philippine Net-Exports

The results of the study are discussed and analyzed in the light of the Philippine trade policy stance which evolved due to the internationalization of supply chain and global product fragmentation.

1961-1969: Period of trade restrictions and protectionist policies[7]

The Philippine export composition is traditionally dominated by agro-based commodities. This does not only reflect the rich natural endowments of the country but also the aftermath of its inward-looking import substitution strategy in the 1950s and 1960s. Trade protection, high import tariffs and overvalued exchange rates raised domestic prices thus making exports less competitive or there was a bias against export production. Due to this, agricultural commodities dominated the country's foreign trade (Llanto, 2012). Based on the export figures by major commodity group reported in the Philippine Statistical Yearbook of 1985 (Table 2), 97% of the total export basket in 1961 was made up of agricultural products. This includes coconut products (33%), sugar and sugar products (25%), forest products (18%), abaca and products (8%), mineral products (7%), fruits and vegetable (5%) and tobacco and products (1%). Textile and miscellaneous manufactures were the only non-agricultural commodities exported during this time. In 1965, although agricultural exports remained to be the dominant exports, its share

[5] Email correspondence in August 29, 2012
[6] Inputs from Dr. Cid L. Terosa, 2013
[7] Classification of periods is based on Llanto, 2012.

decreased by 3% from 1961. This is due to the fall in the export shares of sugar products, fruits and vegetables, abaca and products by 6, 3 and 8 percentage points respectively. By 1969, the sum contribution of the aforementioned commodities to total exports dropped to an average of 87%. The drop in exports receipts resulted in a crisis induced by difficulties in the balance of payment (Aldaba, 1994), most especially since the payments for imports exceeded receipts from exports.

Table 2. Philippine Exports by Major Commodity, 1961-1969
(Per cent Share to total exports)

Philippine Exports by Major Commodity	1961	1965	1969
coconut products	33%	34%	19%
sugar and sugar products	25%	19%	17%
forest products	18%	25%	26%
mineral products	7%	9%	20%
fruits and vegetables	5%	2%	3%
abaca and products	8%	3%	1%
tobacco and products	1%	2%	1%
mineral fuels and lubricant	0%	1%	1%
electrical and electronic equipment	0%	0%	0%
garments	0%	0%	0%
textile	1%	1%	0%
footwear	0%	0%	0%
wood manufacturers	0%	0%	0%
furniture and fixtures	0%	0%	0%
Chemicals	0%	0%	0%
non-metallic mineral manufactures	0%	0%	0%
machinery and transport equip	0%	0%	0%
processed foods and beverages	0%	0%	0%
iron and steel	0%	0%	0%
miscellaneous manufactured articles	2%	4%	10%

Source: Author's computations
Basic data: Philippine Statistical Yearbook, 1985

1970-1979: Attempts toward the openness of the economy

Since the growth of Asian countries, such as Malaysia and Thailand, who were following an export industrialization strategy, overtook the Philippine growth, the latter attempted to break free from the heavy import-substitution strategy in preference to an outward-looking industrial development strategy (Bautista, 2003) through the passing of the Republic Act (RA) 6135 or the Export Incentives Act of 1970. Under this law, registered manufacturing firms were provided with incentives such as tax exemptions, deductions from taxable income and tax credits. In order to avail these incentives, firms should engage or propose to engage in manufacturing, processing or exporting export products listed in the Philippine export priorities plan. If they are not listed,

they should have at least fifty per cent of its sales are export sales. In case of a service exporter, they should engage or propose to engage in rendering services payable in foreign currency, or in exporting television or motion pictures or musical recordings produced or made in the Philippines. Additional incentives were granted whenever a registered export producer establishes its processing or manufacturing plant in an area designated for the proper dispersal of industry or in an area lacking infrastructure, public utilities, and other facilities (R.A. 6135).

Although some trade protectionist policies were relaxed, the country still failed to achieve industrial growth. For one, the package of incentives only partly compensated for the substantial bias against export production (Bautista, Power and Associates, 1979). Also, there was no conscious attempt to remove highly protective tariff system (Llanto, 2012). The Supreme Court furthermore continued to support restrictions on foreign ownership of land and other assets. This, coupled by widespread graft and corruption, suppressed inbound foreign direct investment (Country Studies Program, 2006). Moreover, the two oil price shocks led to depreciation of the Philippine currency making the value of export receipts drop. This resulted in imbalances in balance of payments and a diminished country's real income position and ability to sustain its foreign indebtedness. At the same time, the debt obligations of the country steadily rose due to increased use in foreign capital. Both of these required a shift in Philippine productive resources to traded goods industries. This however did not occur, thus resulting in a debt crisis. Despite the rapid growth in non-traditional manufactures exports, and the transformation in the Philippine export mix, the share of exports in total output increased only modestly and arguably fell on a net basis (Dohner and Intal, 1989)

Following the energy crisis in 1973-1974 (Philippine four-year Development Plan, 1973-1976) and in response to the change in the flows of foreign investments (Aldaba, 1994), Philippine's policy makers introduced economic reforms in support of export-orientation. Laws such as RA 5186, which granted investment incentives and Export Incentives Act provided the economic policy framework for the beginning of the country's outward-looking strategy. Furthermore, Philippines desired to change the structure of its export composition, i.e. from resource-based export goods to labor-intensive products (Five-year program of 1978-1982). The policy thrust of giving impetus to export-oriented industries has stemmed from the need to reduce the country's dependence on a few traditional export commodities whose prices in the world market tend to be volatile. At the same time, the policy seeks to encourage further processing of local materials and in the process encourage the growth and diversification of intermediate good industries (Tongson, 2005). Hence, in 1979 (Table 4), 64% of the total exports were agricultural goods while 34% were already manufacturing commodities. The growth in the share of non-traditional exports was highly diversified, that is miscellaneous manufactures (32%). The relatively greater share of traditional exports than non-traditional signifies government's attempt to encourage non-traditional exports to spearhead export expansion a failure (Aldaba, 1994).

1980-1989: Pursuing trade liberalization

The economic and the political atmosphere in the early 1980s were turbulent as insurgency heightened under Marcos's administration. With serious economic problems caused by increasing debt service burden, declining export receipts, and low economic growth rates and political chaos, different economic reforms were initiated by the Marcos government. In the

1980, for instance, the country embarked on a trade liberalization program under the World Bank structural adjustment loan. It started with a comprehensive trade liberalization program in 1982 to be implemented in three phases in the decades of the 1980s and 1990s. The Tariff Reform Program (TRP) Phase I, implemented from 1981 to 1985, narrowed down the tariff structure to within the zero-to-50 percent range. In order to consolidate the incentive measures to investments and exports, PD 1789 or the Omnibus Investments Code of 1981 was promulgated. There were major changes introduced in the investment incentive system in April 1983 through the amendment of PD 1789 by Batas Pambansa Bilang (BP) 391. The amendment reduced the number of incentives under PD1789 and removed some of the capital cheapening measures such as accelerated depreciation and expansion reinvestment allowances and also provided strong preference to exports and substituted performance-based for capital-based benefits (Manasan 1986 and Power 1989).

Even though preference to exports was given, Philippines export volume in 1983 was recorded to be lower than 1982. This was attributed to the lower export of agricultural and mineral resource-based products (43%) and stiffer competition faced by non-traditional exports (57%) in 1983 as seen in Table 4 (Llanto, 2012). Coconut products merely comprised 14% of the total exports while sugar products, forest products, mineral products, fruits and vegetables, abaca and tobacco products were 6%, 7%, 8%, 7%, 1% and 1% of the total exports respectively. These figures were all relatively smaller than their previous export shares in the 1970s as greater importance was given to non-traditional exports. The poor performance of the Philippine agriculture sector in 1980s has been caused in part by depressed world commodity prices. But the fact that it is more pronounced in the Philippines compared to other countries suggests that it was losing competitiveness in the sector. This is normal, Anderson (2010) argues. Since capital accumulation and industrialization proceeded, it would be expected that comparative advantage in agricultural sector would decline as well.

In the Philippine Development Plan of 1984-1987, the Marcos administration export policy pursued a focused and organized export promotion program for seven priority sectors that have exhibited a consistent comparative advantage to the world. These priority sectors are electronics, garments, furniture and fresh and processed food, gift and housewares, footwear and leather goods and construction services. The policy was suspended however as seen in Table 4, since political events, 1983 Ninoy Aquino assassination, 1986 EDSA Revolution called for a new government (Llanto, 2012).

After 1986, Cory Aquino strove to complete the Import Liberalization Program (ILP) that accompanied the trade liberalization program by seeking to eliminate non-tariff import measures (Aldaba, 1994). During this period, the Omnibus Investments Code of 1981 and an amendment to PD 1789 were also passed. The latter in particular eliminated certain incentives such as accelerated depreciation and reinvestment allowances, which served to cheapen capital and thus, helped in making the production structure more capital-intensive. The objectives of the Medium-Term Development plan of the Aquino focused on mobilizing the industrial and trade sectors, specifically the major non-traditional exports in which the country has established comparative advantage (fresh and processed food, garments, electronics, gifts, toys and housewares, fashion and accessories, furniture, footwear and leather goods and construction materials) in order to achieve economic recovery.

As seen in Table 3, the Aquino's objective was achieved since the miscellaneous manufactured articles, which include the aforementioned goods, comprised 66% of the Philippine export basket in 1988; other non-traditional exports are mineral fuels and lubricants (2%), textile (1%), and chemicals (4%).

Unfortunately, the economic recovery in the second half of the 1980s was unable to offset the weak performance of the first half (Canlas et al. 2009). The aggressive reform agenda promoted by the Aquino government could have led to a stronger economy if it was not severely shaken by the failed coup d' etat attempts in the late 1980s, severe electric power shortages and natural calamities, such as the eruption of Mt. Pinatubo. It is furthermore noted that the government assumed not only government liabilities but also private sector liabilities as well, particularly those which arose from loans extended to favored private companies during the Marcos regime. The debt burden became a heavy fiscal burden government and constrained growth and development.

There were also issues surrounding the created Export Processing Zones (EPZs) (PD 66). EPZs are enclaves set apart and developed specifically for manufacturing purposes with provisions for basic infrastructure utilities, communications, services and other requirements of specific industries. They are created to attract foreign investments, help generate foreign earnings, create and boost employment, encourage technology transfer and promote global competitiveness. However, infrastructures built in the zones are described to be in unsatisfactory and in poor location. For example, the Bataan Zone in the Philippines is located in a mountainous area some 160 km from Manila. Such poor choice of location and unsatisfactory infrastructure led to only partial occupancy of the zone. The generated employment reached a high of 20,788 in 1980 before falling back down to 13,639 in 1988 (Madani, 1999). As a result, as Llanto (2012) puts it, the decade was the "lost decade" for Philippine growth.

Table 3. Philippine Exports by Major Commodity, 1974-1988
(Per cent Share to total exports)

Philippine Exports by Major Commodity	1974	1979	1983	1985	1988
coconut products	22%	22%	14%	10%	8%
sugar and sugar products	28%	5%	6%	4%	1%
forest products	12%	12%	7%	5%	5%
mineral products	19%	18%	9%	5%	5%
fruits and vegetables	3%	5%	7%	8%	6%
abaca and products	2%	1%	1%	1%	1%
tobacco and products	2%	1%	1%	1%	0%
mineral fuels and lubricant	1%	1%	2%	1%	2%
electrical and electronic equipment	0%	0%	0%	0%	0%
Garments	0%	0%	0%	0%	0%
Textile	1%	1%	1%	1%	1%

Table 3 – Continued…

footwear	0%	0%	0%	0%	0%
wood manufacturers	0%	0%	0%	0%	0%
furniture and fixtures	0%	0%	0%	0%	0%
Chemicals	1%	2%	2%	3%	4%
non-metallic mineral manufactures	0%	0%	0%	0%	0%
machinery and transport equip	0%	0%	0%	0%	0%
processed foods and beverages	0%	0%	0%	0%	0%
iron and steel	0%	0%	0%	0%	0%
miscellaneous manufactured articles	9%	32%	52%	61%	66%

Source: Author's computations
Basic Data: Philippine Statistical Yearbook, 1985; 2000

1990-2000: Vision 2000, Philippines as an exporting nation

The Ramos administration further pursued trade and other economic reforms in order to make the country competitive (Llanto, 2012) hence in preparation of the Philippines 2000. The third phase of the Tariff Reform Program was implemented through the issuance of Executive Order 264. There was also the institution of RA 7844., otherwise known as the Export Development Act of 1994. This law states that:

> *"…the government shall champion exports as a focal strategy for a sustainable agri-industrial development…The private sector shall take the lead in the collective effort to promote exports… The government and the private sector shall jointly transform the Philippines into an exporting nation… the State shall instill in the Filipino people that exporting is not just a sectoral concern, but the key to national survival and the means through which economic goals of increased employment and enhanced income can most expeditiously be achieved. "*

As a result, the policies of the government include liberalizing the trade environment by eliminating remaining quantitative restrictions, diversifying country's export markets and the mix of export products to promote high value-added content, supporting AFTA to forge closer intraregional trade, continuing overseas employment program, enhancing access to export financing programs and maintaining flexible exchange rate policy. It was furthermore envisioned that the growth of the country shall be driven by electrical machinery, food manufacturers and garments although focus will be given to the limited and low value-added exports products as well as the concentrated markets for the country's exports (Medium-Tern Philippine Development Plan, 1993-1998)**.**

The increase in the significance of electrical and electronic equipment and machinery in the export basket for 1990, 1994 and 2000 was indeed reflective of the policies implemented by the government. As shown in Table 4, electrical and electronic equipment, which are intermediate goods in the production chain, comprised 16% of the total exports in 1990, 19% in 1994 and 57% in 2000. Machinery and transport equipment on the other hand, were 15% of the

total exports in 2000 from merely being 1% to 2% of the total exports in 1990 and 1994 respectively.

Consequently, the share of other commodities, particularly the traditional goods, fell. Agro-based industries exports made up 11% of the total exports in 1990, which declined by one percentage point in 1994, and even dropped lower to 4% in 2000. In 1990, Philippines was not exporting abaca and tobacco goods already, and in 1994, forest products exports were also lost. By 2000, the only remaining agricultural export commodities were coconut products, mineral products and fruits and vegetables, which had 1%, 2% and 1% export shares respectively. WTO (as cited by Tongson 2005) concluded that the trade reforms pursued by the country over an extended period have resulted in a more open, competitive economy which was relatively unscathed by the Asian financial crisis and that the Philippines has provided a generally good example of the advantages of structural reforms in overcoming shocks.

Table 4. Philippine Exports by Major Commodity, 1990-2004
(Per cent Share to total exports)

Philippine Exports by Major Commodity	1990	1994	2000
coconut products	4%	5%	1%
sugar and sugar products	1%	1%	0%
forest products	1%	0%	0%
mineral products	3%	3%	2%
fruits and vegetables	2%	1%	1%
abaca and products	0%	0%	0%
tobacco and products	0%	0%	0%
mineral fuels and lubricant	1%	2%	1%
electrical and electronic equipment	16%	39%	57%
Garments	14%	19%	7%
textile	1%	1%	1%
footwear	1%	1%	0%
wood manufacturers	1%	1%	1%
furniture and fixtures	1%	2%	1%
chemicals	2%	2%	1%
non-metallic mineral manufactures	0%	1%	0%
machinery and transport equip	1%	2%	15%
processed foods and beverages	2%	4%	1%
iron and steel	0%	0%	0%
miscellaneous manufactured articles	49%	16%	11%

Source: Author's computations
Basic Data: Philippine Yearbook Statistics, 2000

The Philippine economy went through a gradual substantial transformation in terms of export composition – from agro-based exporter to an electronics exporter (Philippine Statistical Yearbook 1985; 2000; Ibid.). The changing face of the country's export proved its pursuit of an outward-looking export oriented trade and policy, in which reliance on some agricultural commodities were lessened due to its global market price volatility and uncompetitiveness and were focus on non-traditional exports particularly on capital intensive commodities such as electronics and machinery were heightened.

Furthermore, supply side factors such as FDIs and EPZs also affected the product mix of Philippine exports. In 1990, to attract FDI inflows and generate the positive spillover effects from the presence of foreign firms, the Philippines considerably liberalized its FDI policies. Through the legislation of Republic Act 7042 or the Foreign Investment Act (FIA) in June 1991, the country allowed foreign equity participation up to 100 percent in all areas not specified in the Foreign Investment Negative List. Various investment incentive measures were also granted through the different investment regimes administered by the Board of Investments (BOI), Philippine Economic Zone Authority (PEZA), Subic Bay Metropolitan Authority (SBMA), Clark Development Corporation (CDC), and other bodies mandated by various laws to establish, maintain, and manage special economic or free port zones.

BOI-registered enterprises were allowed income tax holiday up to eight years, tax and duty free importation of spare parts, and tax credit on raw materials. PEZA grants the most generous incentives which include income tax holiday, basic income tax rate of 5 percent of gross income, and tax and duty free importation of capital equipment, spare parts, and raw material inputs. Except for the income tax holiday, Clark and Subic enterprises enjoy the same incentives available to PEZA enterprises (Austria, 1998). These resulted in more electronics, and semiconductors manufacturing sites mushroomed in various economic zones in Laguna and Cavite. Growing concentration of investment in electronics industry - About 47 percent of total investment in 1992-1996 went to electrical machinery, mostly semiconductors (De Dios, 2002; Aldaba, 1994).

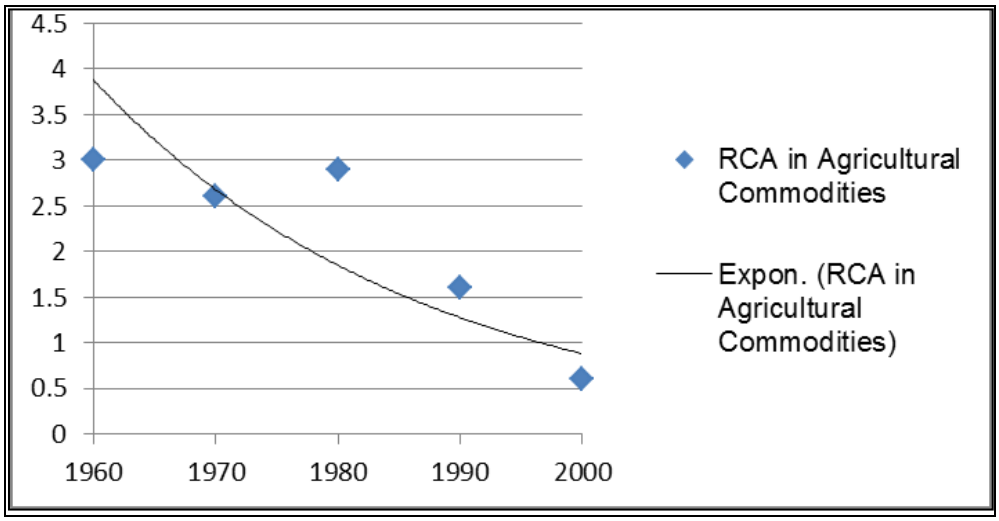
EPZs furthermore contributed to the diversification of the composition of merchandise exported by the Philippines. Export earnings from a number of products made in the EPZs progressively overtook those from other traditional mineral and agricultural commodity exports. For instance, between January and August 1994, the value of exports of electrical and electronic goods and components was 52% higher relative to the same period in 1993. Earnings from garments and textile exports in the first ten months of 1994 exceeded its previous year record by 4%. Goods in the aforementioned product categories dominated manufacturing exports. Despite the import-intensive nature of the activities in these zones, they still registered a trade surplus (Remedio, 1996).

The participation of the Philippines in the global product fragmentation also affected the export mix of the country. There was a steady rise in the trade in intermediates goods or goods in process or parts and components across national borders (Athukorala and Menon, 2010). In 1992 for instance, more than half of the Philippine manufacturing exports were network products in 1992. Among these network products exported by the country, 62% were parts and components while the remainder was made up of final assemblies. On the other hand, 48% of total

manufacturing imports were network products, in which 69% were part and components (Athukorala, 2010).

The changes in the export pattern of the Philippines coincide with the decrease in the revealed comparative advantage (RCA) [8] in the agricultural exports. As shown in Figure 1, the country is comparative advantaged in exporting agricultural commodities relative to the world in 1960 until 1990. Although the country maintained its RCA, its specialization was decreasing with a quadratic trend. By 2000, the country lost totally lost its relative comparative advantage as denoted by a RCA value of 0.6.

Figure 1. Philippine Revealed Comparative Advantage in Agricultural Commodities, 1960-2000



Source: Anderson and Martin, 2009

[8]The Balassa RCA index is used to observe the changes on the export patterns of countries. It gives an indication of the industries in which a particular country may have a comparative advantage in. It is a measure of specialization, with a formula of:

$$RCA_{iw}^{k} = \left(\frac{x_{iw}^{k}}{X_{iw}}\right) \Big/ \left(\frac{x_{ww}^{k}}{X_{ww}}\right)$$

where x^{k}_{iw} is country i's export of commodity k to the world while capital X refers to country i's total exports. The denominator changes depending on the comparator, which may be relative to the world or to another country. If the measure is standard, the denominator will be exports of commodity k to the world divided by the total exports to the world; if bilateral on the other hand, it will be the country j's export of commodity k to the world divided by the total exports of country j. An indicator greater than 1 entails comparative advantage, while a negative value implies disadvantage. (Tradesift 2012)

Contribution of Net-Exports to Philippine Economic Growth

The increase in the share of manufacturing goods in the export basket caused by the internationalization of supply chains is expected to mirror an increase to the growth of export and (consequently) its contribution to GDP growth (Cororaton, Caparas, 1999). This is supported by the findings of the Import-Adjusted Methodology.

Table 5 shows the contribution of net export to GDP growth as generated by the import-adjusted method and net-export method.[9] The import-adjusted method suggests a positive contribution of net-exports to GDP growth over the years. In 1961, net-exports contributed 0.16 percentage points to GDP growth of 0.63; 0.02 percentage points in 1965; 0.33 percentage points in 1974's GDP growth of 1.55; 0.12 percentage points in 1979; 0.09 percentage points in 1985 and 1988; contribution of net exports to GDP growth increased from 0.05 percentage points in 1990, when the growth in manufacturing exports started to diversify; 0.12 percentage points in 1994 to 0.28 percentage points in 2000.

On the other hand, the findings of the net-export method gives positive values in 1965, 1985, 1994 and 2000 only and negative values in 1961, 1974, 1975, 1988 and 1990. The positive values of the net-export contribution generated from the import-adjusted framework are consistent with the fact that the country is only willing to sell its exports if the price is greater than the cost of importing goods for export production. It is therefore a better methodology in determining the source of a country's economic growth; whereas the net-export method is a good indicator that could be used for balance of payment analysis.

Examining the significance between the findings of the two methods, a correlation coefficient is calculated. . A correlation coefficient[10] (r) is a mathematical measure of how much one number can be influenced by the changes in another variable. The strength of the correlation can be interpreted as follows: less than 0.20 - slight, almost negligible relationship; 0.20 to0.40 - low correlation, that is, definite but small relationship; 0.40 to 0.70 - moderate correlation or substantial relationship; 0.70 to 0.90 - high correlation or marked relationship; and 0.90 to 1.00 - very high correlation or very dependable relationship (Child Welfare Outcomes, 2002).

The correlation coefficient of the findings of net-export method and import-adjusted method is 0.58. This means that there is a moderate or substantial relationship between the two. The evaluation of the two methods regarding the contribution of net-exports to growth has relatively same direction. That is, the contribution of exports to GDP growth increased in 1994 and 2000 as compared to 1990).

Although this is the case, the values generated using the import-adjusted method, are higher than those of the net-export method. Hence, it can be said that the net exports contribution

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[9] For the contribution of the other final demand components to GDP growth, see Appendix C

[10] Correlation coefficient (r) has a formula of

$$r = \frac{n(\Sigma xy) - (\Sigma x)(\Sigma y)}{\sqrt{[\, n\Sigma x^2 - (\Sigma x)^2 \,][\, n\Sigma y^2 - (\Sigma y)^2 \,]}}$$

where n is the number of pairs of data x and y are the independent and dependent variables respectively

to growth is higher than what was thought. This is consistent with the findings of the previous literatures (Kranendonk, Verbruggen 2005; 2008; Treasury and Economic Policy General Directorate of France, 2006; Jayaram and Ruimin, 2009; Akyuz, 2010) and is different from the findings of De Dios (2002) and Lim (2005) that exports had a negative contribution to GDP growth in 1990.

Table 5. Contribution of Net-Exports to GDP growth, 1961-2000
(In percentage points)

Year	Import-Adjusted	Net-Export Method	GDP growth
1965	0.16	0.10	0.63
1969	0.02	-0.05	0.46
1974	0.33	-.003	1.55
1979	0.12	-0.05	1.11
1983	0.09	-0.02	0.60
1985	0.09	0.08	0.41
1988	0.09	-0.02	0.32
1990	0.05	-0.06	0.24
1994	0.12	0.02	0.49
2000	0.28	0.11	1.03

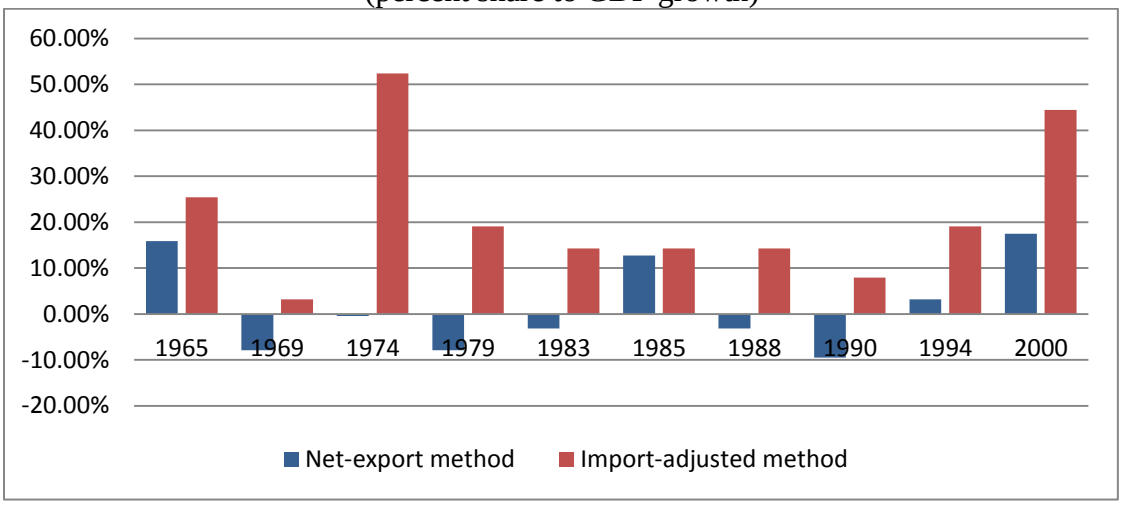
Source: Author's computations

The difference in the Import-adjusted method and the net-export method varies depending on the time period. In 1965, the difference between the findings of the two methodologies is 0.06 percentage points; in 1969, the difference is 0.07 percentage points; in 1974, there is a 0.33 percentage point difference, the highest among the differences in all years; in 1979, the import-adjusted method reported a value which is 0.17 percentage points higher than that of the net-export method; while the comparison of results in 1983, 1988, and 1990 all yielded a 0.11 percentage points of difference. The most insignificant difference between the two results was in 1985, that is 0.01.

Meanwhile the import-adjusted value for the contribution of exports to GDP growth is 0.1 and 0.17 percentage points higher than the value according to net-export method in 1994 and 2000 respectively. The seemingly underestimation of the net-export method regarding the export contribution to GDP growth and the varying differences in the values suggested by the import-adjusted method and the net-export method across the years are consistent to the findings of Kranendonk, Verbruggen in 2005 and 2008, Treasury and Economic Policy General Directorate of France in 2006, Jayaram and Ruimin in 2009 and Akyuz. 2010).

If the percentage share of net-exports to GDP growth were compared (Figure 2), Import-adjusted method suggests that although the contribution of net-exports to GDP growth decreased after the trade liberalization due to high imports, the domestic value-added of net-exports increased since 1990. This may be due to the attraction of FDI inflows that generate the positive spill over effects from the presence of foreign firms when the Philippines liberalized its FDI policies. Through the legislation of Republic Act 7042 or the Foreign Investment Act (FIA) in June 1991, the country allowed foreign equity participation up to 100 per cent in all areas not specified in the Foreign Investment Negative List. Various investment incentive measures were also granted through the different investment regimes administered by the Board of Investments (BOI), Philippine Economic Zone Authority (PEZA), Subic Bay Metropolitan Authority (SBMA), Clark Development Corporation (CDC), and other bodies mandated by various laws to establish, maintain, and manage special economic or free port zones. BOI-registered enterprises are allowed income tax holiday up to eight years, tax and duty free importation of spare parts, and tax credit on raw materials. PEZA grants the most generous incentives which include income tax holiday, basic income tax rate of 5 per cent of gross income, and tax and duty free importation of capital equipment, spare parts, and raw material inputs. Except for the income tax holiday, Clark and Subic enterprises enjoy the same incentives available to PEZA enterprises (Austria, 1998).

Figure 2. Contribution of Net-Exports to GDP growth
(percent share to GDP growth)



Source: Author's computations

Indeed, these brought about significant positive results. Electronics and semiconductors manufacturing sites mushroomed in various economic zones in Laguna and Cavite. Growing concentration of investment in electronics industry - About 47 percent of total investment in 1992-1996 went to electrical machinery, mostly semiconductors (De Dios, 2002; Aldaba, 1994). This trend could make the zones vulnerable to a downturn in the semiconductor industry. The local activity in the industry is limited with the simplest assembly and testing level. Unless the local industry improved on its capability (in terms of technological skills and facilities) to absorb and cope with new and advanced technologies, the long-term competitiveness of the industry

will be at risk and the country will lose its attractiveness as a supplier base for high technology products (Aldaba, 1994).

The Philippines promoted FDI by giving incentives, among others, in effect the existing FDI located in the Philippines, on their own, encouraged their suppliers in their home countries to invest as well. Thus, as more FDI from supplier industries invest and local production supplanted what used to be imports, the domestic value-added also increased.[11]

The import generation matrix, which estimates how much imports are used in producing exports, can furthermore give indication on the changing importance of imported inputs to exports. Table 6 presents the import generation matrix calculated using the IO table. In 1961, export production only uses 1.2 billion pesos worth of imports. It increased to 4.4 billion pesos in 1965 to 5 billion pesos in 1969. In 1974, value worth of imports used as input to exports boosted to 23 billion pesos and 42 billion pesos in 1979. By 1985, the imports used for exports exceed 100 billion until 1994. It reached 2 trillion in 2000. This supports the claim that imports increases as manufacturing exports increases since increase in the manufacturing exports does not necessarily entail an increase in the manufacturing value-added (Akyuz, 2010).

Table 6. Amounts of Imports Used to Produce Exports
(*In thousand pesos)*

Year	
1961	1,240,511
1965	4,421,594
1969	5,039,953
1974	23,367,604
1979	43,928,096
1983	83,678,347
1985	151,091,939
1988	258,181,855
1990	359,766,580
1994	627,048,784
2000	2,117,285,970

Source: Author's computations

Given the fact that manufacturing exports, especially intermediate inputs have high import intensity, extracting the import content of exports would help provide the domestic value-added of exports. This can be estimated using Syrquin's model of decomposition and is measured as a per cent to total income or output growth. Table 7 presents the share of exports to total change in income growth as calculated in the Chenery and Syrquin models of Structural Decomposition Analysis. The difference between the estimates of the two models is interpreted as the import leakage. Import leakage is the value of goods which could have been produced domestically but were imported instead. On the other hand, Figure 3 relates the domestic value-added of exports to GDP growth.

[11] Inputs from Dr. Thomas G. Aquino

Table 7. Per cent Share of Export Expansion to Total Output Growth (%)

Time Period	Syrquin	Chenery	Import-Leakage
1961-1965	29	32	3
1965-1969	4	5	1
1969-1974	21	24	3
1974-1979	13	14	1
1979-1983	14	18	4
1983-1985	25	28	3
1985-1988	26	34	8
1988-1990	16	19	3
1990-1994	25	29	4
1994-2000	29	40	11

Source: Author's computations

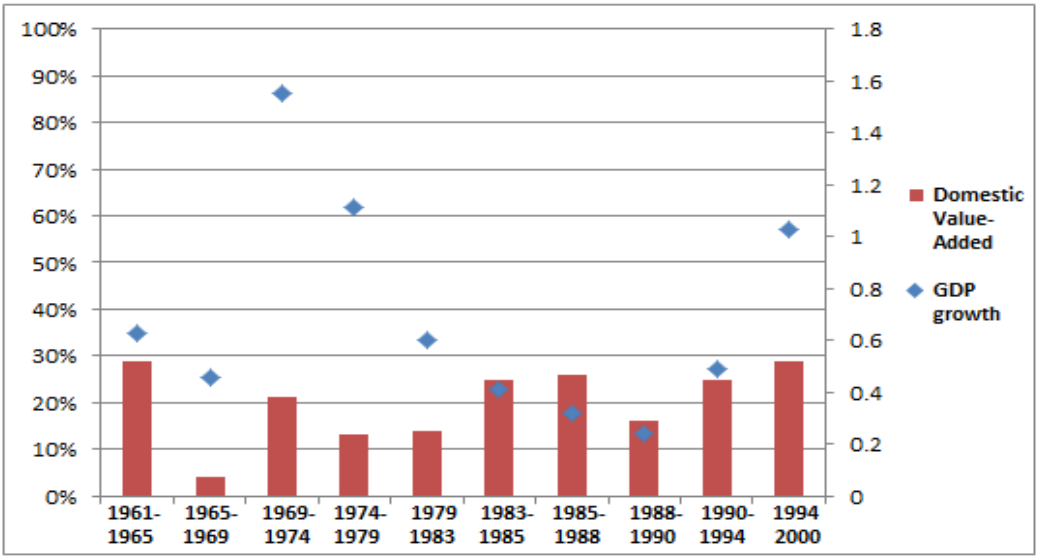
Note:

(a) "Syrquin" refers to the figures generated by Syrquin's Decomposition Analysis, which uses domestic value-added values. It estimates the domestic-value added of exports in terms of per cent share to total output growth

(b) "Chenery" refers to the figures generated by Chenery's Decomposition Analysis, which uses the global values (domestic value plus imported value) of goods

(c) Sub periods are defined by the years when IO tables are available

Figure 3. Domestic Value-added, in % of GDP growth and GDP growth, in percentage points



Source: Author's computations

In 1961-1965, when agro-based commodities dominated the export basket, export's domestic value-added is 29% of the GDP growth. Imports that could have been produced domestically (import leakage) amounts to 3% of the GDP growth. In 1965-1969, the domestic value-added of exports only amount to 4% of income growth because of high inflation and less exports. At the same time only 1% of GDP growth is the import leakage during this period.

In 1969-1974, the value-added of exports increased to 21% of GDP growth while the 3% of GDP growth are lost to importation. The increase in the domestic value-added during this period of time is due to the after-effects of the policies implemented by the newly-elected President Ferdinand Marcos in 1965.

In 1974-1979, the value-added of exports again decreased to 13% of GDP growth while 1% GDP growth was the foreign value-added in the export goods. The decrease in the value-added of export may be due to the second energy shock that happened in 1979 which affected the supply of exports (Philippine Five-year Development Plan of 1978-1982).

In 1979-1983, value-added of exports increased by one percentage point. Such small increase was due to the fact that the actual export value reached 5,005 USD million only, which fell shortly of the 1983 target of 7,490 USD. The economic and political environment during this period is characterized by economic recession that prevailed worldwide, falling exports, contracting domestic market and aggravated political crisis due to Aquino assassination.

In 1983-1985 and 1985-1988, domestic value-added of exports is estimated to be 25% and 26% of GDP growth respectively; while import leakage amounts to 3% and 8% of GDP growth. The high degree of exports' value-added is due to the lack of domestic demand brought about by political instability and turmoil in the country (e.g., Aquino assassination, EDSA Revolution etc.), which resulted in the channelling of resources towards export expansion.

By 1988 to 1990, the country was then adjusting to the new policies under the Ramos administration. It can be observed that the exports' value-added declines to 16% of GDP growth. This however, doesn't mean that export volume really dropped; rather, the rest of the demand components, particularly domestic demand, grew. Still, the amount of goods that could have been domestically produced is 3% of GDP growth.

As the other demand components increased, there was also a rise in the inbound of inflows to the country's semiconductors, electrical machinery and garments in the 1990s. Domestic value-added of exports increased to 25% of GDP growth in 1990-1994 which was accompanied by a one percentage point increase in import leakage as well. Moreover in 1994-2000, the value-added of exports was 29% of GDP growth while the import leakage reached 11% of GDP growth. These form part of many manifestations of the recovery of the Philippine economy from being a "Sick Man" to being a tiger economy in Asia (Canlas, et al. 2009).

It is interesting to note that even though the value-added content of exports in 1961-1965 is different from the value-added content of exports in 1994-2000 due to difference in the composition export basket, the magnitude of the local value-added of exports in 1994-2000 is the same with that of 1961-1965. The high value of import leakage in 1994-2000 diminished the

value-added of exports during the period. Although the domestic value-added of exports in 1961-1965 is the same with that of 1994-200, the contribution of exports in the latter time period still exceeds that of 1961- 1965 (See Figure 3) given by the fact that the amount of exports in 1994 to 2000 is 535 billion and 1.8 trillion pesos respectively while exports in 1961 to 1965 only amounts to 1.2 billion to 4.2 billion. The moderate domestic value-added of exports in 1994-2000 leads to Tongson's (2005) conclusion that "we had not maximized benefits from trade liberalization and integration," and that the Philippines needed to invest on export goods which are in the higher part of the production value chain by improving the domestic production base of intermediate inputs through high-skilled labour, education and technology.

Despite the fact that the value-added of exports in general appears to be lower than what we expected, examining the import-export ratio and import multipliers would suggest that the strategies aimed to reduce import content of non-traditional exports may have been successful (Table 8), it can be seen that the country use relatively the same magnitude of imports for exports (1.05) from 1961 to 1974. Starting in 1979 up to 1990 on the other hand, the import-export ratio exhibited an increasing trend. The import-export ratio however dropped from 1.21 in 1990 to 1.17 in 1994 and decreased by 0.01 units in 2000. Such decrease in the use of imports is due to the FDIs directed towards electronics and machineries made in 1990 to 2000.

Table 8. Ratio of Imports[12] to Exports

Year	Imports/ Exports
1961	1.05
1965	1.05
1969	1.05
1974	1.05
1979	1.06
1983	1.08
1985	1.11
1988	1.14
1990	1.21
1994	1.17
2000	1.16

Source: Author's computations

Increasing the limited and low value-added of export products such as electrical machinery, transport and equipment and steel and iron was the government trade objective in the Medium Term Philippine Development Plan in 1993-1998. Table 9 indicates the import multiplier of export-oriented industries, machinery except electrical, electrical machinery, iron

[12] Imports of exports as attributed by the Import-adjusted method.

and steel, transport equipment, wearing apparel and footwear, other manufacturing products and miscellaneous manufacturing industries since 1961 to 2000.[13]

Import multipliers denote how much import is needed to produce one peso worth of exports. The import multipliers of the aforementioned industries tend to decrease starting in 1990. The import multiplier of machinery, except electrical decreased from 1.54 in 1990, to 1.46 in 1994, to 1.14 in 2000. The import multiplier of electrical machinery, which includes electronics and semi-conductor, also declined from 1.45 to 1.18 in 2000. Iron and steel import multiplier similarly decreased from having 1.46 points in 1990, to 1.33 in 1994, to 1.26 in 2000. To produce one peso worth of transport equipment on the other hand, the country's import multiplier was reduced to 1.11 in 2000 from 1.23 in 1990. In the miscellaneous manufacturing industries, where import multiplier fell from 1.20 in 1990 to 1.17 in 1994 to 1.15 in 2000. The decrease in the import multiplier of the said export-oriented industries suggested that the importance of imports as input to these exporting industries decline from 1990 to 2000. This may be explained by the less dependence on imported inputs due to the rise in the inflows of foreign direct investments to capital-intensive industries, especially during 1992-1996.

Table 9. Import Multipliers, 1961-2000

Year	Machinery except electrical	Electrical Machinery	Iron and steel	Transport equipment	Wearing apparel and Footwear	Other manuf.	Miscel. manuf.
1961	1.13	1.18	1.33	1.25	1.27	1.00	1.13
1965	1.14	1.25	1.44	1.39	1.20	1.00	1.17
1969	1.22	1.20	1.28	1.28	1.13	1.21	1.11
1974	1.20	1.15	1.36	1.14	1.10	1.14	1.16
1979	1.20	1.22	1.28	1.17	1.12	1.12	1.13
1983	1.18	1.27	1.24	1.22	1.13	1.00	1.10
1985	1.12	1.31	1.29	1.11	1.23	1.00	1.16
1988	1.34	1.35	1.29	1.15	1.29	1.22	1.17
1990	1.54	1.45	1.46	1.23	1.43	1.28	1.20
1994	1.46	1.32	1.33	1.22	1.25	1.35	1.17
2000	1.14	1.18	1.26	1.11	1.14	1.16	1.15

Source: Author's computations

In 1990, to attract FDI inflows and generate the positive spill over effects from the presence of foreign firms, the Philippines considerably liberalized its FDI policies. Through the legislation of Republic Act 7042 or the Foreign Investment Act (FIA) in June 1991, the country allowed foreign equity participation up to 100 per cent in all areas not specified in the Foreign Investment Negative List. Various investment incentive measures were also granted through the different investment regimes administered by the Board of Investments (BOI), Philippine

[13] See Appendix E for the complete list of import multipliers

Economic Zone Authority (PEZA), Subic Bay Metropolitan Authority (SBMA), Clark Development Corporation (CDC), and other bodies mandated by various laws to establish, maintain, and manage special economic or free port zones. BOI-registered enterprises are allowed income tax holiday up to eight years, tax and duty free importation of spare parts, and tax credit on raw materials. PEZA grants the most generous incentives which include income tax holiday, basic income tax rate of 5 per cent of gross income, and tax and duty free importation of capital equipment, spare parts, and raw material inputs. Except for the income tax holiday, Clark and Subic enterprises enjoy the same incentives available to PEZA enterprises (Austria, 1998).

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The decline in the import multipliers of the sectors captures the changes in the FDI flows. In the 1990s, Philippines promoted FDI by giving incentives, among others. One effect of such policy is that the existing FDI located in the Philippines, on their own, encouraged their suppliers in their home countries to invest as well. Thus, as more FDI from supplier industries invest and local production supplanted what used to be imports, the domestic value-added also increased.[14]

Conclusion

Economic integration and liberalization and globalization of the production value chains, influenced the growth and dynamics of the Philippine exports in 1961-2000. As the country participated in the global production value chain, it appears that the trade-off was not being able to develop the domestic production based commodities. Thus, Philippines' export composition shifted from being dominated by agro-based resources to being led by manufacturing commodities specifically electronics and semi-conductor induced by the increasing opportunity of attracting foreign direct investments to the country (as well as the need to industrialize and diversify away from agricultural exports) . The change in the export basket led to increase in the contribution of net exports to GDP growth. Nonetheless, the value of such contribution was underestimated by the net-export accounting method. Consequently, the import-adjusted method complemented the results by presenting the contribution of the import-adjusted net exports to GDP growth.

Not only is the contribution of import-adjusted net-exports presented, but the contributions of the other import-adjusted final demand components to economic growth as well.

[14] Inputs from Dr. Thomas G. Aquino

This enables the method to calculate the domestic contribution of each of the demand component. Consequently, the import-adjusted method can determine the key driver of economic growth during a time period, i.e. the demand component which has the largest contribution to GDP growth.

Unlike the import-adjusted methodology, the net-export method gives the headline ratio of the final demand components to GDP growth: Consumption to GDP growth, Investment to GDP growth, Government to GDP growth and Net-exports to GDP growth. These ratios are useful for other economic analyses, such as the balance of payment (BOP) analysis, which accounts all monetary transactions between a country and the rest of the world. For example, the credit and debit entries for goods and services in BOP accounts are equivalent to the flows of exports and imports of goods and services. These flows are reflected in the economy's account for goods and services and in the measurement of gross domestic product (GDP) and its composition in terms of final demand components. Since they provide early signals of untenable developments, they influence fiscal and monetary policies of a country. Given the difference between the two methods, it can be inferred that the import-adjusted method is a better methodology in determining the sources of growth of the country while the net-export method is a better measurement which can be used for balance of payment analysis.

Based on the results of the import-adjusted method, the contribution of net exports to GDP growth was moderated. The domestic value-added of manufacturing sector did not increase with the rise of exports; rather, it was the import content of exports which accompanied the increase in export production. Hence, there is a need to improve the domestic production base of all exports, regardless if they are agro-based commodities or manufactures. Still, the policies targeting the improvement of the value-added of exports (as suggested by the percentage share of adjusted net-exports to GDP growth) appeared to be successful since the importance of imports to the export-oriented industries decreased in 2000. This was done through attracting more foreign investments to capital-intensive industries and improving logistics in the country. Since the present Philippine export basket is quite similar in composition, it may be assumed that the significance of imports to export-oriented industry may be decreasing overtime, provided that no major economic shock occurred.

Lastly, it is important to emphasize that the country should invest on intermediate inputs such as garments, electrical and electronic machinery, semiconductors, etc. – those which have a greater value in the production value chain. It has implications on investment policies, state of infrastructure to attract FDI, red tape, facilitation, rule of law, transparency, liberalization of ownership limits and more trade in services, as services are complementary to trade in goods. All of these shall enable the country to be able to reap and maximize the benefits of the economic integration.

Policy Recommendations

The country's historical experience shows that exports were once domestically-based before it became manufacturing-based. With this experience, the study provides a policy choice of allowing the government to address both lines of export policy. This also implies that any inefficiency in trade interventions can serve both lines of policy or separately.

Important factors to be considered in policy formulation are logistics and investments. For one, it was observed that regardless of the type of export goods, efficient logistics is necessary in making the policy successful. Without competent logistics, policies cannot be effectively implemented. Also, investments that improve the domestic base of production are also important in trade. FDIs can lead to more exports, and depending on the industry mix, could lead to more domestic value added in exports. This suggests that investment and trade policies should be complementary to each other and that the investments section or chapter in any Free Trade Agreement should be given more weight and importance.

Also, policies that aim to add value to the Philippine exports and development of local supplier industries are also recommended in order to make certain that export industries would not be an enclave. This calls for an industry wide cooperation, where both the government and the private sector play vital roles in adding value to our export goods.

Lastly, if the government desires to increase GDP growth, one direct route is to use the import-adjusted methodology. Since the import-adjusted approach is more targeted in accounting the contribution of each final demand component to growth, it can explicitly determine the source of GDP growth. In doing so, the government can distinguish what demand component should be enhanced and what element should be given more importance in future policies. Of course, the use of the import-adjusted methodology cannot be done without sufficient provision from the government. Statistical agencies of the government should be encouraged and be supported in applying new trade indicators to aid policy formulation and targeting more precisely.

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APPENDIX A
Net-Export Methodology

By definition, it is equal to final expenditures less imports, which produces the following economic formula:

(1) $Y = C + I + G + X - M$

where
Y = gross domestic product
C = consumption
G = government consumption
X = exports
M = imports

Hence, in the net-export method accounting method, the contribution of each demand component to the total domestic demand growth equals:

(2a) $(C/Y)_{t-1}$ $\%\Delta c$

(2b) $(I/Y)_{t-1}$ $\%\Delta i$

(2c) $(G/Y)_{t-1}$ $\%\Delta g$

(2d) $(X/Y)_{t-1}$ $\%\Delta x$ - $(M/Y)_{t-1}$ $\%\Delta m$

where
t-1 = previous year
$\%\Delta$ = percent change of the variable

APPENDIX B

Philippine Exports by Major Commodity

(Share to Total Exports)

Philippine Exports by Major Commodity	1961	1965	1969	1974	1979
coconut products	33%	34%	19%	22%	22%
sugar and sugar products	25%	19%	17%	28%	5%
forest products	18%	25%	26%	12%	12%
mineral products	7%	9%	20%	19%	18%
fruits and vegetables	5%	2%	3%	3%	5%
abaca and products	8%	3%	1%	2%	1%
tobacco and products	1%	2%	1%	2%	1%
mineral fuels and lubricant	0%	1%	1%	1%	1%
electrical and electronic equipment	0%	0%	0%	0%	0%
garments	0%	0%	0%	0%	0%
textile	1%	1%	0%	1%	1%
footwear	0%	0%	0%	0%	0%
wood manufacturers	0%	0%	0%	0%	0%
furniture and fixtures	0%	0%	0%	0%	0%
chemicals	0%	0%	0%	1%	2%
non-metallic mineral manufactures	0%	0%	0%	0%	0%
machinery and transport equip	0%	0%	0%	0%	0%
processed foods and beverages	0%	0%	0%	0%	0%
iron and steel	0%	0%	0%	0%	0%
miscellaneous manufactured articles	2%	5%	10%	10%	32%

Philippine Exports by Major Commodity	1983	1985	1988	1990	1994	2000
coconut products	14%	10%	8%	4%	5%	1%
sugar and sugar products	6%	4%	1%	1%	1%	0%
forest products	7%	5%	5%	1%	0%	0%
mineral products	9%	5%	5%	3%	3%	2%
fruits and vegetables	7%	8%	6%	2%	1%	1%
abaca and products	1%	1%	1%	0%	0%	0%
tobacco and products	1%	1%	0%	0%	0%	0%
mineral fuels and lubricant	2%	1%	2%	1%	2%	1%
electrical and electronic equipment	0%	0%	0%	16%	39%	57%
Garments	0%	0%	0%	14%	19%	7%
Textile	1%	1%	1%	1%	1%	1%
footwear	0%	0%	0%	1%	1%	0%

wood manufacturers	0%	0%	0%	1%	1%	1%
furniture and fixtures	0%	0%	0%	1%	2%	1%
Chemicals	2%	3%	4%	2%	2%	1%
non-metallic mineral manufactures	0%	0%	0%	0%	1%	0%
machinery and transport equip	0%	0%	0%	1%	2%	15%
processed foods and beverages	0%	0%	0%	2%	4%	1%
iron and steel	0%	0%	0%	0%	0%	0%
miscellaneous manufactured articles	52%	61%	66%	49%	16%	11%

Source: Author's computation
Basic Data: National Statistics Office, 1985; 2000

APPENDIX C: IMPORT-ADJUSTED VS NET-EXPORT METHOD

	Private Consumption		Investments		Government Consumption		Exports		GDP growth
	Import-Adjusted	Traditional Method	Import-Adjusted	Traditional Method	Import-Adjusted	Traditional Method	Import-Adjusted	Traditional Method	
	%								
1965	0.29	0.33	0.13	0.15	0.06	0.06	0.16	0.10	0.63
1969	0.36	0.37	0.05	0.09	0.04	0.04	0.02	-0.05	0.46
1974	0.80	0.95	0.32	0.48	0.10	0.12	0.33	-.003	1.55
1979	0.57	0.65	0.35	0.44	0.07	0.08	0.12	-0.05	1.11
1983	0.36	0.43	0.11	0.15	0.04	0.04	0.09	-0.02	0.60
1985	0.29	0.32	0.001	-0.02	0.03	0.03	0.09	0.08	0.41
1988	0.16	0.21	0.03	0.08	0.04	0.04	0.09	-0.02	0.32
1990	0.12	0.18	0.04	0.09	0.03	0.03	0.05	-0.06	0.24
1994	0.28	0.33	0.04	0.09	0.05	0.05	0.12	0.02	0.49
2000	0.52	0.67	0.14	0.15	0.10	0.10	0.28	0.11	1.03

Source: Author's computations

APPENDIX D

CUMMULATIVE PRODUCTION STRUCTURE

Based on Author's computations

1961	Private Consumption	Investments	Government Consumption	Exports	Total
	in million pesos				
GDP	10240	1754	1048	1034	14076
IMPORTS	1755	1244	70	221	3290
final	889	869	40	143	1940
interm	866	375	30	78	1350
Total Demand	11995	2998	1118	1254	17366
Import Intensity	15%	41%	6%	18%	19%

1965	Private Consumption	Investments	Government Consumption	Exports	Total
	in million pesos				
GDP	15122	3238	2014	3785	24159
IMPORTS	2498	1534	133	652	4816
final	1485	1001	84	435	3007
interm	1013	532	48	216	1810
Total Demand	17620	4772	2147	4437	28976
Import Intensity	14%	32%	6%	15%	17%

1969	Private Consumption	Investments	Government Consumption	Exports	Total
	in million pesos				
GDP	24437	5050	3151	4248	36885
IMPORTS	2960	2764	212	817	6753
final	1530	2027	119	538	4213
interm	1430	737	94	279	2540
Total Demand	27396	7813	3364	5065	43638
Import Intensity	11%	35%	6%	16%	15%

1974	Private Consumption	Investments	Government Consumption	Exports	Total
	in million pesos				
GDP	61574	18601	8171	18703	107049
IMPORTS	9902	9630	1009	4859	25400
final	5140	6933	556	3587	16216
interm	4762	2697	453	1272	9184
Total Demand	71477	28231	9180	23561	132449
Import Intensity	14%	34%	11%	21%	19%

1979	Private Consumption	Investments	Government Consumption	Exports	Total
	in million pesos				
GDP	136192	56583	17150	35190	245115
IMPORTS	21032	21079	1984	9546	53642
final	9664	12333	1128	6271	29397
interm	11368	8746	856	3275	24245
Total Demand	157224	77662	19134	44736	298757
Imp. Inten	13%	27%	10%	21%	18%

1983	Private Consumption	Investments	Government Consumption	Exports	Total
	in million pesos				
GDP	247400	88334	29194	62765	427693
IMPORTS	42248	33044	3293	21950	100536
final	17792	18603	1696	14501	52592
interm	24456	14442	1597	7449	47944
Total Demand	289648	121378	32487	84716	528229
Import Intensity	15%	27%	10%	26%	19%

1985	Private Consumption	Investments	Government Consumption	Exports	Total
	in million pesos				
GDP	391582	81200	41778	112449	627009
IMPORTS	57673	22495	3471	40567	124205
final	25379	10802	0	23562	59742
interm	32294	11693	3471	17005	64463
Total Demand	449255	103695	45249	153016	751215
Import Intensity	13%	22%	8%	27%	17%

1988	Private Consumption	Investments	Government Consumption	Exports	Total
	in million pesos				
GDP	531871	127048	72183	178103	909205
IMPORTS	101722	55351	5862	77521	240456
final	44912	31904	0	48328	125144
interm	56810	23447	5862	29194	115312
Total Demand	633593	182398	78045	255624	1149661
Imp. Int.	16%	30%	8%	30%	21%

1990	Private Consumption	Investments	Government Consumption	Exports	Total
	in million pesos				
GDP	706260	197463	108843	237203	1249769
IMPORTS	165869	112089	12655	113420	404033
final	64102	62702	0	59212	186016
interm	101768	49387	12655	54207	218017
Total Demand	872130	309552	121498	350622	1653802
Import Intensity	19%	36%	10%	32%	24%

1994	Private Consumption	Investments	Government Consumption	Exports	Total
	in million pesos				
GDP	1145901	290398	182776	431851	2050926
IMPORTS	247802	184092	17227	190605	639726
final	110713	124726	0	103649	339088
interm	137089	59366	17227	86956	300638
Total Demand	1393702	474490	200003	622456	2690652
Import Intensity	18%	39%	9%	31%	24%

2000	Private Consumption	Investments	Government Consumption	Exports	Total
	in million pesos				
GDP	2618425	544544	438336	1181888	4783193
IMPORTS	636285	230241	36555	888990	1792071
final	297268	128354	789	644238	1070650
interm	339016	101887	35766	244752	721422
Total Demand	3254710	774785	474891	2070878	6575264
Imp. Int.	20%	30%	8%	43%	27%

APPENDIX E: IMPORT MULTIPLIERS

	Palay	Abaca and products	Corn	Coconut and products	Sugar and sugar products	Coffee and cacao	Other crops and agricultural services	Fruits and Vegetables	Tobacco and products
	IND1	IND2	IND3	IND4	IND5	IND6	IND7	IND8	IND9
1961	1.02757134	1.05214332	1.02977154	1.00841125	1.05340592	1.01694653	1.083275	1.009999	1.057159
1965	1.01757039	1.01809564	1.01515286	1.00889444	1.03993095	1.01424504	1.045951	1.008481	1.021434
1969	1.02209718	1.02584465	1.02143035	1.01197223	1.03966065	1.00910036	1.026957	1.013722	1.033068
1974	1.03040762	1.03367984	1.02716198	1.00871732	1.04423735	1.0231643	1.021679	1.024286	1.041163
1979	1.05768133	1.02478591	1.0402512	1.0143779	1.04810926	1.01856059	1.029043	1.025031	1.041413
1983	1.04513462	1	1.03301782	1.00857286	1.03458268	1.01026858	1.015614	1.028408	1.03255
1985	1.03205814	1	1.02837758	1.00300744	1.03157018	1	1.032253	1.026433	1.032423
1988	1.06495853	1.15782985	1.03538336	1.02216487	1.071671	1.06881023	1.022799	1.053471	1.173551
1990	1.05939164	1.1005681	1.03810118	1.03734036	1.08870852	1.07013351	1.035253	1.059362	1.139842
1994	1.0355557	1.12709925	1.036079	1.02810878	1.06766793	1.03962043	1.032585	1.049655	1.300829
2000	1.05980473	1.15509368	1.05423849	1.03326345	1.0972536	1.08890769	1.035359	1.050389	1.231389

Source: Author's computations

	Livestock and poultry	Fisheries	Forestry and logging	Mining and Quarrying	Food and beverages	Manufacture of Textile	Wearing apparel and Footwear	Wood and wood products	Furniture and fixtures
	IND10	IND11	IND12	IND13	IND14	IND15	IND16	IND17	IND18
1961	1.015698	1.056978	1.050664	1.126218	1.056488	1.22668	1.267217	1.028388	1.151181
1965	1.02352	1.041267	1.031583	1.132223	1.047954	1.184514	1.199652	1.02796	1.126342
1969	1.015724	1.018072	1.016441	1.092136	1.038627	1.164305	1.127369	1.022247	1.083274
1974	1.019971	1.010733	1.021193	1.065042	1.035998	1.175142	1.102318	1.034292	1.049265
1979	1.017136	1.025869	1.019642	1.048725	1.024123	1.126041	1.117628	1.027326	1.050099
1983	1.019803	1.020748	1.016724	1.048127	1.02577	1.11662	1.130441	1.029974	1.051154
1985	1.015276	1.020628	1.012869	1.079815	1.017713	1.18146	1.228699	1.010857	1.065346
1988	1.044916	1.030798	1.021418	1.177371	1.035408	1.292976	1.28881	1.039365	1.069865
1990	1.050461	1.09987	1.056181	1.172713	1.043789	1.401468	1.431842	1.099674	1.153675
1994	1.04492	1.044248	1.036857	1.126401	1.037724	1.308071	1.247857	1.059588	1.114572
2000	1.039557	1.036655	1.021102	1.075341	1.050947	1.191333	1.138868	1.071073	1.097199

	Paper and paper products	Printing and Publishing	Leather except footwear	Rubber, tire and rubber products	Chemical and chemical products	Products of petroleum and coal	Non-metallic mineral products	Metal products except machinery and transport equipment	Machinery, except electrical
	IND19	IND20	IND21	IND22	IND23	IND24	IND25	IND26	IND27
1961	1.296656	1.23743	1.109363	1.157182	1.122261	1.14986	1.104737	1.249054	1.129432
1965	1.184129	1.140747	1.107946	1.186767	1.085869	1.211477	1.111537	1.397756	1.136348
1969	1.128192	1.095623	1.076046	1.132966	1.087047	1.198449	1.099624	1.268023	1.222672
1974	1.102832	1.096834	1.07474	1.163241	1.094575	1.277002	1.093376	1.298498	1.201949
1979	1.122848	1.120162	1.108077	1.122056	1.120726	1.321817	1.110754	1.223861	1.204198
1983	1.137134	1.145862	1.075203	1.151899	1.105994	1.361283	1.148924	1.190788	1.183833
1985	1.112091	1.120117	1.535374	1.149879	1.128319	1.339883	1.143031	1.110911	1.12196
1988	1.195785	1.211573	1.321217	1.205456	1.20918	1.272183	1.127024	1.240902	1.336327
1990	1.273687	1.262835	1.375462	1.276106	1.235445	1.503997	1.219875	1.357937	1.539804
1994	1.35498	1.375804	1.238166	1.260867	1.195013	1.352063	1.184646	1.269844	1.464573
2000	1.163189	1.156167	1.128498	1.135029	1.141711	1.52696	1.156654	1.183955	1.136739

Source: Author's computations

	Electrical Machinery	Iron and steel	Transport equipment	Other manufacturing products	Miscellaneous manufacturing industries	Construction	Electricity, Steam and water	Trade	Banks, non-banks and insurance
	IND28	IND29	IND30	IND31	IND32	IND33	IND34	IND35	IND36
1961	1.183035	1.327237	1.246502	1	1.129154	1.175447	1.086544	1.022309	1.091646
1965	1.251315	1.439386	1.389371	1	1.165375	1.169669	1.074236	1.017583	1.018838
1969	1.196485	1.282	1.281096	1.211862	1.108491	1.117004	1.041506	1.015182	1.019084
1974	1.147827	1.360267	1.144343	1.141055	1.155704	1.103439	1.050045	1.012594	1.029731
1979	1.216519	1.281847	1.170241	1.124392	1.131036	1.105814	1.084152	1.012276	1.023268
1983	1.266504	1.23532	1.218661	1	1.102752	1.092554	1.085779	1.020512	1.036002
1985	1.306674	1.28826	1.106202	1	1.163267	1.069277	1.063123	1.017612	1.039509
1988	1.3454	1.294921	1.151632	1.215957	1.16564	1.114816	1.043511	1.029259	1.03601
1990	1.448378	1.464339	1.232293	1.279768	1.203795	1.163138	1.08067	1.053349	1.055737
1994	1.322708	1.333136	1.222661	1.351381	1.173584	1.109131	1.092351	1.039124	1.030411
2000	1.184044	1.264192	1.108737	1.164853	1.146292	1.118215	1.08901	1.070315	1.059648

	Transportation and Communication	Real Estate	Government Services	Private Services	Other Services	Unallocated
	IND37	IND38	IND39	IND40	IND41	IND42
1961	1.107936	1.009261	1	1.02641	1	1
1965	1.083931	1.012364	1	1.037299	1	1
1969	1.052826	1.007514	1	1.052913	1.031216	1
1974	1.042526	1.008557	1	1.032437	1	1
1979	1.054817	1.004788	1	1.033275	1.03127	1
1983	1.084581	1.009543	1	1.043484	1.027953	1
1985	1.051538	1.018018	1.046302	1.044434	1.042949	1
1988	1.099635	1.014756	1.046743	1.08962	1.076568	1.170953
1990	1.130124	1.01577	1.078788	1.120292	1.114454	1
1994	1.120245	1.010509	1.056101	1.107168	1.074827	1
2000	1.116226	1.015108	1.046797	1.070005	1.07798	1

Source: Author's computations