NOVEMBER 2018

DISCUSSION PAPER SERIES NO. 2018-17

Discovering the Philippines' Potential Export Portfolio through the Product Space: Some Products and Ways Forward

Connie Bayudan-Dacuycuy and Ramonette B. Serafica

CONTACT US:

RESEARCH INFORMATION DEPARTMENT
Philippine Institute for Development Studies

18th Floor, Three Cyberpod Centris - North Tower
EDSA corner Quezon Avenue, Quezon City, Philippines

publications@mail.pids.gov.ph
(+632) 372-1291/(+632) 372-1292

https://www.pids.gov.ph

Discovering the Philippines' Potential Export Portfolio through the Product Space: Some Products and Ways Forward

Connie Bayudan-Dacuycuy
Ramonette Serafica

PHILIPPINE INSTITUTE FOR DEVELOPMENT STUDIES

November 2018

Abstract

While the Philippines has a long history of trade liberalization efforts and market-oriented reforms, the country has to yet to see a genuine structural transformation. Recently, there are efforts to transform the manufacturing industry into a globally competitive industry supported by backward and forward linkages to create decent jobs and promote sustainable and comprehensive growth. Given these, it is imperative for the country to chart its short-, medium-, and long-run diversification strategies. This research assesses the sophistication content of the country's current export portfolio and identifies products that result in a more diversified and high-value added mix of export commodities.

Using some metrics from the product space, the paper finds that the average sophistication of products included in the country's export basket has barely improved from 1995 to 2014 and it has remained lower than the average sophistication content of exports in the world market. The paper also finds that some of the products in the country's existing export basket has potential forward linkages to goods with relatively higher sophistication content, which in turn has potential linkages to even more sophisticated goods. However, transformation does not happen overnight and requires well-thought-out policies, plans, and priorities. To this end, the paper advocates the implementation of measures outlined in the Philippine Export Development Plan. It also identifies other potential actions towards human capital development, innovations, and infrastructure programs.

Keywords: structural transformation, diversification, manufacturing sector, product space, Philippines

Table of Contents

1. Introduction 1

2. The evolution of product space and economic complexity: A review **3**

2.1 Product space and complexity 3

2.2 Product sophistication 4

2.3 Proximity 5

3. Some policies towards structural reform 6

4. Product sophistication and the Philippines' export portfolio, 1995 to 2014 ..... **7**

5. Diversification strategies **13**

5.1 Potential strategies in the short-run 13

5.1.1 Short-run diversification strategy 1 14

5.1.2 Short-run diversification strategy 2 19

5.2 Potential medium-run diversification strategy 22

5.3 Potential long-run diversification strategy 25

6. Summary and conclusions **29**

7. References **30**

APPENDIX **33**

List of Tables

Table 1: Manufacturing industry, agro-processing and services roadmaps for structural transformation, job creation and poverty reduction 6

Table 2: Evolution of the Philippines' export portfolio 1995-2014 8

Table 3: 2014 Top and bottom 10 products in the world, first and fifth quintile of $PRODY_{world}$ 10

Table 4: Descriptive statistics of the 2014 Philippines' exports 11

Table 5: Potential products for diversification in the short-run 15

Table 6: Potential products for medium-run diversification 24

Table 7: Potential products for long-run diversification 26

List of Figures

Figure 1: Sectoral value added and employment shares, Philippines 2

Figure 2: Overall sophistication of export basket, selected Asian countries 11

Figure 3: Selection of products (product j) for potential diversification in the short-run 14

Figure 4: Number of SR products (strategy 1) exported by the PH in each market 16

Figure 5: Total value of SR products (strategy 1) exported to each market, in $100000 16
Figure 6: Potential markets of the SR products (strategy 1) 18
Figure 7: Number of countries importing the potential products listed in the SR strategy 1 19
Figure 8: Number of SR products (strategy 2) exported by the Philippines in various markets 21
Figure 9: Number of countries importing the potential products listed in the SR strategy 2 22
Figure 10: Selection of products for potential diversification in the medium-run 23
Figure 11: Number of countries importing the potential products listed in the MR strategy 25
Figure 12: Selection of products for potential diversification in the long-ru 26
Figure 13: Number of countries importing the potential products listed in the LR strategy 28

List of Appendix

Appendix Table 1A: Complete list of potential products for diversification in the short-run 33
Appendix Table 2A: Detailed information on top 5 existing markets of SR products (strategy 1) 34
Appendix Table 3A: Detailed information on potential markets of SR products (strategy 1), countries with MRCA=1 35
Appendix Table 4A: Detailed information on potential markets of SR products (strategy 1), countries with MRCA=1 and RCA=0 38

Discovering the Philippines' potential export portfolio through the product space: Some products and ways forward

Connie Bayudan-Dacuycuy and Ramonette Serafica*

1. Introduction

The Philippines has a long history of trade liberalization efforts and market-oriented reforms[1] although the country has to yet to see a genuine structural transformation. The secular decline in the shares of agricultural value added (in GDP) and employment (in total employment) is a key aspect of economic development (Syrquin 2008). Structural transformation, or the movement of resources out of the agricultural sector into the industrial sector, is a stylized fact observed in economies that grow richer due to increased consumption of manufactured goods. As the economies become even richer, demand shifts to services while employment and output shares of the industrial sector decline.

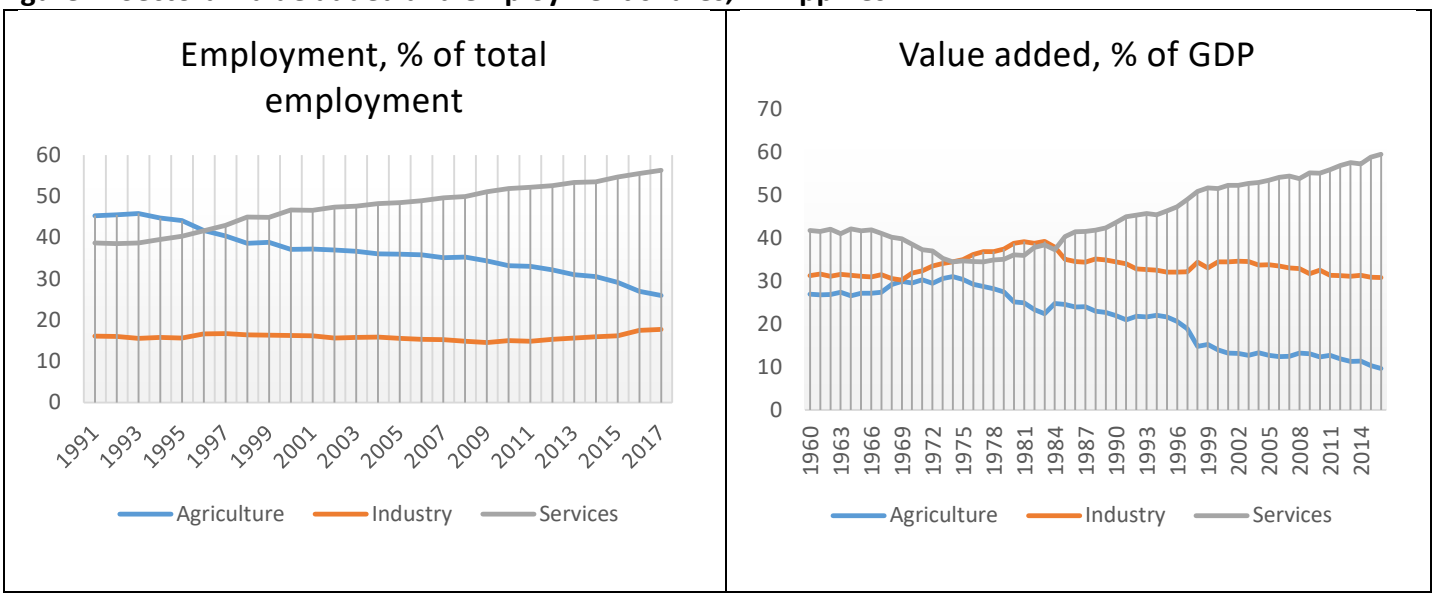
However, the path to development in the Philippines does not conform to these broad patterns. Rather, it is characterized by premature aging (Fabella and Fabella 2012). Indeed, figure 1 shows that while the agricultural value added share in GDP has been declining, the share of agricultural employment to total employment remains high at 26%. This is in contrast with most developed economies whose agricultural employment share is below 5% (Felipe, Bayudan-Dacuycuy and Lanzafame 2016). From 1991-2017, employment in the industrial sector fluctuates at a narrow band between 15-18% while the employment in the services sector has been steadily rising at an average of 0.65 percentage points per year. In terms of value added shares, that of the services sector has been increasing starting 1974 at around 34% to around 60% in 2016. That of the industrial sector is around 31% in 1960 and has increased to 38% in 1984 but by 2016 has declined to its 1960 level.

In 2012, the Department of Trade-Board of Investment has taken a proactive role in steering the country's industrialization through its Investment Priorities Plan (IPP) that promotes the New Industrial Policy (NIP). The NIP aims to transform the manufacturing industry into a globally competitive industry supported by backward and forward linkages to create decent jobs and promote sustainable and comprehensive growth. In addition, the Manufacturing Resurgence Program (MRP), identified as a priority program under the National Budget Memorandum No. 118, is designed to revitalize the manufacturing sector that is targeted to account for 30% of the total value added and to generate 15% of total employment through the implementation of the Manufacturing Industry Roadmap (Aldaba 2014).

* Senior Research Fellows respectively, Philippine Institute for Development Studies. Email: cdacuycuy@mail.pids.gov.ph; rserafica@mail.pids.gov.ph

[1] See Aldaba (2014) for a review of the trade reform programs in the Philippines from 1970 to early 2000s.

Figure 1: Sectoral value added and employment shares, Philippines



Source: World Development Indicators, Accessed May 15, 2018.

Given these efforts towards structural transformation, it is imperative for the country to chart its short-, medium-, and long-run diversification strategies. This research assesses the current export portfolio in the country and discover products, given the country's existing productive knowledge, that result in a more diversified and high-value added mix of export commodities.

To do this, this paper uses the metrics in the product space and economic complexity developed by Hausmann and Klinger (2006), Hausmann, Hwang and Rodrik (2007), Hidalgo and Hausmann (2009), and Hausmann and Hidalgo (2007, 2011). The product space is a visual representation of how close the goods are to each other, the closeness of which is defined by the proximity measure. The theory behind this set-up is that countries have productive structures made up of different capabilities such as infrastructures, technology, human capital, social networks, and institutions. Goods with similar production requisites are easier and less costly to produce than goods with different production requirements.

The product space has regions where goods are densely connected to many products (core) and regions where goods are sparsely connected with each other (periphery). Goods that are in the periphery have low sophistication content and are labor intensive-goods like garments, cereals and tropical agriculture. Machinery and high-technology manufactured goods are in the denser regions of the product space and have high sophistication content. Indeed, the export portfolio of wealthier countries is mostly found in the denser regions of the product space while that of the developing economies is mostly found in the periphery (see for example, Hausmann and Klinger 2006; Hidalgo et al 2007). In the context of the product space, the initial location of a country's export basket will condition the country's path to future development (Hausmann and Klinger 2006). These findings have important implications on the development and structural transformation of economies whose existing export portfolio is in the periphery.

In the Philippines, there are some studies that use the metrics of product space and economic complexity to analyze the country's export basket. Providing an aggregate view of location of the country's export basket, Usui (2012) has traced the evolution of the country's structural transformation from 1965 to 2008 and found that while the country has developed a comparative advantage in some electronics products by 1975, very few Philippine exports can

be found in the core of the product space by 2008. This highlights the puzzle why the country's success in electronics has not spilled over to more sophisticated industrial products. Thailand has a comparative advantage in garment products and agricultural products in 1975 but it has been exporting many goods that belong to the denser region of the product space by 2008. Thailand's diversification to sophisticated goods enabled a continuous increase in labor productivity of the industrial sector, and subsequently higher aggregate productivity through absorption of workers into the sector (Usui 2012).

Providing a more specific take on diversification, Bayudan-Dacuycuy (2012) has analyzed if the Philippines will be able to penetrate the core region of the product space given its existing export basket. The study finds that while the Philippines' export basket in 2006 leads to very few sophisticated goods to branch out into, it has the potential to evolve into some high value-added goods. This is corroborated by Bayudan-Dacuycuy and Lim (2017) who have analyzed the export portfolios of selected ASEAN and developed Asian economies and find that although limited in product scope, there are prospects for ASEAN economies to converge to the level of export sophistication of developed Asian countries.

2. The evolution of product space and economic complexity: A review

2.1 Product space and complexity

Traditional trade theory, such as the Hecksher-Ohlin, explains that the country's pattern of specialization is dictated by its abundant resources. New trade theory, such as the varieties model (Romer 1986) and the quality ladders model (Grossman-Helpman 1991; Aghion-Howitt 1992,) follow the Dixit-Stiglitz model, which makes strong assumptions about the symmetry of goods in terms of demand and cost functions (Hausmann and Hidalgo 2011). However, there are some observations that are not easily supported by these theories. These include the idea that goods have different consequences in economic performance since specializing in some goods will bring higher growth than specializing in others (Hausmann and Hidalgo 2007) and more diversified countries tend to export products that are on average less ubiquitous (Hausmann and Hidalgo 2011).

Using existing theories, no detailed predictions can be made on the impact of initial specialization on the country's future export portfolio or on the products a country can diversify into given their existing export portfolio. These led to a new approach to understanding development, which postulates that countries specializing in goods that rich countries produce are likely to grow faster (Hausmann and Hidalgo 2007). To do this, the statistical physics of networks is used to exploit the richness of information contained in the network of exported goods to create the now known product space (Hausmann and Klinger 2006; Hausmann, Hwang and Rodrik 2007; Hausmann and Hidalgo 2007, 2011; Hidalgo and Hausmann 2009).

The product space is a visual representation of how close the goods are to each other, the closeness of which is defined by the proximity measure. The latter is a formal representation of the idea that the closeness of goods is defined by their production requisites. The theory behind this set-up is that a country has a productive structure that is defined by capabilities (infrastructures, human capital, institutions) and horizontal specialization between products sharing similar production structure is less costly compared to specialization between products with different production requirements. Indeed, fewer modifications are needed to the production structure of footwear when moving to textiles than when moving to electronics.

In the context of productive structures and capabilities, product sophistication is related to the number of capabilities that the product requires and the complexity of a country's economy is related to the set of capabilities that is locally available (Hidalgo 2009). Countries with many set of capabilities can produce goods that are sophisticated and their productive structures can accommodate diversification into even more sophisticated products. Therefore, a country's export basket matters in a country's future development. Given these, the product space can provide policy directions related to a country's capabilities and structural transformation efforts.

2.2 Product sophistication

The development of the product space has started with Hausmann and Rodrik (2003) who put forth the idea of cost discovery process of firms, or their ability to venture into the production of a new good. Cost discovery generates positive externalities when new firms, encouraged by the profits earned by the leader, join the production of the new good. However, this will dissipate profits and firms will innovate, which will ultimately push the country's production and technological boundaries outward.

To quantify the process of cost discovery, Hausmann et al. (2007) assume that each exported good has a productivity level to represent the units of output generated by an investment of a given size to construct an index that measures a product's sophistication (*PRODY*) and an index that measures the overall sophistication of a country's export basket (*EXPY*). Taking off from the idea that countries export goods in which they are productive in, Hausmann et al (2007) use the COMTRADE data to construct *PRODY* and *EXPY*.

The earlier versions of a sophistication indices make use of Balassa (1965) revealed comparative advantage (RCA) and this is interpreted as a network connecting countries to the products they export. The product's sophistication is constructed as $PRODY_p = \frac{1}{\sum_c R_{cp}} \sum_c R_{cp} * Y_c$ where Y_c is the GDP per capita income, R_{cp} is the RCA index, and the subscripts c and p represent country and product, respectively. The overall sophistication of a country's export basket is, then, constructed by summing *PRODY* weighted by the RCA, $EXPY_c = \frac{1}{\sum_p R_{cp}} \sum_c R_{cp} * PRODY_c$. EXPY and *PRODY* are measures of sophistication that mix information on income, Y_c, with the information on the network structure, R_{cp}. These indices are indirect measures of productivity/sophistication.

Due to the use of income, these indices have been criticized to be circular (rich countries export sophisticated goods and sophisticated goods are exported by rich countries). Later, these indices have been reconstructed so that the indices make use of the information on RCA alone. Assuming that $M_{cp} = 1 \; if \; R_{cp} > R^*$ where R^* is a threshold and $Y_c = k_c$ for all c, Hidalgo (2009) constructs a *diversity* measure that conveys the information on the number of products a country makes and is given by $k_c = \sum_p M_{cp}$ and a *ubiquity* measure that conveys the number

of countries that export a product and is given by $k_p = \sum_c M_{cp}$. Using these, *PRODY* and *EXPY* becomes $PRODY_p = \frac{1}{k_p}\sum_c M_{cp} * k_c$ and $EXPY_c = \frac{1}{k_c}\sum_p M_{cp} PRODY_p$, respectively.

2.3 Proximity

Highlighting the importance of horizontal specialization, Hausmann and Klinger (2006) have developed a measure called proximity, or the revealed distance between products, which measures the similarity of production requisites of a given pair of goods. In this setting, horizontal specialization between products sharing similar production structure is less costly compared to specialization between products with different production requirements. For example, fewer modifications are needed to the production structure of footwear when moving to textiles than when moving to electronics. Formally, the proximity of product *p* and *p'* is defined as $\phi_{pp'} = \frac{\sum_c M_{cp} M_{cp'}}{\max(k_p, k_{p'})}$. As an illustration, given that 17 countries export wine, 24 export grapes and 11 export both, all with $RCA > 1$, the proximity between wine and grapes is 11/24 (Hausmann et al. 2011). The proximity index is related to the standard measure of similarity like the cluster of products found in Leamer (1984). However, the proximity measure is an outcomes-based approach that identifies the similarity of products without making a priori assumptions on how goods are going to be related.

Having a comparative advantage in a good means having the right endowments and capabilities and if two goods require the same capabilities, the proximity measure would show up in a higher probability of a country having comparative advantage in both (Hausmann and Klinger 2006). $\phi_{pp'}$ close to 1 means that the products will be close to each other in the product space. In the above example of products, the $\phi_{pp'}$ for footwear and textile will have values closer to 1 than the $\phi_{pp'}$ for footwear and electronics. Indeed, Hausmann and Klinger (2006) have demonstrated that a country's speed of structural transformation depends on whether its existing exports have, in their vicinity, high value-added goods in the product space.

As illustrated in Hidalgo, Klinger, Barabasi and Hausmann (2007), the product space has regions where goods are densely connected to many products (core) and regions where goods are sparsely connected with each other (periphery). Goods that are in the periphery have low *PRODY* and are labor intensive-goods like garments, cereals and tropical agriculture. Machinery and high-technology manufactured goods are in the denser regions of the product space and have high *PRODY*. Indeed, the export portfolio of wealthier countries is mostly found in the denser regions of the product space while that of the developing economies is mostly found in the periphery (see for example, Hausmann and Klinger 2006; Hidalgo et al 2007). For developing economies, the location of their existing export portfolio has two important implications. One, there are few sophisticated products that these economies can potentially diversify into. Two, these economies need to undertake significant transformation in their production structure, including upgrade in their technology, infrastructure, institutions, and human capital, to be able to diversify into sophisticated products.

3. Some policies towards structural reform

While the failure of the country to reap the benefits of its reforms can be attributed to a host of factors, including political instabilities and financial crises, the general theme in which the failure is discussed typically revolves around policies that are either ineffective or delayed. One, the import-substitution strategy in the 1950s did not translate into the use of domestically sourced inputs to replace imported ones. Instead, import-substituting firms remained dependent on imported inputs that is due to a domestic market that remained small as a result of the lackluster redistributive efforts such as a genuine agrarian reform (Lim and Bautista 2002). Two, the pace of adjustment and restructuring process has been hampered by the government's failure to implement complementary measures to stimulate the export sector, including the failure to address the exchange rate appreciation early on (Medalla 2002). Reforms towards a market-oriented regime have been hampered by policy reversals as well (Aldaba 2005).

In 2012, the Department of Trade-Board of investment has taken a proactive role in steering the country's industrialization through its Investment Priorities Plan (IPP) that promotes the New Industrial Policy (NIP). The NIP aims to transform the manufacturing industry into a globally competitive industry supported by backward and forward linkages to create decent jobs and promote sustainable and comprehensive growth. To do this, industrial policies will focus on implementing vertical measures, or ones that are sector/industry specific, and horizontal measures, or ones that cut across sectors, which address constraints to growth, and on institutionalizing coordination mechanisms to ensure effective program implementation (Aldaba 2014).

The 2014 IPP has four priority investment areas: preferred activities that includes 4 broad sectors (manufacturing, agribusiness and fishery, services, and infrastructure and logistics) and 4 specific activities (energy, housing, hospitals and PPP projects); 2. Export Activities that cover the production and manufacture of export products, services exports and activities in support of exporters; 3. Activities with Special Laws that provide for either the mandatory inclusion of the activity in the IPP and/or the grant of incentives under E.O. 226; and 4. ARMM List, which encompasses priority investment areas that have been determined by the Regional Board of Investments of the Autonomous Region in Muslim Mindanao (RBOI-ARMM) in accordance with E.O. 458.

In addition, the Manufacturing Resurgence Program (MRP), identified as a priority program under the National Budget Memorandum No. 118, is designed to revitalize the manufacturing sector that is targeted to account for 30% of the total value added and to generate 15% of total employment through the implementation of the Manufacturing Industry Roadmap (Aldaba 2014). Roadmaps are also created to transform traditional farming into a high value-added agribusiness sector and to transform the services into a globally competitive sector. Table 1 summarizes these roadmaps.

Table 1: Manufacturing industry, agro-processing and services roadmaps for structural transformation, job creation and poverty reduction

Short-run: 2014-2017	Medium-run: 2018-2021	Long-run: 2022-2025	Updates
Manufacturing - Maintain competitiveness of industries with comparative advantage -Strengthen emerging products	-Shift to high value added activities -Investments in upstream or core sectors	-Globally competitive manufacturing industry with strong forward and backward linkages	-CARS Program -Aerospace

-Rebuild existing capacity of industries Target sectors: automotive, electronics, food, garments, motorcycle, shipbuilding, chemicals, and allied or support industries	-Link and integrate industries within the economy Target sectors: iron and steel and other metals industry, as well as in parts and components)	-Hub for regional and global production networks	-Shipbuilding: Support package for RORO Maritime Industrial Parks -Eco-PUV modernization: support for local platform and bodybuilding manufacturers
Agribusiness and fishery -Strengthen agro-processing Target sectors: rubber, coconut, mangoes, coffee, banana and other high value crops	-Strengthen supply chains further -Upgrade commodity clusters	-Deepen participation in global value chain -PH as agribusiness regional hub	-Convergence among stakeholders in cacao, coffee, rubber clusters -Ongoing roadmap in fruits and nuts cluster
Services -Focus on labor-intensive sectors (tourism, construction, ship repair, maintenance, repair and overhaul of aircraft) and infrastructure investments -Move up ITBPM global value chain	-Focus on education, design, R&D, finance, infrastructure -engineering & services embedded in manufacturing -HRD & skills training, innovation ecosystem Inclusive Innovation Center	-Upgrade services especially manufacturing related services -PH as regional services hub	-IT-BPM: Roadmap 2018) -Logistics and infrastructure construction: Build Build Build

Source: Aldaba (2014) and Aldaba (2017)

The BOI IPP 2017-2019 has widen to include the manufacture of industrial and consumer goods including modular housing equipment and parts, processing and commercial production of agricultural, fishery and forestry products, production of seeds/seedlings, establishment of nurseries/hatcheries, support services and infrastructure, and the development of creative industries/knowledge-based services.

4. Product sophistication and the Philippines' export portfolio, 1995 to 2014

To describe the evolution of the Philippines' export portfolio, export shares, RCA, and the metric for product sophistication (*PRODY*) are computed using the COMTRADE HS 1992 at the 6-digit disaggregation. Products in the export basket are those that have revealed comparative advantage, or $RCA = 1$, and are substantially exported, or have at least 0.5% share to the country's total exports.

In 1995, the Philippines' export basket consists of agricultural and animal products, electronics and parts, and chemicals (table 2). *Data processing equipment* and *computer data storage units* account for around 10% of the country's total exports while integrated circuits, ignition/wiring sets account for around 5%. *Coconut oil, bananas, pineapples, shrimps/prawns, tuna,* and *raw sugar cane* account for around 14% while textiles account for around 9%. In 2005, the export basket consists mostly of electronics and machineries. While the shares of *parts of data processing equipment* and *computer data storage units* to total exports have increased to around 14%, integrated circuits account for around 32%, making it the country's top exports. *Banana/plantain* and *coconut oil,* accounting for 21% of the total exports, are the only agricultural products that remain in the basket. In 2014, *integrated circuits* are still the top exports at around 17% while the share of *data processing equipment* and *computer data storage units* is at 12%. Some products such as semiconductor devices, transistors, cruise ships,

inductors, radio receivers/transmitters, and minerals (nickel ores and copper ores) are now included in the basket.

In addition, we leverage the imports data to create an index for imports intensity (MRCA), which is computed analogous to Balassa's revealed comparative advantage. Table 2 reveals that around 26%, 35%, and 43% of exports in the portfolio are intensively imported by the country in 1995, 2005, and 2014, respectively (see table 2). In addition, the country's top exports in 2014, such as *integrated circuits* and *parts/accessories of data processing equipment*, have high imports intensity.

Table 2: Evolution of the Philippines' export portfolio 1995-2014

	Share total exports, 1995	***PRODY***	**MRCA**
Parts and accessories of data processing equipment ne	5.55	729	1
Computer data storage units	4.90	831	
Coconut (copra) oil crude	4.70	312	
Bananas, including plantains, fresh or dried	3.18	403	
Monolithic integrated circuits, digital	2.37	833	
Copper cathodes and sections of cathodes unwrought	2.35	644	
Transmit-receive apparatus for radio, TV	2.02	853	1
Ignition/other wiring sets for vehicles/aircraft/ship	1.75	806	
Shrimps and prawns, frozen	1.57	488	
Copper ores and concentrates	1.50	493	1
Iron ore, concentrate, not iron pyrites, agglomerated	1.30	477	
Radio reception apparatus	1.25	1089	1
Transistors, except photosensitive, < 1 watt	1.23	927	1
Monolithic integrated circuits, except digital	1.21	896	1
Tuna, skipjack, bonito, prepared/preserved, not mince	1.19	459	
Cameras for 35 mm roll film except single lens reflex	1.12	1550	1
Pineapples, otherwise prepared or preserved	1.07	586	
Men, boys trousers & shorts, of cotton, not knit	1.01	624	
Brassieres and parts thereof	0.99	693	
Radio receivers, external power, sound reproduce/record	0.98	1079	1
Men, boys shirts, of cotton, knit	0.92	670	
Hybrid integrated circuits	0.89	697	
Containers, outer surface plastic or textile	0.88	730	
Basketwork, wickerwork products of vegetable material	0.86	584	
Unrefined copper, copper anodes, electrolytic refining	0.84	539	
Pullovers, cardigans of cotton, knit	0.83	675	
Pullovers, cardigans of manmade fibers, knit	0.76	712	
Footwear, sole rubber, plastics uppers of leather, ne	0.69	771	
Coconut (copra) oil or fractions simply refined	0.69	455	
Men, boys shirts, of cotton, not knit	0.69	729	
Women, girls trousers & shorts, of cotton, not knit	0.67	699	
Photosensitive/photovoltaic/LED semiconductor devices	0.66	1098	1
Colour television receivers/monitors/projectors	0.65	1035	
Babies garments, accessories of cotton, knit	0.64	680	
Babies garments, accessories of cotton, not knit	0.63	769	
Coconut or copra oil-cake and other solid residues	0.59	354	
Hats and other headgear, knit or crochet	0.53	571	
Raw sugar, cane	0.51	466	1
	Share total exports, 2005	***PRODY***	**MRCA**
Monolithic integrated circuits, digital	22.46	833	1
Monolithic integrated circuits, except digital	10.11	896	1
Computer data storage units	7.43	831	
Parts and accessories of data processing equipment ne	6.75	729	1

Hybrid integrated circuits	4.20	697	
Ignition/other wiring sets for vehicles/aircraft/ship	1.47	806	
Bananas, including plantains, fresh or dried	1.34	403	
Static converters	1.33	1002	
Transistors, except photosensitive, > 1 watt	1.05	740	1
Computer input or output units	1.00	858	
Parts for radio/tv transmit/receive equipment	0.91	827	1
Digital computers with CPU and input-output units	0.80	821	
Copper cathodes and sections of cathodes unwrought	0.72	644	
Parts of electronic integrated circuits	0.72	872	1
Coconut (copra) oil crude	0.71	312	
Video recording/reproducing apparatus, magnetic tape	0.68	798	
Optical devices, appliances and instruments	0.68	1162	
Electrical machines and apparatus	0.65	1057	
Photosensitive/photovoltaic/LED semiconductor devices	0.54	1098	1
Brake system parts except linings for motor vehicles	0.51	1302	
	Share total exports, 2014	***PRODY***	**MRCA**
Monolithic integrated circuits, except digital	16.59	896	1
Computer data storage units	6.56	831	
Parts and accessories of data processing equipment ne	5.07	729	1
Nickel ores and concentrates	3.74	706	
Bananas, including plantains, fresh or dried	2.36	403	
Ignition/other wiring sets for vehicles/aircraft/ship	2.29	806	
Electronic integrated circuits/microassemblies	2.22	685	
Static converters	2.09	1002	
Photosensitive/photovoltaic/LED semiconductor devices	1.69	1098	1
Transistors, except photosensitive, > 1 watt	1.47	740	1
Computer input or output units	1.32	858	
Parts of line telephone/telegraph equipment	1.09	960	1
Cruise ships, excursion boats, ferry boats	1.09	1021	
Copper ores and concentrates	1.01	493	1
Coconut (copra) oil crude	0.97	312	
Copper cathodes and sections of cathodes unwrought	0.96	644	
Builder's joinery and carpentry of wood	0.86	940	
Electric capacitors, fixed, ceramic, multilayer,	0.82	1005	1
Monolithic integrated circuits, digital	0.82	833	1
Nickel oxide sinters, intermediate nickel products ne	0.79	392	
Colour television receivers/monitors/projectors	0.74	1035	
Coconut (copra) oil or fractions simply refined	0.72	455	
Measuring or checking equipment	0.66	981	
Parts of electronic integrated circuits	0.66	872	1
Inductors, electric	0.59	840	1
Electronic printed circuits	0.58	1037	1
Parts for radio/tv transmit/receive equipment	0.57	827	
Spectacle lenses of other materials	0.50	910	1

Source: Authors' computation using COMTRADE HS 1992 at the 6-digit disaggregation. Average *PRODY* in 1995, 2005, and 2014 is 711, 835, and 797, respectively.

What about the evolution of the exported products in terms of sophistication? To put the discussion into context, table 3 shows the top and bottom 10 products in the world at the first and fifth quintile of $PRODY_{world}$. Transcribing machine has the highest *PRODY* at around 2232 and lighter refill fuel has the lowest at 90. Products in the first quintile include agricultural, animal and forest products, chemicals, and garments and footwear. Products in the fifth quintile

include chemicals and machinery. The average *PRODY* of products in the world market is around 1001.

Looking into the overall sophistication of the country's export basket, figure 2 shows that the Philippines' overall export basket has sophistication level similar to Indonesia and Vietnam and higher than Brunei and Laos but lower than its ASEAN neighbors like Thailand, Singapore, and Malaysia. Among all the countries in figure 2, East Asian countries have export baskets with the highest overall sophistication.

The average sophistication of products in the country's export basket has barely improved from 1995 to 2014 and while the average *PRODY* has increased, it has remained lower than the world's average *PRODY* (see table 3). This can be attributed to the high concentration of the export basket into integrated circuits and parts/accessories of data processing equipment, which account for 28% of the country's export basket in 2014. In addition, there are relatively sophisticated products in 1995 that are no longer in the export baskets of succeeding years. These include cameras (*PRODY* of 1550), radio reception apparatus (*PRODY* of 1089), and radio receivers (*PRODY* of 1079). This reflects the development of high-technology gadgets that became better substitutes for these products. Similarly, there are relatively sophisticated products in 2005 that are no longer in the 2014 export portfolio. These include *electrical machines and apparatus* (*PRODY* of 1057) and brake system parts for motor vehicles (*PRODY* of 1302).

On a more positive note, there are relatively sophisticated products in 2005 that are included in the 2014 export basket. These include *static converter*s (*PRODY* of 1002) although its shares have not significantly increased, accounting for 1.33% and 2.09% of the country's total exports in 2005 and 2014, respectively. In addition, *static converters* are not intensively imported by the country so it has the potential to expand the country's net trade. There are also new and relatively sophisticated products in the 2014 export portfolio. These include *photosensitive/photovoltaic/LED semiconductor devices, parts of line telephone/telegraph equipment, electric capacitors, electronic printed circuits, and cruise ships/excursion boats/ferry boats*. Among these products, *cruise ships/excursion boats/ferry boats* are not intensively imported by the country and thus, have the potential to expand the country's net trade.

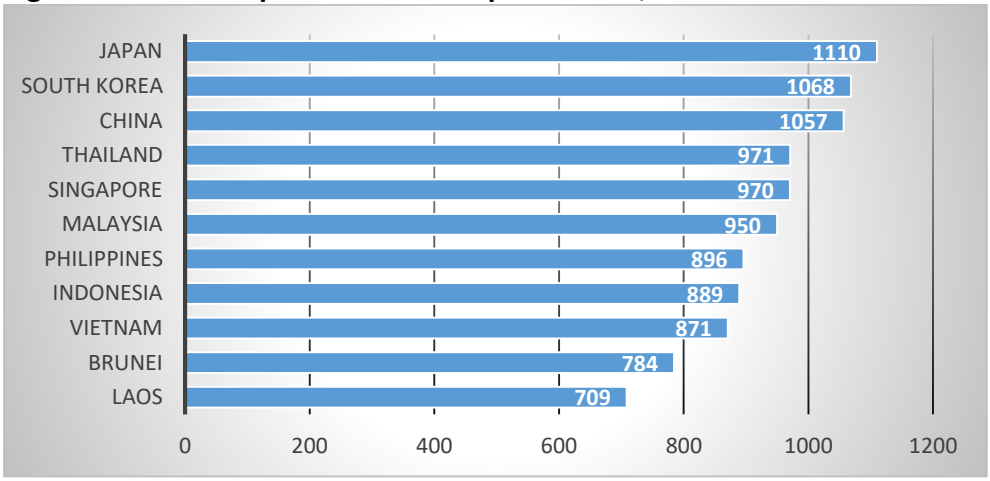
Table 3: 2014 Top and bottom 10 products in the world, first and fifth quintile of $PRODY_{world}$

	PRODY		***PRODY***
Bottom 10, first quintile		**Top 10, first quintile**	
Lighter refill fuels (pack < 300 cc)	90	Men, boys garments, of material, not knit	791
Petroleum oils, oils from bituminous minerals, crude	185	Ceramic statuettes, ornamental articles, not porcelai	791
Cocoa beans, whole or broken, raw or roasted	259	Sanitary articles of paper, sanitary towels, diapers	790
Natural gas, liquefied	269	Nitrogen	790
Gum Arabic	289	Zinc dust	790
Logs, Keruing/Ramin/Kapur/Teak/Jongkong/Merbau/	297	Ammonia in aqueous solution	790
Coffee, not roasted, not decaffeinated	303	Terry towelling of cotton, width > 30cm	790
Coconut (copra) oil crude	312	Ferro-silicon, <55% silicon	790
Goat or kid skin leather, tanned or retanned	314	Footwear, sole rubber/plastic, upper textile, not sport	790
Lumber, Okoume, Obeche, Sapelli/Sipo/Acajou/Makore/et	315	Fish-liver oils, fractions, not chemically modified	789
Bottom 10, fifth quintile		**Top 10, fifth quintile**	
Filament lamps, except ultraviolet or infra-red	1200	Recorded gramophone records	2332
Hand pumps not designed to measure flow	1200	Quartzite, crude or roughly trimmed	2332

Granules of pig iron or spiegeleisen	1200	Transcribing machines	2332
Rubber tube, pipe or hose not reinforced, no fittings	1200	Cobalt chloride	2332
Rubber articles, inflatable, vulcanized rubber	1200	Turntables with automatic record changing mechanism	2332
Pigments and preparations based on cadmium compounds	1200	Mouth organs (harmonicas)	2166
Domestic kitchen waste disposers	1200	Pine oil	2006
Vitamin B3 & B5, D-or DL-panthothenic acid, derivative	1200	Pneumatic mattresses, of cotton	2006
Boxes, moulding, for metal foundry	1200	Fluorosilicates of sodium or of potassium	2006
Springs, iron or steel, except helical/leaf	1201	Harmoniums, pipe organs,	2006

Source: Authors' computation using COMTRADE HS 1992 at the 6-digit disaggregation. The average *PRODY* of products in the world market is around 1001. PRODY in the first quintile is between 90-790, second quintile is between 791-937, third quintile is 938-1063, fourth quintile is 1064-1199, and the fifth quintile is between 1200 -2332.

Figure 2: Overall sophistication of export basket, selected Asian countries



Source: Authors' computation using COMTRADE HS 1992 at the 6-digit disaggregation.

Table 4: Descriptive statistics of the 2014 Philippines' exports

Quintile of $PRODY_{world}$	Number of products	Average *PRODY* of PH exports	Share to total exports
All products			
1	972	646	35.63
2	971	871	36.92
3	972	1001	17.81
4	971	1127	7.38
5	971	1364	2.26
Export with RCA>1			
1	250	653	30.39
2	172	871	35.12
3	144	999	15.47
4	90	1128	5.41
5	64	1353	1.41
Export portfolio (RCA>1, export share>= 0.5%)			
1	10	556	30.39
2	9	853	35.12
3	8	998	15.47
4	1	1098	5.41
5	0		

Source: Authors' computation using COMTRADE HS 1992 at the 6-digit disaggregation. The average *PRODY* of products in the world market is around 1001. PRODY in the first quintile is between 90-790, second quintile is between 791-937, third quintile is 938-1063, fourth quintile is 1064-1199, and the fifth quintile is between 1200 -2332.

Looking at the full 2014 Philippines' export data, shown in the upper panel of table 4, products that belong to the lowest two quintiles of the $PRODY_{world}$ account for almost 72% of the country's total exports. Products at the highest two quintiles account for around 10% only. Looking at the goods for which the country has comparative advantage in, there are 720 products and around 65% of these goods are mostly in the first and second quintiles of the $PRODY_{world}$ while around 6% are in the fourth and fifth quintiles. Products that belong to these quintiles have an average *PRODY* that is higher than the average $PRODY_{world}$ although these only account for around 7% of the total export value. Looking at the country's 2014 export portfolio, around half are in the first and second quintiles. There is one product, *photosensitive/photovoltaic/LED semiconductor devices*, that belongs to the upper quintile.

In terms of markets, the top destinations of the remaining agricultural products in the country's export basket (*banana/plantain*) include mostly Asian countries like Japan, China, South Korea, Singapore, Kuwait, Iran, UAE, and Saudi Arabia. China and Japan are significant markets of minerals. These are the only countries where nickel ores and concentrates are exported to, with the former getting 95% of the country's total exports of nickel ores and concentrates. The same markets are top destinations for *copper ores and concentrates* with China and Japan getting 56% and 28% of the country's export of the product, respectively. Top destinations for *crude copra oil* includes OECD economies the Netherlands, USA, Germany, Italy, and Spain with the first three countries accounting for 81% of the country's total exports of crude copra oil. Top markets for *refined coconut oil* includes OECD countries such as USA and Canada with the former accounting for 62% of the Philippines' total export of the product. There are also Asian markets for refined coconut oil including Japan, Hong Kong, and China.

Markets for integrated circuits are mostly Asian countries. China, Hong Kong, Singapore, Vietnam, Malaysia account for around 57% of the Philippines' total export of *digital monolithic integrated circuits.* The percentage, accounted for by China, Singapore, South Korea, Malaysia, Thailand, Japan, Hong Kong, and Vietnam, is higher (around 80%) for *non-digital monolithic integrated circuits*. Hong Kong, Singapore, China, Japan, Thailand, South Korea, and Malaysia account for 65% of the country's total exports of *electronic integrated circuits/microassemblies* while Malaysia, Singapore, Thailand, Hong Kong, China, Vietnam, and Japan account for around 94% of the country's total export of parts of *electronic integrated circuits*. OECD countries like Germany, Japan, Netherlands, Canada, and France are also markets for integrated circuits, although their export shares are not as big as the Asian countries.

Around 42% of the country's exports of computer data storage units go to China. The rest of the markets are mostly OECD countries like USA, Germany, Japan, Czech Republic, and Poland and developed Asian countries like Singapore, Malaysia, and Hong Kong.

The markets for the five exports (*static converters, photosensitive/photovoltaic/LED semiconductor devices, cruise ships/ferry boats, color television receivers/monitors/projectors, and electronic printed circuits*) that are relatively sophisticated differ. Top destinations of products for static converters are mostly OECD countries with USA (35%) and Netherlands (21%) as top markets. Asian countries, like China, Hong Kong, UAE, Singapore, Malaysia, and South Korea are also markets although not as big as the OECD countries. Cruise ships/ferry boats are mainly exported to Marshall Islands, Hong Kong, and

Singapore. *Colour television receivers/monitors/ projectors* are exported to OECD economies like USA (41%) the Netherlands (19%), and Germany (9%).

Meanwhile top markets for *photosensitive/photovoltaic/LED semiconductor devices*, a product that is also intensively imported by the Philippines, are mostly OECD economies with Japan as the biggest market at 53% while top markets for *electronic printed circuits*, another product that is also intensively imported by the Philippines, include China, Hong Kong, Japan, South Korea, Vietnam, Thailand, North Korea, and Malaysia. Together, these countries account for around 63% of the Philippines' total export of electronic printed circuits.

5. Diversification strategies

5.1 Potential strategies in the short-run

Given the assumption that the current exports embodied in them the country's current production capabilities and that branching out into new products is easier if production requisites of these products are relatively similar with the country's current exports, the starting point to identify the country's short-run diversification strategies is the country's 2014 export portfolio (data are listed in table 2 and summarized in table 4 and figure 3). Out of the 4857 products, the Philippines have export data on 3464 products, 720 of which have revealed comparative advantage. Out of these 720 products, there are 28 products that are substantially produced. These 28 products account for 59% of the country's total export value.

To craft the short-run strategies, we leverage some metrics from the product space, such as the proximity and *PRODY*. Since the idea is to improve the current export basket, the selection of potential exports (product *j*) hinges on product *j* being more sophisticated than the existing products in the country's export basket. It also hinges on the similarity of the country's current production structures to the production requisites of product *j*. This implies less investments are needed to accommodate the production of product *j*, and hence, can easily be produced in the short-run.

Figure 3 summarizes the selection of product *j*. The proximity data of the 4857 products in the COMTRADE data are matched to the 28 products in the country's 2014 export basket. Product *j* needs to be relatively closer to product *i*, or those that have proximity of at least 0.55.[2] There are 65 products that satisfy this requirement. These products are further limited to more sophisticated exports by choosing only those with *PRODY* higher than the *PRODY* of the products in the country's export basket. Imposing this restriction resulted in 48 remaining products. Those that have imports intensity are also eliminated leaving 27 products for potential diversification. Based on these 27 products, there are two potential short-run strategies. The first capitalizes on the 10 products for which the Philippines has revealed comparative advantage in but are not yet substantially produced while the second strategy capitalizes on the 17 products for which the country has no revealed comparative advantage in.

[2] While a higher proximity value (closer to 1) ensures the similarity in production requisites of product *j* to the country's export portfolio, the highest proximity after imposing the requirements of selection discussed above is 0.67 and there are very few products left. This is indicative of the fact that the country's export basket is still in the periphery, or in the less connected parts, of the product space. Hence, there are relatively fewer products to branch out to.

Figure 3: Selection of products (product *j*) for potential diversification in the short-run

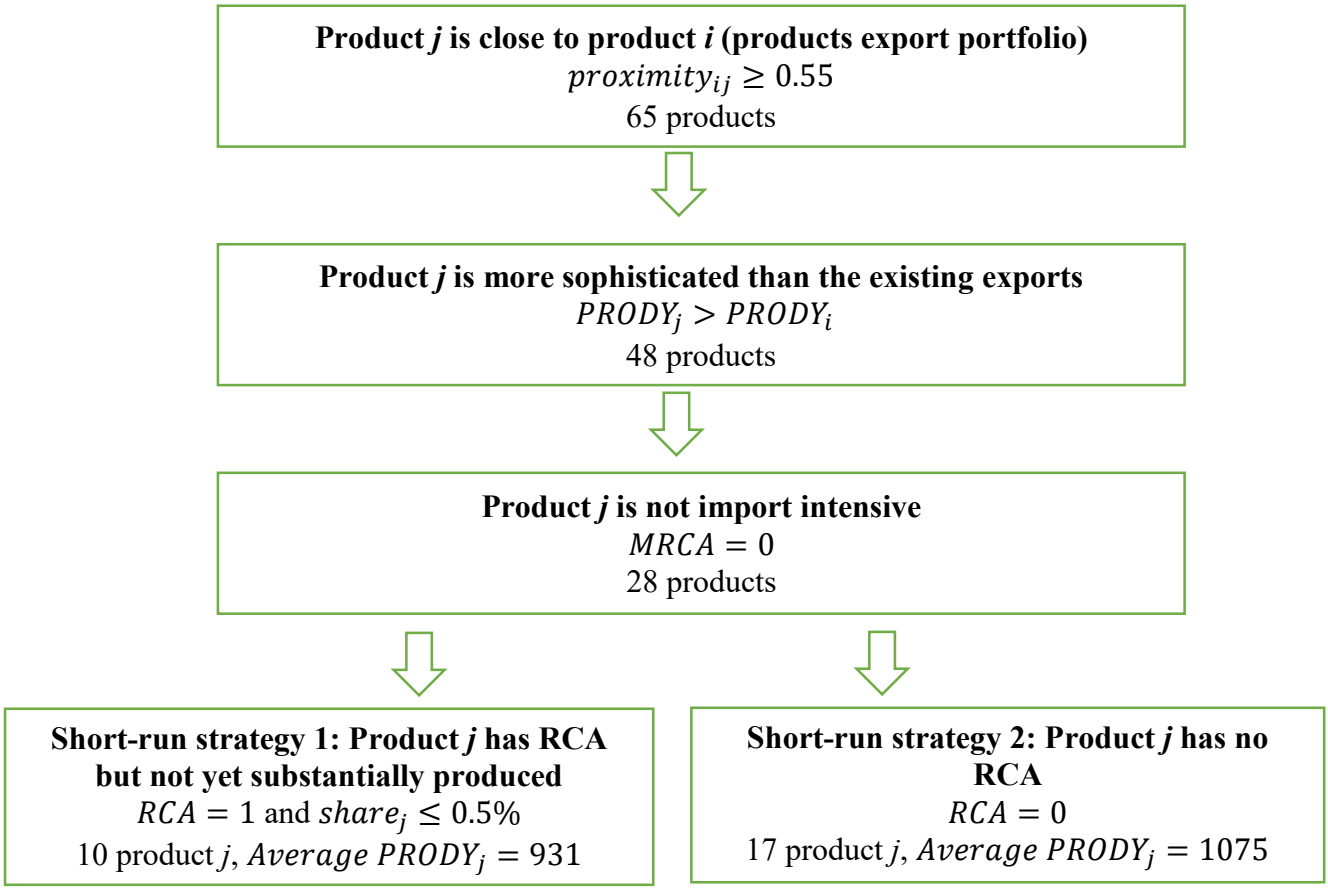


Table 5 summarizes some information on the potential products for SR diversification or product *j* (see table 1A in the appendix for detailed information on *PRODY* and proximity of products *i* and *j*). Products for the first short-run strategy have an average *PRODY* of 931 while products for second short-run strategy have an average *PRODY* of 1075. The average *PRODY* of the country's 2014 export portfolio is 797.

5.1.1 Short-run diversification strategy 1

Products for short-run diversification strategy are products that have revealed comparative advantage, are relatively sophisticated, and are close to the current products in the country's export basket. These are mostly manufacturing goods (upper panel of table 6) whose average sophistication level is higher than that of the country's 2014 export basket but is still lower than that of the world. These products are identified for short-run strategy since these are already produced by the country and less adjustments in the production structures are needed. In addition, while these products are produced more in the country relative to the world market, each account for less than 0.5% of the country's total exports. Hence, the analysis of what these products are and their markets can facilitate achievable diversification objectives in the immediate period. Mapping of the goods in the 2014 export portfolio and the potential products for short-run diversification can be found in table 1A in the appendix.

Table 5: Potential products for diversification in the short-run

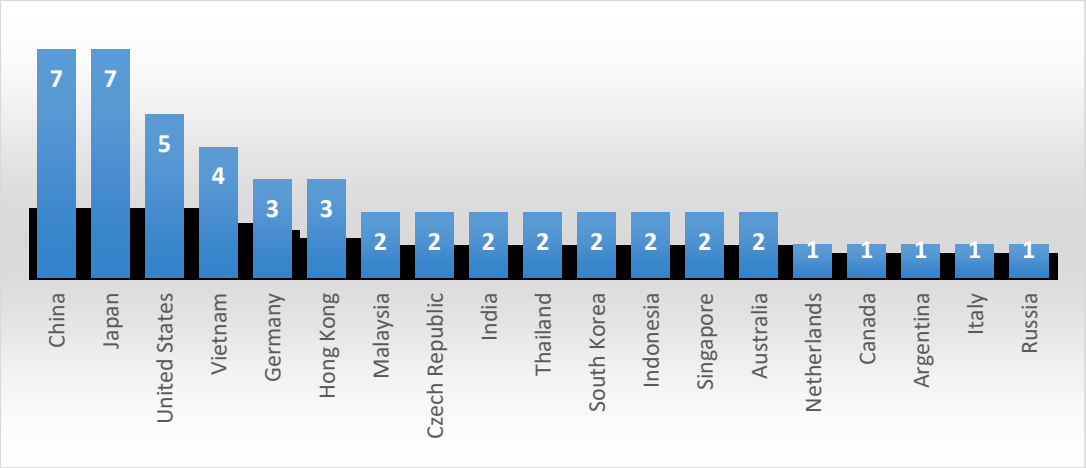
Strategy 1: Products with RCA=1, close to the production structure of the products in the export basket	***PRODY***	**Share to total exports (%)**
Parts and accessories of revolution counters,	1127	
Speed indicators, tachometers, stroboscopes	1112	
Electrical resistors fixed, power capacity < 20 watt	1072	
Indicator panels incorporating electronic displays	1023	
Parts of printing machinery and ancillary equipment	1011	
Electrical boards, panels, , not equipped	1001	
Objective lenses	971	
Furniture parts	943	
Hybrid integrated circuits	697	
Coconut or copra oil-cake and other solid residues	354	
Strategy 2: Products with RCA=0, close to the production structure of the products in the export basket		
Wheels including parts/accessories for motor vehicles	1224	0.0292
Valves for oleohydraulic or pneumatic transmissions	1205	0.0517
Parts of industrial or laboratory furnaces/ovens	1183	0.0002
Woven fabric >85% nylon, polyamide, unbleached/bleached	1182	0.0001
Articles of iron or steel	1140	0.0630
Foil, copper alloy, backed, t < 0.15mm	1118	0.0001
Parts of sewing machines	1106	0.0017
Trailer/non-mechanically propelled vehicle parts	1085	0.0008
Electrical machines and apparatus	1057	0.1343
Doors, windows, frames of iron or steel	1043	0.0007
Weighing machine parts and weights of all kinds	1029	0.0004
Fittings for plastic tube, pipe or hose	1025	0.0099
Sheet , cellular of polymers of styrene	1016	0.0002
Plastic builders' ware	998	0.0230
Aluminum structures and parts, for construction	966	0.0250
Wooden pallets, box pallets and load boards	952	0.0016

Source: Authors' computation using COMTRADE HS 1992 at the 6-digit disaggregation. The average *PRODY* of products in the world market is around 1001. PRODY in the first quintile is between 90-790, second quintile is between 791-937, third quintile is 938-1063, fourth quintile is 1064-1199, and the fifth quintile is between 1200 -2332.

Potential products that the country can branch out into include *circuits* (Hybrid integrated circuits), *equipment/devices/parts of electrical nature* (electrical resistors fixed, power capacity < 20 watt, Electrical boards), *parts/accessories of electronics* (indicator panels incorporating electronic displays), *counters and speed measuring equipment* (accessories of revolution counters and speed indicators/tachometers/stroboscopes), and *others* (objective lenses and furniture). Coconut/copra oil-cake is the only agricultural product in the list of products for short-run diversification.

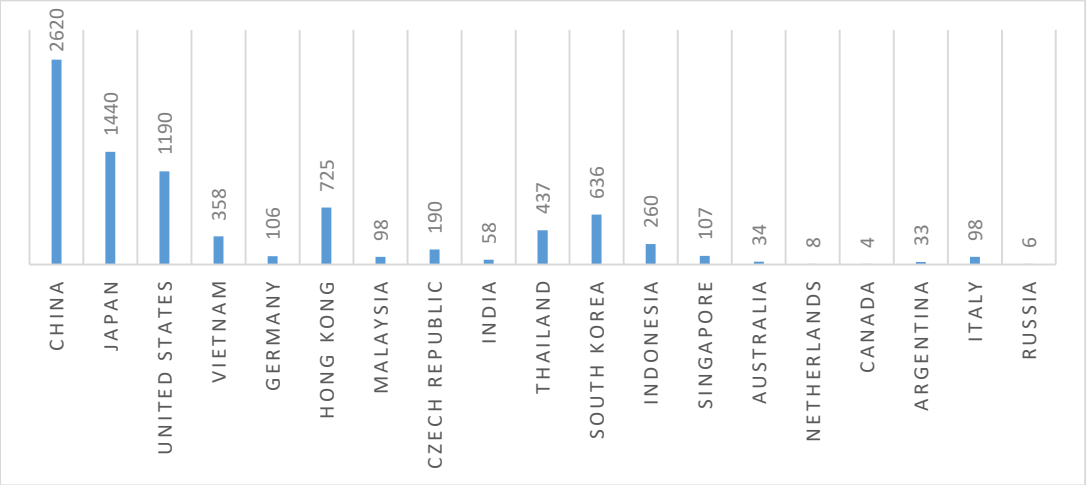
To analyze existing markets, these short-run products are mapped with their top five destinations (see table 2A in the appendix for detailed information on *PRODY*, and existing markets and shares). It can be seen in figure 4 that the Philippines is exporting these products mostly to OECD economies such as USA, Japan, and Germany, and to Asian countries like China, Japan, Vietnam, and Hong Kong. Out of the 10 products that can be potentially tapped for the first short-run diversification strategy, the country is exporting 7 products to China and Japan, 5 to the USA, 4 to Vietnam, and 3 to Germany and Hong Kong. By exporting these products, the country has received the most from China (see figure 5) amounting to $2620 million. The value of exports going to Japan and USA is almost one-half of that of China (around $1440 million and $1190, respectively).

Figure 4: Number of SR products (strategy 1) exported by the PH in each market



Source: Authors' computation using COMTRADE HS 1992 at the 6-digit disaggregation.

Figure 5: Total value of SR products (strategy 1) exported to each market, in $100000



Source: Authors' computation using COMTRADE HS 1992 at the 6-digit disaggregation.

To identify markets for potential expansion, we leverage the imports data, which we limited to the 10 products identified for the Philippines' short-run diversification. For each of this product, countries are chosen as potential markets when their imports intensity is greater than 1 and the share of their imports to the total imports of the product is substantial (at least 0.5%). Figure 6 summarizes the information on potential markets (see table 3A in the appendix for detailed information).

In Asian markets, Vietnam, and Hong Kong are currently importing the most number of products (5) that the Philippines can potentially diversify into. These include coconut/copra oil-cake, electrical resistors, indicator panels *incorporating electronic displays, objective lens and parts/accessories of revolution counters*. Thailand and Indonesia are also potential markets for *indicator panels incorporating electronic displays, parts and accessories of revolution counters, parts of printing machinery/ancillary equipment, and speed indicators/tachometers/stroboscopes.*

In the Middle East and North African markets, Israel is a potential destination for electrical board/panels, objective lens, parts of printing machinery/ancillary equipment, and furniture

parts while Iran is a potential destination for coconut/copra oil-cake, fixed electrical resistors, furniture parts, and indicator panels. Morocco, on the other hand, is a potential market for electrical board panels, hybrid integrated circuits, and speed indicators/tachometers/stroboscopes and Tunisia is a potential market for electrical board panels, fixed electrical resistors, and indicator panels.

A number of OECD countries are also potential markets with Czech Republic and Germany are importing the most number of the short-run products (7) that the Philippines can potentially diversify into. These two economies are potential destination of fixed electrical resistors, electrical board panels, furniture parts, indicator panels, parts/accessories of revolution counters, parts of printing machinery/ancillary equipment, and speed indicators/tachometers/stroboscopes. Sweden, Hungary, Austria, and USA are intensively importing 5 short-run goods, which include indicator panels, electrical boards/panels, speed indicators/tachometers/stroboscopes, parts/accessories of revolution counters, and furniture parts.

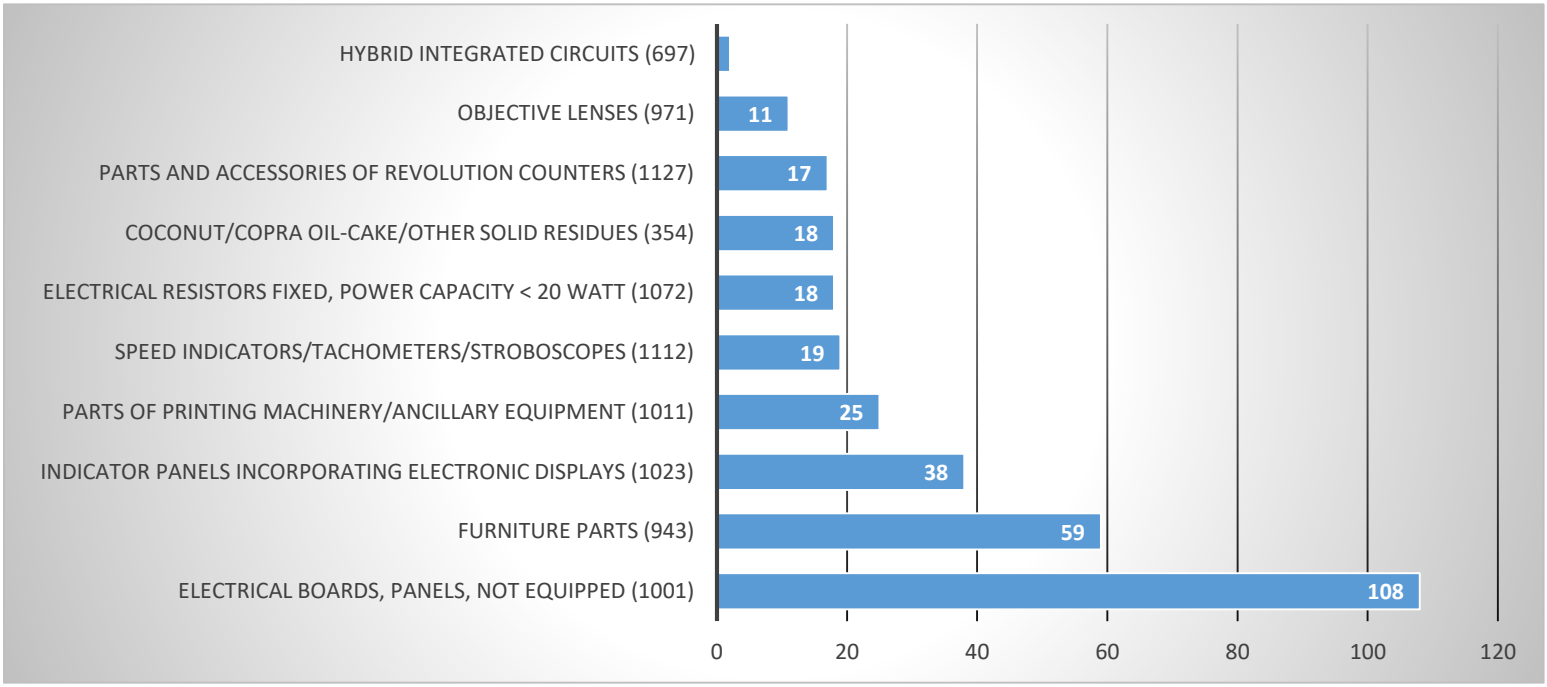
Looking at the number of countries that intensively import these short-run products, figure 7 shows that electrical boards/panels are imported by 108 countries. This is followed by furniture parts, indicator panels and parts of printing machinery/ancillary equipment which are imported by 59, 38, and 25 countries, respectively. Among the list of potential goods for short-run diversification, coconut/copra oil-cake is the only agricultural product and is imported by 18 countries, objective lens and hybrid integrated circuits have the least number of importing countries.

Out of the 10 potential products for short-run diversification, there are 6 with *PRODY* that is at least as high as the average sophistication level in the world. These include *equipment/devices/parts of electrical nature* (electrical boards/panels and electrical resistors fixed [power capacity < 20 watt]), *parts/accessories of electronics* (indicator panels incorporating electronic displays), *counters and speed measuring equipment* (accessories of revolution counters and speed indicators/tachometers/stroboscopes), and *others* (parts of printing machinery and ancillary equipment). Numerically controlled lathes for removing metals is the most sophisticated among these products.

Figure 6: Potential markets of the SR products (strategy 1)

Source: Authors' computation using COMTRADE HS 1992 at the 6-digit disaggregation.

Figure 7: Number of countries importing the potential products listed in the SR strategy 1



Source: Authors' computation using COMTRADE HS 1992 at the 6-digit disaggregation.

5.1.2 Short-run diversification strategy 2

Another short-run diversification strategy is to look at products that are relatively close to the country's current production structure but for which the country has no revealed comparative advantage. This short-run strategy leverages the idea that less modifications on the country's existing production structures are needed to produce these more sophisticated products. There are 17 products (lower panel of table 6) for these strategy.

While the products in the first short-run strategy are mostly *equipment/devices/parts of electrical nature, parts/accessories of electronics, counters and speed measuring equipment,* and *others*, potential commodities that can be diversified into for the second short-run strategy are varied. These include *part/accessories of instruments/devices/equipmen*t, such as industrial/laboratory furnaces/ovens and sewing machines; *equipment/devices/parts of electrical nature,* such as electrical machines/apparatus and weighing machine parts; *minerals,* such as foil and copper alloy, and articles of iron, steel and aluminum; and *parts/accessories of motor vehicles,* such as valves for oleohydraulic or pneumatic transmissions, wheels including parts/accessories for motor vehicles, and trailer/non-mechanically propelled vehicle parts. Products related to plastics such as sheet/cellular of polymers of styrene, fittings for plastic tube/pipe/hose, and plastic builders' ware, *textiles,* such as woven fabric, and *others,* such as doors/windows/frames of iron/steel and wooden/box pallets and load boards. In addition, most of these products have sophistication indices that is higher than the average *PRODY* in the world. These products have insignificant shares to the country's total exports, ranging from 0.0001% to 0.1343%.

Similar to the procedure above, we leverage the imports data to identify markets for potential expansion by looking at the countries that intensively import these 16 products. Figure 8 summarizes the information on potential markets of the products classified in the second short-

run strategy (see table 4A in the appendix for detailed information). In Asian markets, Hong Kong and Thailand import the most number of these products. These include clock movements/rough clocks, digital computer CPU with storage/input/output, electric capacitors, electrical machines and apparatus, lamp and lighting fitting parts, parts of/accessories for flashlights and flashbulbs, sewing machines, watches, and sound reproducing apparatus. Singapore and China are also potential markets.

In the Middle East and North African markets, Tunisia, Iran, and Israel are top potential destinations of four products. These are clock movements/rough clocks, electric capacitors, lamp and lighting fitting, and parts of sewing machines for Tunisia; lamp and lighting fitting parts, parts of sewing machines, sound reproducing apparatus, and parts of air conditioners for Iran; digital computer CPU, electrical machines and apparatus, parts/accessories for flashlights and flashbulbs, and parts for air conditioners for Israel.

There are also many OECD countries that are potential destinations with Japan importing 8 out of these 13 products. Netherlands, Finland, Germany, and USA are importers of 7 products while Czech Republic, Canada, Sweden, and Australia are importers of 6 products.

Among the Central and South American countries, Brazil and Mexico are top destinations while in other markets, Slovakia, Romania, and Bulgaria are importers of around half of the potential products.

Looking at the number of countries that intensively import these short-run products (figure 9), parts of sewing machines and lamp/lighting fitting are intensively imported by 69 and 55 countries, respectively. This is followed by parts for air conditioners (47 countries) and fishing reels (42 countries). Parts of watch cases have the least number of importing countries (12) and zinc ores and concentrates (15).

Among the three short-run products that the Philippines is not producing (first three products in figure 9), radiators and parts have 50 potential destinations. Hot rolled alloy-steel is imported by 24 countries and molybdenum wire is imported by 17 economies. While these three products are among the most sophisticated in the roster of potential products for the second short-run diversification strategy, majority of the products have sophistication index higher than the average sophistication of products in the world market.

Figure 8: Number of SR products (strategy 2) exported by the Philippines in various markets

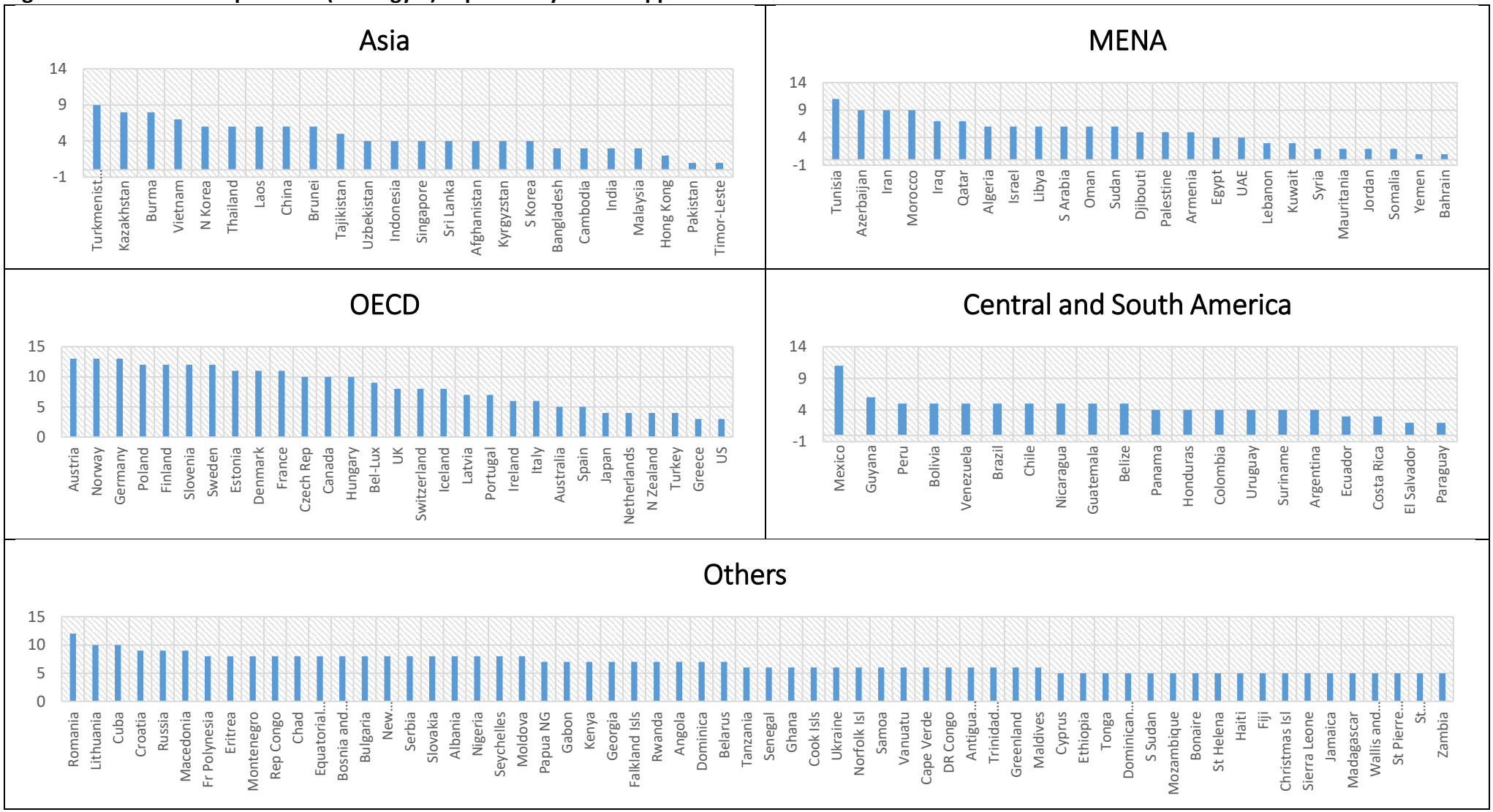
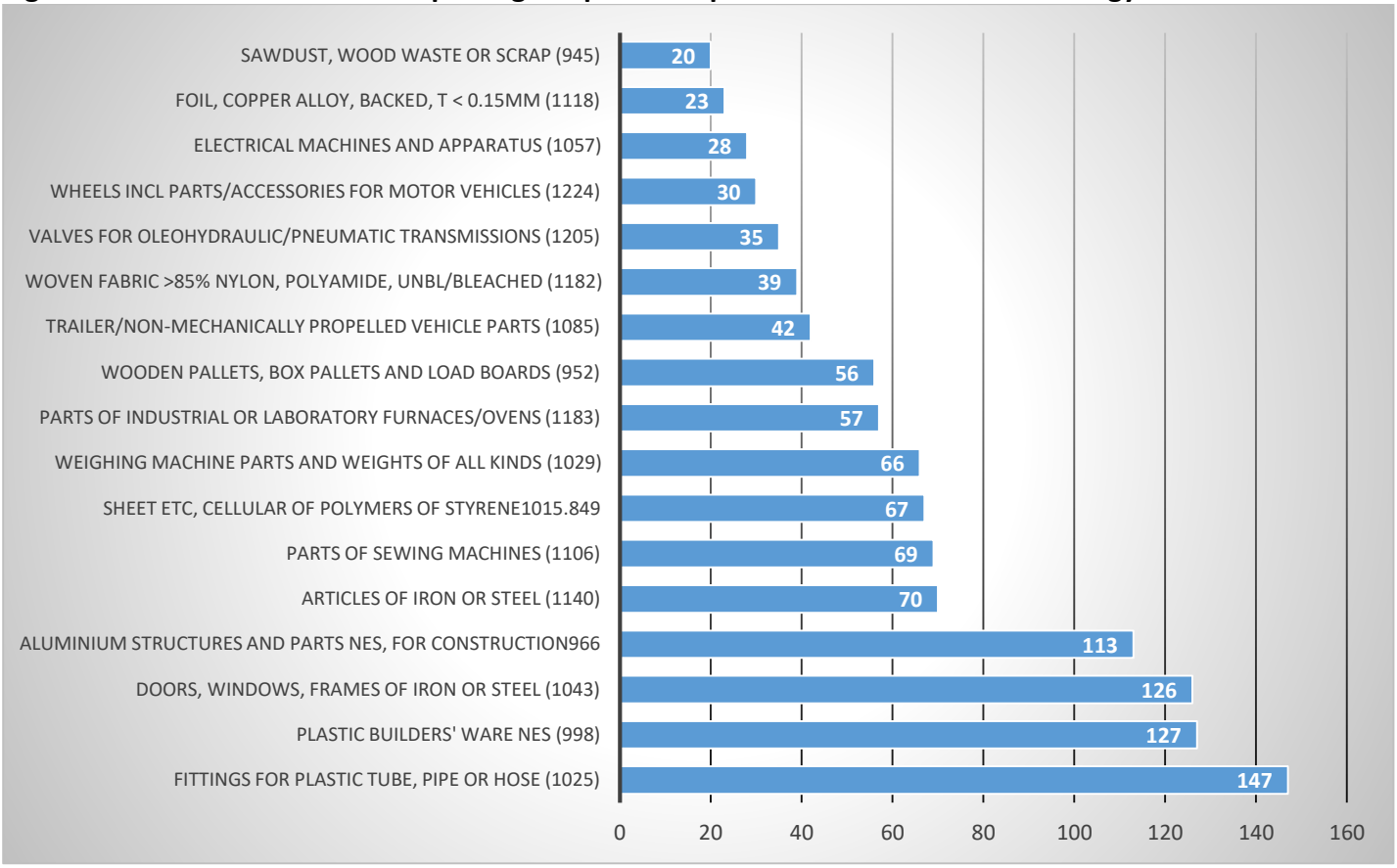


Figure 9: Number of countries importing the potential products listed in the SR strategy 2

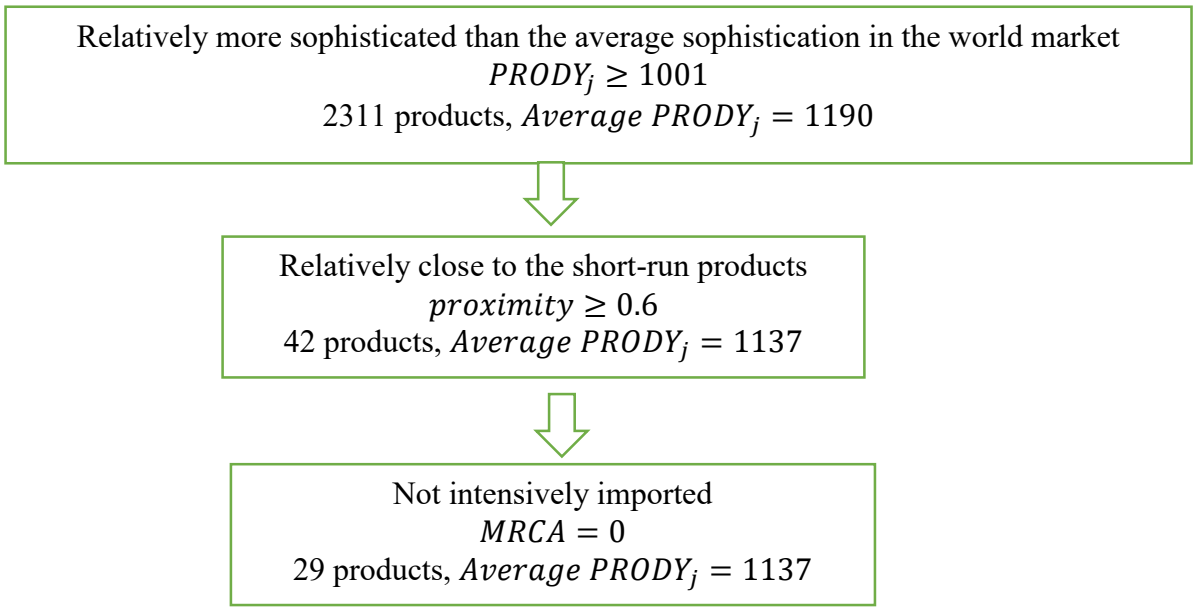


Source: Authors' computation using COMTRADE HS 1992 at the 6-digit disaggregation.

5.2 Potential medium-run diversification strategy

The idea behind the medium-run strategy is that once the country has embarked on the necessary adjustments in its production structures to produce relatively more sophisticated outputs in the short-run, these products can lead to an even sophisticated export basket in the medium-run. Hence, relative to the sophistication of the 27 short-run products, the sophistication index of medium-run products should be at as high as the average product sophistication in the world market, have production requisites similar to the production structures of short-run products, and should expand the country's net trade position. From figure 10, there are 2311 products that are more sophisticated than the short-run products, 42 of which require relatively less modifications in terms of production structure (as indicated by the proximity measure). Finally, 29 products will contribute to the expansion of the country's net trade.

Figure 10: Selection of products for potential diversification in the medium-run



Out of the 27 short-run products, there are 13 commodities for which 29 potential medium-run products are mapped into (see table 6). These include *products related to motor vehicles* (engines/spark-ignition, gaskets/washers/other seals of vulcanized rubber, motor vehicle parts, trailer/non-mechanically propelled vehicle parts, and transmissions for motor vehicles, locks used for motor vehicles of base metal), *agricultural machineries* (rollers/soil preparation/cultivation machinery and scarifiers/cultivators/weeders/hoes), home wares/accessories (plastic bathroom wares), *machines/appliances or their parts/accessories* (automatic sewing machines, centrifuges, colour television receivers/monitors/projectors, domestic iron/steel solid fuel appliances, parts of central heating boiler, parts of household/laundry-type washing machines, and parts of industrial or laboratory furnaces/ovens), *hand and power tools* (pneumatic hand tool parts and pneumatic power engines/motors), and *textiles* (sheet/cellular of polyurethane, yarn/other synthetic staple fibers, and flax toilet/kitchen linen).

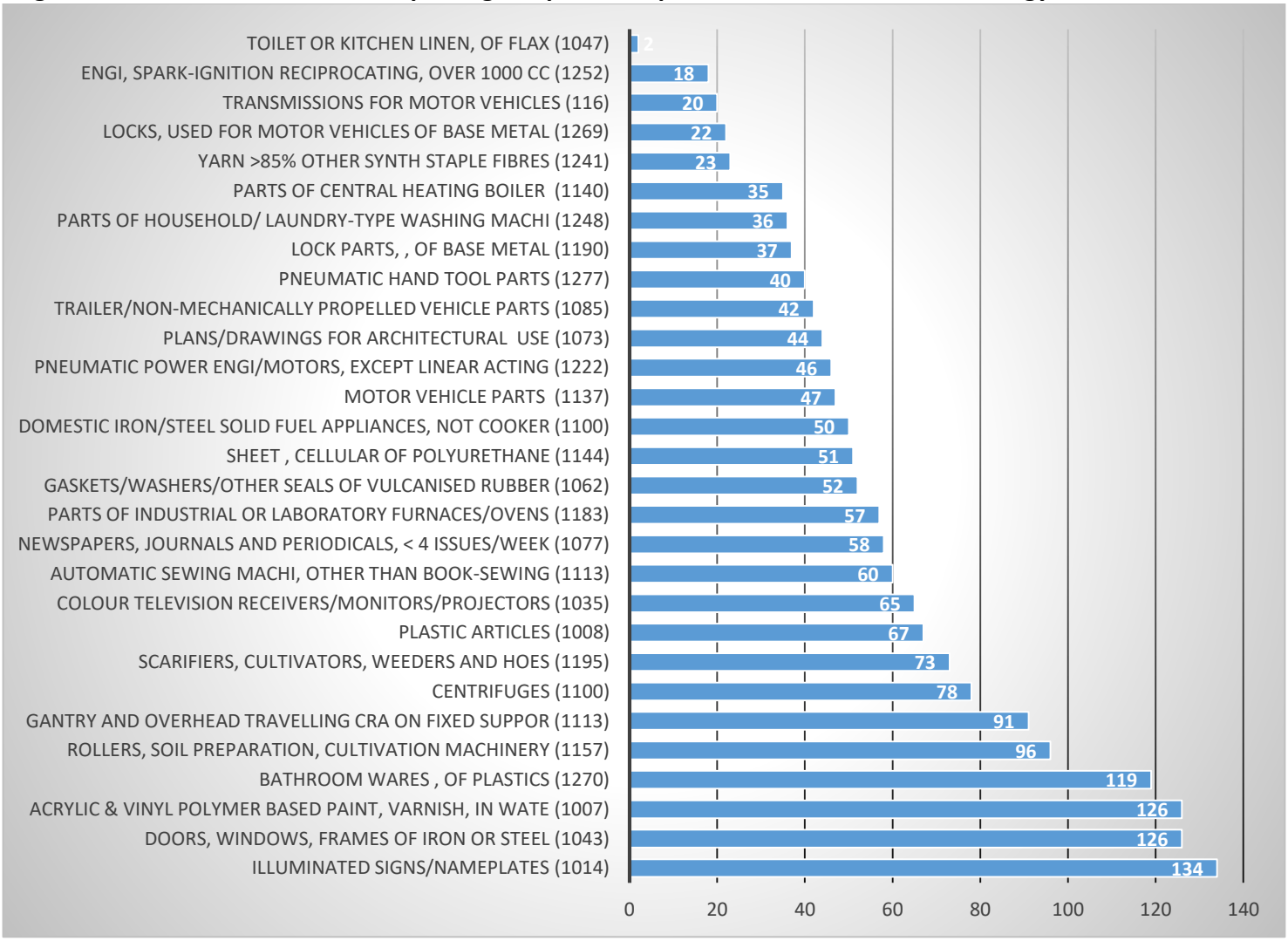
Table 6: Potential products for medium-run diversification

Short-run products	Proximity	Medium-run products
Aluminum structures and parts , for construction (966)	0.62	Illuminated signs, illuminated nameplates (1014)
	0.69	Lock parts, , of base metal, (1190)
	0.61	Plastic articles (1008)
	0.66	Trailer/non-mechanically propelled vehicle parts (1085)
	0.63	Gaskets, washers and other seals of vulcanized rubber (1062)
	0.63	Motor vehicle parts (1137)
	0.63	Sheet , cellular of polyurethane (1144)
Doors, windows, frames of iron or steel (1043)	0.62	Parts of industrial or laboratory furnaces/ovens (1183)
Hybrid integrated circuits (697)	0.67	Toilet or kitchen linen, of flax (1047)
Parts of industrial or laboratory furnaces/ovens (1183)	0.62	Gantry and overhead travelling crate on fixed support (1113)
	0.63	Bathroom wares , of plastics (1270)
	0.63	Plans and drawings for architectural use (1073)
	0.62	Newspapers, journals and periodicals, < 4 issues/week (1077)
	0.62	Doors, windows, frames of iron or steel (1043)
Parts of sewing machine (1106)	0.69	Automatic sewing machine, other than book-sewing (1113)
Plastic builders' ware (998)	0.63	Illuminated signs, illuminated nameplates (1014)
	0.61	Acrylic & vinyl polymer based paint, varnish, in water (1007)
Sawdust, wood waste or scrap (945)	0.60	Scarifiers, cultivators, weeders and hoes (1195)
	0.60	Parts of central heating boiler (1140)
	0.60	Domestic iron/steel solid fuel appliances, not cooker (1100)
Sheet , cellular of polymers of styrene (1016)	0.61	Illuminated signs, illuminated nameplates (1014)
Speed indicators, tachometers, stroboscopes (1112)	0.63	Locks of a kind used for motor vehicles of base metal (1269)
	0.67	Transmissions for motor vehicles (1166)
	0.65	Parts and accessories of revolution counters, (1127)
	0.67	Engine, spark-ignition reciprocating, over 1000 cc (1252)
Trailer/non-mechanically propelled vehicle parts (1085)	0.63	Rollers, soil preparation, cultivation machinery, (1157)
	0.63	Parts of central heating boiler (1140)
	0.62	Sheet , cellular of polyurethane (1144)
Valves for oleohydraulic or pneumatic transmissions (1205)	0.65	Pneumatic hand tool parts (1277)
	0.65	Pneumatic power engine/motors, except linear acting (1222)
	0.60	Centrifuges (1100)
Wheels including parts/accessories for motor vehicles (1224)	0.65	Colour television receivers/monitors/projectors (1035)
	0.63	Locks of a kind used for motor vehicles of base metal (1269)
	0.69	Parts of household or laundry-type washing machine (1248)
	0.63	Locks of a kind used for motor vehicles of base metal (1269)
	0.63	Yarn >85% other synth staple fibers, single not retail (1241)
Wooden pallets, box pallets and load boards (952)	0.62	Sheet , cellular of polymers of styrene (1016)

Source: Authors' computation using COMTRADE HS 1992 at the 6-digit disaggregation. Figures in parentheses in the first/third column are the product's *PRODY*. The average *PRODY* of products in the world market is around 1001. PRODY in the first quintile is between 90-790, second quintile is between 791-937, third quintile is 938-1063, fourth quintile is 1064-1199, and the fifth quintile is between 1200 -2332.

From Figure 11, among the products for medium-run strategy, illuminated signs/nameplates, doors/windows/frames of iron or steel, acrylic/vinyl polymer based paint/ varnish, and plastic bathroom wares have the most number of markets. P*roducts related to motor vehicles*, such as engines/spark-ignition and locks used for motor vehicles of base metal are among the medium-run products with the highest sophistication index that have few existing markets. O*ther* p*roducts related to motor vehicles,* such as motor vehicle parts, trailer/non-mechanically propelled vehicle parts, and transmissions for motor vehicles, and t*extiles,* such as yarn and flax, have few existing markets as well.

Figure 11: Number of countries importing the potential products listed in the MR strategy



Source: Authors' computation using COMTRADE HS 1992 at the 6-digit disaggregation.

5.3 Potential long-run diversification strategy

Given that the country has further pursued the medium-run diversification strategy above, some potential products can be identified for the long-run strategy. Similar to the medium-run strategy, identification of these products is centered on the idea that the country's export portfolio has to evolve in terms of sophistication. There are 2227 products that are more sophisticated than the medium-run products and there are 44 products that are relatively closer to the medium-run products in production requisites (see figure 12).

Figure 12: Selection of products for potential diversification in the long-run

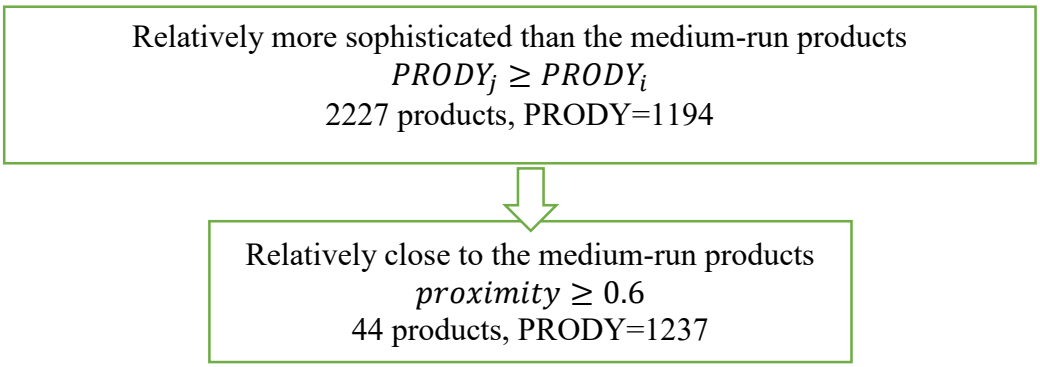


Table 7: Potential products for long-run diversification

Medium-run products	Proximity	Long-run products
Bathroom wares, of plastics (1270)	0.61	Machinery to reel, fold, cut, pink, textile fabric (1357)
	0.61	Drinking glasses of lead crystal (1294)
Centrifuges (1100)	0.60	Parts of centrifuges, including centrifugal dryers (1266)
Colour television receivers/monitors/projectors (1035)	0.65	Wheels including parts/accessories for motor vehicles (1224)
Domestic iron/steel solid fuel appliances, not cooker (1100)	0.60	Multiple-walled insulating units of glass (1118)
	0.60	Presses for particle, fiber board, manufacture (1250)
Engines, spark-ignition reciprocating, over 1000 cc (1252)	0.60	Railway locomotive parts (1257)
	0.60	Mowers, powered, lawn, with horizontal cutting device (1350)
	0.60	Electric resistance welding equipment, automatic (1276)
	0.69	Engines, diesel, for motor vehicles (1313)
	0.67	Fuel, lubricating and cooling pumps for motor engine (1259)
	0.60	Clutches, shaft couplings, universal joints (1272)
Gantry and overhead travelling cranes fixed support (1113)	0.62	Dairy machinery (1180)
Gaskets, washers and other seals of vulcanized rubber (1062)	0.65	Electrical relays for 60 - 1, 000 volts (1117)
	0.63	Articles of iron or steel, (1140)
	0.60	Rubber tube, pipe or hose with fittings (1109)
	0.60	Brake system parts except linings for motor vehicles (1302)
	0.67	Parts for diesel and semi-diesel engines (1092)
	0.63	Articles of vulcanized rubber, except hard rubber (1091)
Illuminated signs, illuminated nameplates (1014)	0.61	Sheet , cellular of polymers of styrene (1016)
Lock parts, , of base metal, (1190)	0.60	Rubber tube, pipe, hose textile-reinforced no fitting (1312)
	0.60	Drive axles with differential for motor vehicles (1246)
	0.60	Radiators for motor vehicles (1266)
	0.60	Brake system parts except linings for motor vehicles (1302)
	0.60	Seats, motor vehicles (1218)
	0.60	Safety glass (tempered) for vehicles, aircraft, (1279)
	0.67	Aluminum pipe or tube fittings (1204)
Locks of a kind used for motor vehicles of base metal (1269)	0.60	Rubber tube, pipe, hose textile-reinforced no fitting (1312)
	0.63	Glass mirrors, unframed (1405)
Motor vehicle parts (1137)	0.62	Parts, accessories, metal shaping machine tools (1203)
	0.65	Rubber tube, pipe, hose textile-reinforced no fitting (1312)
	0.65	Aluminum pipe or tube fittings (1204)
	0.65	Transmission shafts and cranks, cam and crank shafts (1249)
	0.62	Rubber tube, pipe or hose not reinforced, no fittings (1200)
	0.62	Mufflers and exhaust pipes for motor vehicles (1201)
	0.65	Drive axles with differential for motor vehicles (1246)
	0.69	Brake system parts except linings for motor vehicles (1302)
	0.63	Articles of iron or steel, (1140)
	0.65	Radiators for motor vehicles (1266)

Medium-run products	Proximity	Long-run products
	0.70	Intake air filters for internal combustion engines (1143)
Parts of household or laundry-type washing machines (1248)	0.63	Glass mirrors, unframed (1405)
	0.63	Dish washing machines (domestic) (1373)
	0.63	Bearing parts1 (267)
Plastic articles (1008)	0.61	Articles of iron or steel, (1140)
	0.61	Textile products and articles for technical uses, (1161)
Pneumatic hand tool parts (1278)	0.61	Rubberized woven textile fabric, except adhesive tape (1335)
	0.65	Copper screw hooks and similar articles (1411)
	0.63	Metal and wire cutting shears, (1303)
Pneumatic power engines/motors, except linear acting (1222)	0.63	Hot rolled stainless steel sheet, w <600mm, t <4.75 m (1230)
	0.64	Dairy machinery (1180)
	0.62	Textile products and articles for technical uses, (1161)
	0.62	Lard, other pig fat and poultry fat, rendered (1241)
	0.62	Poultry cuts & offal, except livers, fresh or chilled (1160)
	0.69	Electric signal, safety & traffic controls, (1225)
Toilet or kitchen linen, of flax (1047)	0.67	Essential oils of bergamot (1139)
	0.60	Addressing machines, address plate embossing machines (1165)
	0.60	Articles of leather & composition for technical uses (1194)
Trailer/non-mechanically propelled vehicle parts (1085)	0.63	Multiple-walled insulating units of glass (1118)
	0.66	Articles of iron or steel, (1140)
Transmissions for motor vehicles (1166)	0.60	Clutches and parts thereof for motor vehicles (1185)
	0.63	Engines, diesel, for motor vehicles (1313)

Source: Authors' computation using COMTRADE HS 1992 at the 6-digit disaggregation. Figures in parentheses in the first/third column are the product's *PRODY*. The average *PRODY* of products in the world market is around 1001. PRODY in the first quintile is between 90-790, second quintile is between 791-937, third quintile is 938-1063, fourth quintile is 1064-1199, and the fifth quintile is between 1200 -2332.

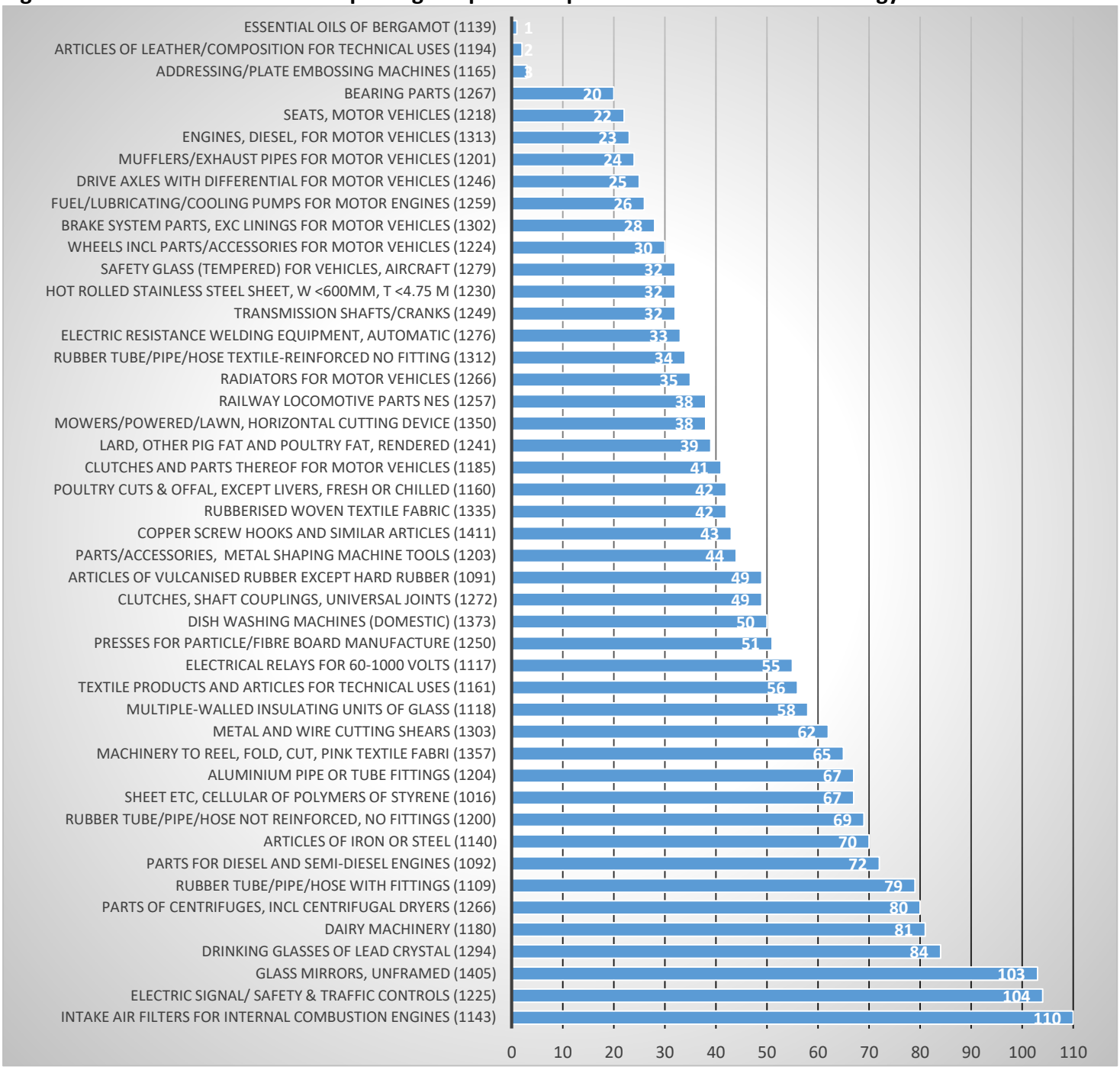
Out of the 29 medium-run products, there are 22 commodities for which 44 potential long-run products are mapped into (see table 7 for details). The potential long-run products include *products related to motor vehicles* (bearing parts, brake system parts except linings for motor vehicles, clutches/parts for motor vehicles, clutches/shaft couplings/universal joints, drive axles with differential for motor vehicles, diesel engines for motor vehicles, fuel/lubricating/cooling pumps for motor engines, mufflers/exhaust pipes for motor vehicles, transmission shafts and cranks, wheels including parts/accessories for motor vehicles, safety glass (tempered) for vehicles/aircraft, seats for motor vehicles, radiators, intake air filters for internal combustion engines, and railway locomotive parts), *machineries* (dairy machinery, dish washing machines (domestic), machinery to reel, fold/cut/pink textile fabrics, mowers/powered lawn, and addressing/plate embossing machines), *rubber tubes* (tube/pipe/hose not reinforced (no fittings), tube/pipe or hose with fittings, and tube/pipe, hose textile-reinforced no fitting), and *electrical-related products* (electric resistance welding equipment, electric signal for safety & traffic controls, and electrical relays for 60-1000 volts).

In addition, the country can further diversify into *synthetic textiles and fabrics* (rubberized woven textile fabric and textile products/articles for technical uses) and into *processed agricultural products* (lard/other pig fat/poultry fat, essential oils of bergamot, and fresh/chilled poultry cuts & offal).

Out of the 44 long-run products, 13 are in the fourth quintile of $PRODY_{world}$ and 31 are in the fifth quintile. Among these products, unframed glass mirrors and copper screw hooks have the highest *PRODY* at 1411 while parts of diesel/semi-diesel engines and articles of vulcanized rubbers have the lowest at 1091. Products that still have few existing markets include

agricultural goods such as essential oils of Bergamot, articles of leather, addressing/plate embossing machines, and *products related to motor vehicles* such as (bearing parts, brake system parts except linings for motor vehicles, drive axles with differential for motor vehicles, fuel/lubricating/cooling pumps for motor engines, mufflers/exhaust pipes for motor vehicles, wheels including parts/accessories for motor vehicles, seats for motor vehicles). Products that are currently imported by a big number of countries include intake filters, electrical signal/safety traffic controls, unframed glass mirrors, drinking glasses of lead crystal, dairy machinery, and parts of centrifuges/centrifugal dryers.

Figure 13: Number of countries importing the potential products listed in the LR strategy



Source: Authors' computation using COMTRADE HS 1992 at the 6-digit disaggregation. Figures in parentheses are the product's PRODY.

6. Summary and conclusions

Using some metrics from the product space, this research assesses the sophistication content of the country's existing export basket and charts short-, medium-, and long-run diversification strategies that the country can pursue given its current productive knowledge.

The paper finds that the average sophistication of products included in the country's export basket has barely improved from 1995 to 2014 and has remained lower than the average sophistication content of exports in the world market. This can be attributed to the high concentration of the export basket into integrated circuits and parts/accessories of data processing equipment, which account for 28% of the country's export basket in 2014. In addition, there are relatively sophisticated exports in 1995 that are no longer part of the country's export basket in the 2000s due the development of high-technology gadgets that became better substitutes for these exports.

The paper also finds that some of the products in the country's existing export basket has potential forward linkages to goods with relatively higher sophistication content, which in turn has potential linkages to even more sophisticated goods. This implies that the country needs to prioritize investments and to map out clear and deliberate action plans.

Indeed, evolution takes time and requires deliberate actions from the government and the private sector. This is a lesson that can be learned from the experience of industrialized Asian economies today. Owing to Japan's incentives to iron and steel industry, Japan is able to help the industry to achieve international competitiveness (Tecson 1985). Owing to South Korea's implementation of land redistribution in the 1940s, South Korea has nurtured a new breed of capitalists in its now industrialized economy (Lim and Bautista 2002). Owing to China's use of export processing zones as a key strategy to learn from foreign firms in the advanced countries (Zhang and Song 2000), China has expanded to steel production and higher value-added goods. The success of these economies did not happen overnight but was realized through industrialization efforts and open-economy policies.

While this paper has identified specific commodities that can lead to a sophisticated export basket in the future, this paper in no way recommends that the country should only focus on these goods. Rather, the paper assesses the country's prospects and opportunities for economic growth and provides detailed and specific feasible options that can be used as starting points. Given that what a country exports matter, it is imperative to assess where the country stands and where the country can go because these will set the tone of plans and priorities of the government.

Provided that correct policies are set in place, the industrial sector is likely to produce other sophisticated and high value adding goods that the current paper has not identified. Hence, the message is clear: *the country has prospects for structural transformation provided well-thought-out policies, plans, and priorities are set in motion*. Towards this end, there is a need to implement the measures outlined in the Philippine Export Development Plan specifically those aimed to improve the climate for export development and to improve existing trade relations and explore potential trade agreements. Results of this paper indicate that OECD economies are markets for some of the goods in the country's current export basket (integrated circuits, static converters, and photosensitive/photovoltaic/LED semiconductor devices, colour television receivers/monitors/projectors, and crude/refined copra oil). These economies are also potential markets for the products identified in the short-run strategies.

In addition, to ensure horizontal and vertical integrations, it is important to undertake necessary actions to upgrade the country's production structures and capabilities. Similar to the strategies of its now industrialized Asian neighbors, the country needs to attract investments that the country can learn from. To translate the knowledge generated by these investments, there is a need to strengthen the link between the industry and the academe. Presumably, this link has simultaneous feedback. On one hand, the quality of the country's human capital attracts a certain quality of investments. On the other hand, the quality of foreign investments in the country can affect human capital through knowledge spillovers and externalities. To this end, the country can assess where it sees itself in the future and chart the path of its human capital development towards this goal.

To facilitate product innovations, the country needs to encourage process innovations so that linkages within the manufacturing industry takes place. The country needs to ensure that the financial sector is linked with the various stage of good production and the packaging and marketing sectors linked with the promotion of final outputs.

The government has big infrastructure programs that will ensure the connectivity of various players from production to consumption and trade. The infrastructure projects, however, mostly focus on the development of subways and mass railway transits. There is a need for the country to also look into the potential increase in the demands for ports brought about by the importation of construction materials due to the Build, Build, Build program. Development of ports in key areas will result in a more efficient delivery of inputs to local producers and of goods for international markets.

7. References

Aghion, P. and P. Howitt. 1992. A model of growth through creative destruction. *Econometrica* 60(2): 323–351.

Aldaba, R. 2017. PH manufacturing resurgence program: Journey towards industrialization. Presentation. Fairmont Hotel, Makati City. http://boi.gov.ph/wp-content/uploads/2018/03/Presentation-by-Assistant-Secretary-Rafaelita-Aldaba-Department-of-Trade-and-Industry.pdf (accessed on October 22, 2018)

Aldaba, R. 2014. The Philippine manufacturing industry roadmap: Agenda for New Industrial Policy, high productivity jobs, and inclusive growth. Discussion Paper Number 2014-32. Quezon City, Philippines: Philippine Institute for Development Studies.

Aldaba, R. 2005. Policy reversals, lobby groups and economic distortions. Discussion Paper Number 2005-04. Quezon City, Philippines: Philippine Institute for Development Studies.

Balassa, B. 1965. Trade liberalisation and revealed comparative advantage. *The Manchester School and Social Studies* 33(2): 99–123.

Bayudan-Dacuycuy, C. 2012. The Philippine export portfolio in the product space: potentials, possibilities and policy challenges. *Economics Bulletin* 32(1): 59-66.

Bayudan-Dacuycuy, C. and J. Lim. 2017. Export sophistication, export-led growth and the product space: evidence from selected East Asian economies. *Journal of Asian and African Studies* 52(1): 3– 20.

Dixit, A. and J. Stiglitz. 1977. Monopolistic competition and optimum product diversity. *American Economic Review* 67(3): 297–308.

Fabella, R. and M. Fabella. 2012. Development progeria? In *Looking Back, Moving Forward.* Quezon City: Business World Publishing Corp.

Felipe, J., C. Bayudan-Dacuycuy, C., and M. Lanzafame. 2016. The declining share of agricultural employment in China: How fast? *Structural Change and Economic Dynamics* 37: 127-137.

Grossman, G. and E. Helpman. 1991. Quality ladders in the theory of growth. *Review of Economic Studies* 58(1): 43–61.

Hausmann, R., J. Hwang. and D. Rodrik. 2007. What you export matters. *Journal of Economic Growth* 12(1): 1–25.

Hausmann, R. and C. Hidalgo. 2011. The network structure of economic output. *Journal of Economic Growth* 16(4): 309–342.

Hausmann, R., C. Hidalgo, S. Bustos, M. Coscia, S. Chung, J. Jimenez, A. Simoes, and M. Yildirim. 2011. The Atlas of Economic Complexity: Mapping paths to prosperity. Center for International Development at Harvard University and Harvard Kennedy School, John Kennedy School of Government.

Hausmann, R. and B. Klinger. 2006. Structural transformation and patterns of comparative advantage in the product space. Center for International Development Working Paper No. 128. Harvard University: Center for International Development.

Hausmann, R. and D. Rodrik. 2003. Economic development as self-discovery. *Journal of Development Economics* 72(2): 603-633.

Hidalgo, C. 2009. The Dynamics of Economic Complexity and the Product Space over a 42-year period. Center for International Development Working Paper No. 189. Harvard University: Center for International Development.

Hidalgo, C. and R. Hausmann. 2009. The building blocks of economic complexity. Washington, D.C.: Proceedings of the National Academy of Sciences of the United States of America. https://doi.org/10.1073/pnas.0900943106 (accessed on October 18, 2018)

Lim, J. and C. Bautista. 2002. External liberalization, growth and distribution in the Philippines. Paper presented at the international conference on "External Liberalization, Growth, Development and Social Policy", January 18-20, 2002, Melia Hotel, Hanoi, Vietnam.

Leamer, E. 1984 *Sources of comparative advantage: Theory and evidence*. Cambridge, Massachusetts: MIT Press.

Medalla, E. 2002. Philippines competition policy in perspectives. Perspective Paper Series Number 4. Quezon City, Philippines: Philippine Institute for Development Studies.

Romer, P. 1986. Increasing returns and long-run growth. *Journal of Political Economy* 94(5): 1002–1037.

Syrquin, M. 2008. Structural change and development. In *International Handbook of Development Economics*, edited by A. Dutt and J. Ros. United Kingdom: Edward Elgar, Vol.1, 48-67.

Tecson, G. 1985. Industrial policy for international competitiveness: a case study of industrial policy in the iron and steel industry in Japan. Ph.D. dissertation. Tokyo, Japan.: Hitotsubashi University.

Usui, N. 2012. Taking the right road to inclusive growth: Industrial upgrading and diversification in the Philippines. Mandaluyong City, Philippines: Asian Development Bank

Zhang, K. and S. Song. 2000. Promoting exports: The role of inward FDI in China. *China Economic Review* 11(4): 385–396.

APPENDIX

Appendix Table 1A: Complete list of potential products for diversification in the short-run

RCA	Products in the 2014 export portfolio	Proximity	Potential products for SR diversification
1	Builder's joinery and carpentry of wood nes (940)	0.60	Furniture parts nes (943)
		0.56	Electrical boards, panels, etc, not equipped (1001)
1	Coconut (copra) oil crude (312)	0.63	Coconut or copra oil-cake and other solid residues (354)
1	Computer input or output units (858)	0.56	Parts of printing machinery and ancillary equipment (1011)
1	Electronic integrated circuits/microassemblies (685)	0.67	Hybrid integrated circuits (697)
1	Electronic printed circuits (1037)	0.56	Electrical resistors fixed, power capacity < 20 watt (1072)
1	Monolithic integrated circuits, except digital (896)	0.57	Objective lenses, nes (971)
1	Parts and accessories of data processing equipment (729)	0.56	Computer data storage units (831)
1	Parts of line telephone/telegraph equipment, nes (960)	0.56	Speed indicators, tachometers, stroboscopes (1112)
		0.59	Parts and accessories of revolution counters, etc (1127)
		0.55	Indicator panels incorporating electronic displays (1023)
0	Builder's joinery and carpentry of wood (940)	0.58	Sheet etc, cellular of polymers of styrene (1016)
		0.59	Aluminum structures and parts nes, for construction (966)
		0.63	Doors, windows, frames of iron or steel (1043)
		0.59	Parts of industrial or laboratory furnaces/ovens (1183)
		0.56	Trailer/non-mechanically propelled vehicle parts nes (1085)
		0.58	Plastic builders' ware nes (998)
		0.56	Articles of iron or steel, nes (1140)
		0.59	Sawdust, wood waste or scrap (945)
		0.56	Wooden pallets, box pallets and load boards (952)
		0.56	Fittings for plastic tube, pipe or hose (1025)
0	Colour television receivers/monitors/projectors (1035)	0.65	Wheels including parts/accessories for motor vehicles (1224)
0	Measuring or checking equipment (981)	0.56	Valves for oleohydraulic or pneumatic transmissions (1205)
		0.56	Weighing machine parts and weights of all kinds (1029)
0	Parts of electronic integrated circuits (872)	0.64	Foil, copper alloy, backed, t < 0.15mm (1118)
0	Parts of line telephone/telegraph equipment (960)	0.56	Electrical machines and apparatus, nes (1057)
		0.56	Parts of sewing machines, nes (1106)

Source: Authors' computation using COMTRADE HS 1992 at the 6-digit disaggregation. Figures in parentheses are PRODY.

Appendix Table 2A: Detailed information on top 5 existing markets of SR products (strategy 1)

	Export shares * (%)	Markets		Export shares * (%)	Markets
Parts and accessories of revolution counters, etc (1127)	27	Japan	Electrical boards, panels, etc, not equipped (1001)	89	USA
	15	Indonesia		4	Japan
	14	Argentina		3	Russia
	13	Australia		1	Thailand
	8	China		1	China
Speed indicators, tachometers, stroboscopes (1112)	58	Thailand	Objective lenses (971)	76	China
	30	Indonesia		17	HK
	4	Vietnam		3	Japan
	3	Malaysia		3	Vietnam
	3	India		0	Germany
Electrical resistors fixed, power capacity < 20 watt (1072)	35	China	Furniture parts (943)	85	Japan
	16	South Korea		10	USA
	15	Japan		1	Netherlands
	13	Germany		1	Canada
	10	Czech Rep		0	Australia
Indicator panels incorporating electronic displays (1023)	22	Czech Rep	Hybrid integrated circuits (697)	38	USA
	16	Singapore		24	Japan
	15	USA		20	HK
	12	Malaysia		6	Germany
	11	China		5	Singapore
Parts of printing machinery and ancillary equipment (1011)	27	USA	Coconut or copra oil-cake and other solid residues (353)	49	S Korea
	18	Japan		17	China
	18	China		17	Vietnam
	11	HK		9	Italy
	3	Vietnam		3	India

Source: Authors' computation using COMTRADE HS 1992 at the 6-digit disaggregation. Figures in parentheses are PRODY. * Share to the Philippines' total exports of each commodity.

Appendix Table 3A: Detailed information on potential markets of SR products (strategy 1), countries with MRCA=1

	Asia	Central/South America	MENA	OECD	Others
Coconut or copra oil-cake and other solid residues	Pakistan	Nicaragua	Iran	New Zealand	Tanzania
	Vietnam		Mauritania	Australia	N Caledonia
	S Korea			Italy	Cook Isl
	India				Niue
	China				Tokelau
					A Samoa
					Nauru
Electrical resistors fixed, power capacity < 20 watt	China	Mexico	Iran	Austria	Slovakia
	Malaysia			Germany	Croatia
	HK			Japan	Romania
	Vietnam			Czech Rep	Bulgaria
	Singapore		Tunisia	Hungary	Slovakia
				Estonia	
Elictrical boards, panels, etc, not equipped	Kazakhstan	Honduras	Iraq	Denmark	Madagascar
	Turkmenistan	Mexico	Tunisia	Ireland	Dominica
	Malaysia	Nicaragua	Iraq	Germany	Serbia
	Brunei	Venezuela	Morocco	Czech Rep	Greenland
		Peru	Bahrain	Austria	Macau
		Ecuador	S Arabia	Sweden	St Kitts and Nevis
		Chile	Kuwait	Finland	Gabon
		Suriname	Qatar	Netherlands	South Africa
			Iraq	Italy	Bulgaria
			Bahrain	Norway	French Polynesia
			Libya	Latvia	Moldova
			Israel	Spain	Senegal
			Lebanon	Greece	Angola
			Oman	Iceland	Seychelles
			Azerbaijan	Poland	Albania
			UAE	Portugal	Mozambique
			Algeria	Denmark	Sierra Leone
			Jordan	Switzerland	Ant and Bar
				Estonia	Bonaire
				Hungary	Tanzania
					Burundi
					Turks and Caicos Isl
					Mongolia
					Bos and Her
					N Caledonia
					DR Congo
					Slovakia
					Georgia
					Eq Guinea
					Malawi
					Grenada
					Cameroon
					St Maarten
					St Pierre and Miquelon
					Kenya
					Samoa
					Lithuania
					Bahamas
					Brit Vir Isl
					Rep of the Congo
					Rwanda
					Cote d'Ivoire
					Croatia
					Russia

	Asia	Central/South America	MENA	OECD	Others
					Christmas Isl
					ST Principe
					Nauru
					Nigeria
					Montenegro
					Benin
					Mauritius
					Chad
					Romania
					Ethiopia
					Uganda
					Macedonia
					Cape Verde
					Solomon Isl
					Belarus
					Anguilla
Furniture parts nes	N Korea	Costa Rica	Azerbaijan	USA	St Vin Gr
	Kazakhstan		Kuwait	Denmark	Russia
			Qatar	Japan	Albania
			S Arabia	Finland	Bos and Her
			Iran	UK	Croatia
			Israel	France	Cayman Isl
				Poland	Trin & Tob
				Norway	Slovakia
				Czech Rep	Belarus
				Japan	Burundi
				Iceland	Moldova
				Portugal	Georgia
				Canada	Grenada
				Sweden	Macau
				Austria	Maldives
				Germany	Angola
				Latvia	Eq Guinea
				Slovenia	Montenegro
				Switzerland	Fr SA Terr
				Australia	San Marino
					St Kitts and Nevis
					Brit Vir Isl
					Chad
					Lithuania
					Nigeria
					Christmas Isl
					Turks and Caicos Isl
					Anguilla
					Dominica
					Bonaire
					St Maarten
Hybrid integrated circuits			Morocco		Rep of the Congo
Indicator panels incorporating electronic displays	Singapore	Mexico	Tunisia	Italy	St Kitts and Nevis
	Vietnam	Brazil	Azerbaijan	Hungary	Zambia
	Indonesia		Iran	USA	Montserrat
	Malaysia			Portugal	Romania
	Cambodia			Turkey	Grenada
	HK			Denmark	Trin & Tob
	Thailand			Czech Rep	Seychelles
	Laos			Norway	Grenada
	Afghanistan			Austria	Wallis and Futuna
				Germany	Samoa
				Sweden	Ant and Bar
				Spain	Slovakia

	Asia	Central/South America	MENA	OECD	Others
				Australia	Grenada
Objective lenses, nes	Laos		Israel	Japan	Macau
	HK			Ireland	Andorra
	Vietnam			Netherlands	St Maarten
	China			Hungary	
Parts and accessories of revolution counters, etc	HK	Mexico		USA	Tokelau
	Thailand	Brazil		Czech Rep	Slovakia
	Indonesia	Argentina		Spain	Romania
				Japan	
				Sweden	
				Germany	
				Portugal	
Parts of printing machinery and ancillary equipment	Hong Kong	Mexico	Israel	UK	Nauru
	Vietnam	Peru	UAE	Netherlands	Slovakia
	Thailand	Brazil	Israel	Germany	Croatia
	Indonesia	Ecuador		Denmark	Cocos Isl
	Singapore	Argentina		Czech Rep	Fr Polynesia
				USA	South Africa
				Austria	
				Australia	
Speed indicators, tachometers, stroboscopes	Cambodia		Morocco	Spain	Nigeria
	Thailand			Canada	Kenya
	Indonesia			United States	Nigeria
				Germany	Slovakia
				Czech Rep	
				Bel-Lux	
				Turkey	
				Sweden	
				Hungary	
				France	

Source: Authors' computation using COMTRADE HS 1992 at the 6-digit disaggregation.

Appendix Table 4A: Detailed information on potential markets of SR products (strategy 1), countries with MRCA=1 and RCA=0

	Asia	Central/South America	MENA	OECD	Others
Aluminum structures and parts nes, for construction966	Brunei	Suriname	Kuwait	Norway	Palau
	Kazakhstan	Guyana	Azerbaijan	Slovenia	Bos and Her
	Turkmenistan	Chile	UAE	Poland	Croatia
	N Korea	Guyana	Morocco	Switzerland	Micronesia
	Singapore	Panama	Iraq	Denmark	Cook Isl
			Algeria	Hungary	Albania
			Armenia	France	Anguilla
			Libya	N Zealand	Ghana
			Lebanon	Australia	Russia
			S Arabia	Norway	St Helena
			Algeria	Czech Rep	Kenya
			Israel	Ireland	Serbia
			Armenia	Japan	Cen Afr Rep
			Libya	Germany	Dominica
			Qatar	UK	Seychelles
				Finland	St Vin and the Gren
				Canada	Cape Verde
				UK	Nigeria
				Iceland	St Pierre and Miquelon
				Austria	Guinea
				Sweden	British Virgin Isl
				Norway	Chad
				Estonia	Trin and Tob
					Georgia
					Romania
					Mozambique
					DR Congo
					Cyprus
					Christmas Isl
					Ant and Bar
					Tuvalu
					Gabon
					Cayman Isl
					Vanuatu
					Bahamas
					Barbados
					Macedonia
					Solomon Isl
					St Kitts and Nevis
					Angola
					PN Guinea
					Moldova
					Lithuania
					Mongolia
					Cocos Isl
					Maldives
					Senegal
					Comoros
					Bonaire
					Montenegro
					Jamaica
					Andorra
					FR Polynesia
					Slovakia
					Rwanda
					Wallis and Futuna
					Tonga
					Samoa

	Asia	Central/South America	MENA	OECD	Others
					S Sudan
					N Caledonia
					Cuba
					St Maarten
					Grenada
					Eq Guinea
					Macau
					Turks and Caicos Isl
					Rep Congo
					Norfolk Isl
					CuraÃ§ao
Articles of iron or steel, nes1140.188	Uzbekistan	Mexico	Oman	Estonia	St Kitts and Nevis
	Vietnam		Iraq	Latvia	Angola
	Brunei		Egypt	Poland	Cuba
	Turkmenistan		Morocco	Finland	Chad
	Burma		Azerbaijan	Portugal	Macau
	Thailand		Iran	Denmark	Georgia
	S Korea		Tunisia	Czech Rep	Nigeria
	Brunei			Norway	Greenland
	Kazakhstan			Germany	Wallis and Futuna
	Malaysia			Hungary	Eritrea
	Laos			Austria	Albania
	Cambodia			Australia	St Pierre and Miquelon
				Canada	PN Guinea
				Sweden	Romania
				Slovenia	Eq Guinea
				France	Bonaire
					Russia
					DR Congo
					Ethiopia
					Rep Congo
					Gabon
					St Helena
					Belarus
					Dominica
					Falkland Isl
					Trin and Tob
					Dominican Rep
					Cape Verde
					Ant and Bar
					N Caledonia
					Norfolk Isl
					Pitcairn Isl
					Niue
					Cote d'Ivoire
					Slovakia
Doors, windows, frames of iron or steel1042.724	Burma	Suriname	Algeria	Sweden	Bulgaria
	N Korea	Guyana	Azerbaijan	Norway	N Caledonia
	Uzbekistan	Venezuela	Armenia	Estonia	St Kitts and Nevis
	Afghanistan	Colombia	Algeria	Denmark	Nigeria
	Tajikistan	Argentina	Mauritania	Slovenia	Fiji
	Turkmenistan	Brazil	Somalia	Finland	ST Principe
	Timor-Leste	Nicaragua	Qatar	Austria	Samoa
	Kyrgyzstan	Belize	Palestine	Poland	Rep Congo
	Burma	Mexico	Sudan	Canada	Jamaica
	Laos	Panama	S Arabia	France	Tanzania
	Hong Kong		Iran	Switzerland	Guinea
	Vietnam		Iraq	Bel-Lux	Romania
	Thailand		Israel	Iceland	Haiti
	Bangladesh			Canada	Kenya
	Thailand			USA	Malawi
	S Korea			Hungary	Ethiopia
	China			Poland	Mozambique

Asia	Central/South America	MENA	OECD	Others
Afghanistan			Estonia	Madagascar
			Germany	Barbados
			Japan	Moldova
			Australia	Macau
				Eritrea
				Christmas Isl
				Cook Isl
				Turks and Caicos Isl
				Cuba
				Palau
				Lithuania
				Gambia
				Maldives
				Croatia
				Macedonia
				Mongolia
				Serbia
				Bahamas
				St Pierre and Miquelon
				Tuvalu
				St Helena
				Cape Verde
				St Maarten
				British Virgin Isl
				Montserrat
				DR Congo
				Norfolk Isl
				Georgia
				American Samoa
				St Vin and the Gren
				Gabon
				Dominica
				Bonaire
				Angola
				Zambia
				Eq Guinea
				Ant and Bar
				Kiribati
				Grenada
				Greenland
				Rwanda
				Seychelles
				Wallis and Futuna
				Mauritius
				Ukraine
				Anguilla
				Bos and Her
				Montenegro
				Cayman Isl
				Trin and Tob
				FR Polynesia
				Nauru
				Falkland Isl
				Russia
				PN Guinea
				Sierra Leone
				Belarus
				Niger
				Chad

	Asia	Central/South America	MENA	OECD	Others
					Guinea-Bissau
					Comoros
					Ghana
					Cocos Isl
					Tonga
					Slovakia
					Dominican Rep
					Cook Isl
					Samoa
					Rwanda
					Falkland Isl
					Chad
					Cyprus
Fittings for plastic tube, pipe or hose1025.438	Turkmenistan	Suriname	Sudan	Portugal	Cook Isl
	Brunei	Uruguay	Qatar	Bel-Lux	Grenada
	Burma	Chile	Armenia	Germany	Kenya
	Uzbekistan	Peru	Palestine	Finland	Bahamas
	Laos	Venezuela	Qatar	Sweden	Malta
	Kazakhstan	Paraguay	Kuwait	Australia	Tonga
	Tajikistan	Bolivia	Israel	France	Mozambique
	Cambodia	Guyana	UAE	Poland	Trin and Tob
		Belize	Azerbaijan	Slovenia	St Helena
		Honduras	Lebanon	Norway	Aruba
		Mexico	Morocco	N Zealand	Ukraine
		Costa Rica	Jordan	Denmark	Bos and Her
		Nicaragua	Bahrain	Latvia	Niger
		Panama	Libya	Hungary	San Marino
		Honduras	Djibouti	Canada	Malawi
		Guatemala	Algeria	Ireland	Cape Verde
		Costa Rica	S Arabia	Switzerland	Norfolk Isl
				Estonia	Slovakia
				Iceland	Micronesia
				Czech Rep	Barbados
				Austria	Uganda
					Macedonia
					Bonaire
					DR Congo
					Bulgaria
					Senegal
					Jamaica
					Angola
					Sierra Leone
					American Samoa
					Falkland Isl
					Zambia
					Nigeria
					Wallis and Futuna
					St Vin and the Gren
					Cuba
					Russia
					Palau
					Ethiopia
					Cyprus
					Albania
					Georgia
					Montserrat
					Montenegro
					St Kitts and Nevis
					Moldova
					St Pierre and Miquelon
					Chad

	Asia	Central/South America	MENA	OECD	Others
					Fiji
					Seychelles
					Christmas Isl
					Samoa
					Niue
					Gabon
					Rep Congo
					Serbia
					Kiribati
					Haiti
					Greenland
					Tanzania
					Lithuania
					Belarus
					Mali
					FR Polynesia
					Turks and Caicos Isl
					Anguilla
					Mauritius
					Ghana
					N Caledonia
					Croatia
					Solomon Isl
					Vanuatu
					Eq Guinea
					Ant and Bar
					Dominica
					St Maarten
					ST Principe
					S Sudan
					PN Guinea
					Zimbabwe
					Romania
					Maldives
					Gambia
Foil, copper alloy, backed, t < 0.15mm1117.818	Malaysia	Bolivia	Sudan	Norway	Croatia
	Thailand	Mexico	Tunisia	Germany	Romania
	India		Israel	Slovenia	Ant and Bar
	Vietnam		Morocco	Switzerland	Sierra Leone
	S Korea				Bulgaria
	China				Samoa
Parts of industrial or laboratory furnaces/ovens1183.259	Indonesia	Bolivia	Tunisia	Italy	Russia]
	N Korea	Peru	Algeria	Iceland	Cen Afr Rep
	Uzbekistan	Argentina	Sudan	Austria	Tanzania
	Bangladesh	Venezuela	Qatar		Rwanda
	Thailand	Costa Rica	Iran		S Africa
	Burma	Guatemala	Oman		Cuba
	Turkmenistan		UAE		Romania
	India		Azerbaijan		Rep Congo
	China		Egypt		Chad
	Vietnam		S Arabia		N Caledonia
	Sri Lanka				Albania
					Macedonia
					Trin and Tob
					Montenegro
					Zimbabwe
					Niger
					Bos and Her
					Belarus
					Micronesia
					Senegal
					Seychelles

	Asia	Central/South America	MENA	OECD	Others
					Ukraine
					Zambia
					Nigeria
				Slovenia	Lithuania
Parts of sewing machines, nes1106.063	Sri Lanka	Colombia	Morocco	Portugal	Nigeria
	Turkmenistan	Colombia	Mauritania	Japan	Albania
	Burma	Ecuador	Djibouti	Czech Rep	Benin
	Hong Kong	Bolivia	Morocco		Serbia
	Sri Lanka	Peru	Syria		Nepal
	Tajikistan	Brazil	Tunisia		Haiti
	N Korea	El Salvador	Iran		Senegal
	China	Mexico	Somalia		Ethiopia
	Pakistan	Nicaragua	Jordan		Madagascar
	Indonesia	Honduras			Burkina Faso
	Singapore				Cuba
	Vietnam				Fiji
	Sri Lanka				Vanuatu
	Thailand				Guinea
	Laos				Cook Isl
	India				Bulgaria
	Bangladesh				Kenya
					Dominican Rep
					Dominica
					Macedonia
					Bos and Her
					Croatia
					Tanzania
					Togo
					Rwanda
					Moldova
					Ghana
					Lithuania
					Mauritius
					Romania
Plastic builders' ware nes997.9474	Afghanistan	Bolivia	Djibouti	Switzerland	Fiji
	Kyrgyzstan	Suriname	Morocco	Sweden	Trin and Tob
	Kazakhstan	Ecuador	Iran	France	Albania
	N Korea	Uruguay	Lebanon	Slovenia	Ukraine
	Brunei	Guyana	Algeria	Germany	Cook Isl
	Tajikistan	Chile	Armenia	Estonia	Georgia
			Azerbaijan	Slovenia	Dominica
		Colombia	Palestine	Czech Rep	Norfolk Isl
		Paraguay		Slovenia	Kiribati
		Costa Rica		Spain	Tuvalu
		Belize		Iceland	Rep Congo
		Guatemala		Slovenia	Niue
		Nicaragua		Austria	Burundi
		Panama		Norway	St Kitts and Nevis
				Latvia	Russia
				Bel-Lux	Bos and Her
				Portugal	Croatia
				Slovenia	Montenegro
				Hungary	Seychelles
				Greece	Belarus
				UK	St Helena
				Hungary	Ant and Bar
				Greece	Mongolia
				Ireland	Cyprus
				Denmark	Lithuania
				Finland	Andorra
				Canada	Barbados
				Portugal	Palau

	Asia	Central/South America	MENA	OECD	Others
					Dominican Rep
					Gambia
					Bermuda
					N Caledonia
					FR Polynesia
					Turks and Caicos Isl
					Haiti
					Nauru
					Eritrea
					Kenya
					Chad
					Macau
					ST Principe
					Macedonia
					Rwanda
					Serbia
					Romania
					Gabon
					Ghana
					Grenada
					Jamaica
					Cape Verde
					Angola
					Bonaire
					Vanuatu
					St Pierre and Miquelon
					Mauritius
					Cuba
					St Vin and the Gren
					Nigeria
					Mozambique
					Falkland Isl
					Tonga
					Cameroon
					Greenland
					Cocos Isl
					Maldives
					Moldova
					Anguilla
					Sierra Leone
					Eq Guinea
					St Maarten
					Wallis and Futuna
					DR Congo
					Slovakia
					Bulgaria
Sawdust, wood waste or scrap944.88	S Korea			Italy	Montserrat
				Denmark	Lithuania
				Norway	Montenegro
				Greece	
				Finland	
				Estonia	
				Sweden	
				Slovenia	
				UK	
				Bel-Lux	
				Latvia	
				Austria	
				Netherlands	

	Asia	Central/South America	MENA	OECD	Others
				Germany	
Sheet etc, cellular of polymers of styrene1015.849	Tajikistan	Venezuela	Armenia	Slovenia	Cape Verde
			S Arabia	Hungary	Haiti
	Turkmenistan		Israel	Estonia	ST Principe
	N Korea		Iraq	Austria	Bulgaria
	Laos		Qatar	Norway	Tanzania
	Tajikistan			Germany	Cuba
	Malaysia			Poland	Bahamas
	Vietnam			Latvia	Comoros
	Kazakhstan			Portugal	Samoa
	Kyrgyzstan			Denmark	FR Polynesia
	Sri Lanka			Sweden	Moldova
				Iceland	Cyprus
				UK	Dominican Rep
				Canada	Maldives
				Finland	Norfolk Isl
				Czech Rep	Eritrea
				Switzerland	Croatia
				Bel-Lux	Romania
				France	Montenegro
					Mongolia
					Albania
					Bos and Her
					Lithuania
					Belarus
					Serbia
					Ukraine
					Seychelles
					Tonga
					Macedonia
					Slovakia
					Georgia
Trailer/non-mechanically propelled vehicle parts nes1084.63		Chile	Iran	Finland	PN Guinea
		Peru	Egypt	Bel-Lux	Christmas Isl
		Uruguay	UAE	Ireland	Cocos Isl
		Mexico	Tunisia	Norway	Kenya
			Libya	Austria	Russia
			Djibouti	Denmark	Ethiopia
				Portugal	Lithuania
				Latvia	S Africa
				Estonia	Cuba
				Netherlands	
				Poland	
				Germany	
				Australia	
				Slovenia	
				UK	
				Spain	
				Turkey	
				Hungary	
				N Zealand	
				Czech Rep	
				Canada	
				Sweden	
				France	
Valves for oleohydraulic or pneumatic transmissions1205.294	Brunei	Venezuela	Algeria	Turkey	Croatia
	China	Argentina	Azerbaijan	Germany	Eritrea
		Brazil	Iran	Finland	Eq Guinea
		Mexico	Oman	Sweden	Vanuatu
				Italy	N Caledonia

	Asia	Central/South America	MENA	OECD	Others
				Czech Rep	Madagascar
				Bel-Lux	Chad
				France	Angola
				Austria	Gabon
				Denmark	Rep Congo
				UK	Madagascar
				Hungary	FR Polynesia
				Norway	Madagascar
				USA	
Weighing machine parts and weights of all kinds1029.294	Singapore	Colombia	S Arabia	Poland	Greenland
	Kazakhstan	Uruguay	Azerbaijan	Iceland	Senegal
	Burma	Peru	Tunisia	Denmark	Benin
	Kazakhstan	Chile	Egypt	Sweden	Sierra Leone
	Sri Lanka	Guyana	Iran	Germany	Ghana
		Nicaragua	Qatar	UK	S Africa
		Guatemala	Sudan	Finland	Cen Afr Rep
		Mexico		Italy	Eq Guinea
		Honduras		Netherlands	Uganda
				N Zealand	PN Guinea
				Spain	Rep Congo
				Ireland	Christmas Isl
				Switzerland	DR Congo
				Poland	Kenya
				Canada	Cameroon
					Gabon
					Angola
					Nigeria
					Cuba
					Seychelles
					Malawi
					Rwanda
					Falkland Isl
					Serbia
					Eritrea
					FR Polynesia
					Zambia
					Tanzania
					Madagascar
Wheels including parts/accessories for motor vehicles1223.625	Kazakhstan	Argentina	Iran	Finland	Slovakia
	Afghanistan	Ecuador	Morocco	France	Belarus
		Mexico		UK	FR S Antarctic Territory
				Norway	S Sudan
				USA	Dominica
				Slovenia	Russia
				Germany	
				Austria	
				Czech Rep	
				Poland	
				Bel-Lux	
				Hungary	
				Spain	
				Canada	
				Sweden	
				Japan	
Wooden pallets, box pallets and load boards951.8461	Singapore	El Salvador	Israel	Austria	Vanuatu
		Honduras	Morocco	Ireland	Zambia
		Mexico	Oman	Spain	Slovakia
		Belize	Israel	Iceland	Lithuania
			Qatar	Czech Rep	Solomon Isl
				Italy	Romania

	Asia	Central/South America	MENA	OECD	Others
				Bel-Lux	Eritrea
				Greece	Cote d'Ivoire
				Norway	Croatia
				Latvia	Bos and Her
				Denmark	Macedonia
				Poland	Eq Guinea
				Slovenia	Guinea-Bissau
				France	Montenegro
				Germany	Serbia
				Netherlands	Albania
				Ireland	Falkland Isl
				Ireland	Bulgaria
				Switzerland	N Caledonia
				Hungary	Zimbabwe
				Ireland	S Sudan
				Sweden	Seychelles
				Finland	Mozambique
				Estonia	Moldova
				Portugal	Greenland
Woven fabric >85% nylon, polyamide, unbl/bleached,nes1182.333	Thailand	Brazil	Tunisia	Italy	FR Polynesia
	China	Mexico	Palestine	Estonia	Benin
	Indonesia		Djibouti	Turkey	Georgia
	Thailand		Sudan	Italy	Ukraine
	Kyrgyzstan		Syria	Austria	S Sudan
	Vietnam		Tunisia		Romania
	Afghanistan		Morocco		Jamaica
	Turkmenistan		Iraq		Russia
	Kyrgyzstan				Senegal
	Vietnam				Maldives
	Afghanistan				Zimbabwe
	Sri Lanka				Eritrea
	Burma				PN Guinea
					Fiji
					Madagascar
					Bulgaria
					Moldova

Source: Authors' computation using COMTRADE HS 1992 at the 6-digit disaggregation.