An Analysis on the Changes of Trade Patterns in Malaysia

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ABSTRACT

The structural transformation of Malaysia's economy over the last 50 years has been spectacular. Often dubbed the "lucky country" because of its wealth of mineral resources and fertile soils, Malaysia did not rest on its laurels but took decisive steps to progress from an economy dependent on agriculture and primary commodities to a manufacturing based, export driven economy spurred on by high technology, knowledge based and capital intensive industries. However her strong dependency on export especially to the US market much likely will affect her economy by looking at the recent global financial crisis which started there. The mid 1997 economic and financial crisis which hit several countries in the Asia Pacific Region and caused a currency crisis and stock market crash in Malaysia, provided further proof of the strength and resilience of the Malaysian economy. Within two years, helped by selective exchange controls and the pegging of the ringgit, Malaysia bounced back and went on track towards economic recovery.

1. Introduction

Countries like Malaysia that are extreme in natural resources are predicted to produce and export relatively resource – intensive goods. Not only that, Malaysia currently which is among the world top 20 traders also is actively exporting high and middle high tech commodities such as machinery and transport equipment[1].

Exports and manufacturing sector has played a decisive role in Malaysian economic success, contributing significantly to output, employment, while the export sector has been at the forefront in transforming the Malaysian economy and also has made the country highly dependent on the buoyancy of the external sector (Amir Mahmood 2000). Malaysia among the world's top 20 trading nations due to the structural change in its economy that turned the country from an exporter of primary commodities into an exporter of high value-added manufactured products has recovered although in a slower but sustainable pace from the 1997 Asian financial crisis.

2. Objective of Study

This paper analyze the pattern of trade in Malaysia towards the world market. In specifically, the study searches out if there are new and leading manufacturing industry in terms of Revealed Comparative Advantage (RCA)[2] in Malaysia, is there any structural shift of the pattern of trade by liking in Comparative Advantage (CA)[3] and exports has undergone a structural shift between 1981 and 2009 for Malaysia and to what extent has export specialization shifted away from labor and natural resource intensive products to high value-added knowledge and technology intensive industries. In this analysis,

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[1] SITC classification at 1-digit level classifies number 0-4 as primary products and 5-8 as manufactured items where 7 is classified as Machinery and transport equipment.

[2] Revealed Comparative Advantage (RCA) is an index used in international economics for calculating the relative advantage or disadvantage of a certain country in a certain class of goods or services as evidenced by trade flows. It is based on the Ricardian Comparative advantage concept.

[3] The Comparative Advantage (CA) is an economic theory about the potential gains from trade for individuals, firms, of nations that arise from differences in their factor endowments or technological progress.

factors such as recent global financial crisis and Malaysia's participation in ASEAN Free Trade Area (AFTA) will be taken in as consideration.

Specifically the paper makes an attempt to analyze the following aspects: The pattern of Comparative Advantage for Malaysia in the global market, what are the leading manufacturing industries in terms of their revealed comparative advantage in Malaysia, to what extent has export specialization shifted away from labor and natural resource intensive products to high value-added knowledge and technology intensive industries, and to what extent is the pattern of specialization as observed in Malaysia competitive or complementary in the world market?

3. Literature Review

Eli Hecksher and Ohlin emphasized that international differences in resource (or factor) endowments facilitate trade. Due to this factor "abundance theory" or the Heckscher-Ohlin (H-O) model, it is predicted that a country will export commodities that are relatively intensive in the factor with which the country is relatively well endowed. Under comparative advantage point of view, CAs flow from countries' relative endowments of capital, skills and labor.

The concept and measure of the index of revealed comparative advantage as put forth by Balassa (1965), has been employed by various economists. Lim (1997), attempted to illuminate the characteristics of the North Korean economy by examining her foreign trade. He categorizes goods into 'Ricardo', 'Heckerscher-Ohlin' (HO) and 'Product-cycle' (PC) goods. Based on the RCA index of these three categories, he elucidates the level of development achieved by North Korea. A progress from Ricardo to HO and then to PC goods, is an apt indicator of the development of the country. Results suggest that while North Korea's comparative advantage had moved up from Ricardo goods to HO goods, it would be difficult for the country to move into the terrain of PC goods. The author did not foresee this shift to PC goods since the economic structure of the country was not being upgraded to produce goods requiring advance technology.

The benefit of trade comes with increased specialization in production of goods where a country has as comparative advantage. In one strand of the literature it is in fact argued that the growth of a country may be permanently reduced by a 'wrong specialization (Imre Ferto and Karoly Attila Soos, 2006).

According to Yeats (1992) studies on comparative advantage can broadly be categorized into two; the Revealed Comparative Advantage (RCA) which mainly concerned with relative labor and capital inputs of specific goods. The existence of little information on labor and capital inputs in developing countries has led to adoption of the revealed comparative advantage. And since the TCA measure was first used by Balassa (1965) it has been widely applied in economic empirical work to evaluate the patterns of trade and specialization of countries in commodities which they have a competitive edge.

3.1. Methods, Data and Findings

Trade data is obtained from the UN COMTRADE classified at the SITC three-digit level. Consideration is done to total export of Malaysia to and import from different countries in the world from the year 1978 to 2009. Throughout this study, we refer to a product as a three and two-digit level category. For each product we have data base on SITC (Revision 2) country code (PC), export value (EX) and Revealed Comparative Advantages (RCA). If specialization matters for trade, it is more relevant for products in which the country is abundant in a certain factor of production (labor, land, capital or technology). Thus analysis focuses on both primary sector and manufacturing sectors so as to identify the trends of Malaysia's trade and changes in CA and competitiveness in the World market.

3.1.1. Market Structure and Changes in Export and Import Shares of Malaysia

Analysis is done by considering the number of countries where Malaysia export to and import from for the period of 1981-2009. Precisely, the share of top ten countries is accumulated in order to see the percentage contribution of the top ten importers and exporters to total import and export every year.

The higher the percentage implies less diversified markets and more diversifies vice versa. We calculated the country's share as follows;

$$SH_{jt} = \frac{X_{jt}}{\sum X_{jt}}$$

Where the left hand side stands for either share of Malaysia's export to county j or Malaysia's imports from country j at time t. $\mathbf{X_{jt}}$ = export to country j or import from country j at time t, j is used to differentiate the countries. $\sum X_{jt}$= total export or import at time. Countries rank according to their share (export or import) as to obtain top ten exporter and importers in order to analyze the contribution done by the top ten countries in the export side and import side.

By summing up the shares of these top ten countries, the total share obtained from them accounted to 87 percent of the total export on average for 29 years, while the import share obtained from top ten countries accounts to 88 percent of the total import. (figure 1).
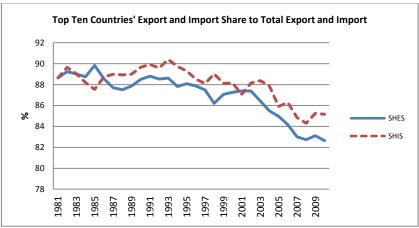

Figure-1. Top Ten Countries' Export and Import Share to Total Export and Import

Except for the three top importer of Malaysian export (Singapore, Japan and US) Malaysia export share can be consider as having slightly diversity trend during the period of study. From the 1981 till 2005, these three countries have dominating the Malaysia's export share but showing a decreasing percentage rate in their share. Other than these three countries, the other two top five Malaysian importers are always been changing where Korea, Netherland, and Germany was at the rank of 4th and 5th during the 80's and 90's while Hong Kong, United Kingdom, and Thailand taking the ranks during the mid of 90's till the late 2000's. The countries with a higher share of Malaysia's export in the 1985 till 1995 are Singapore (importing a lot of manufacturing goods and agricultural) and USA from 1996 till 2009 (importing manufacturing goods such as E&E product). Other emerging importers of Malaysia's exports are Japan and Thailand while China shows the most prominent potential which at the 4th place from period of 2001-2009 while only was at the 10th place from period of 1991-2000.

Principal exporters to Malaysia are the same with the top three importers countries share's case which it has been dominating by Singapore, Japan and USA from 1981 till 2005 and PRC emerged as the top 3 replacing Japan in the period of 2006 till 2009. However, in the case of emerging countries, it shows a more diversification that of the Malaysia importers' shares. During the period of 1981 till 1995, Germany, Australia, and United Kingdom, have emerged while the period of 1996 till 2009 shows that other countries such as Korea, China, and Thailand have emerged in the top five group of Malaysian exporters. There is a decreasing trend is being shown in the Malaysia import pattern from the principal countries showing that Malaysian had been trying to lesser their dependency on import according to the 10th Malaysia Economic Plan (MEP) which is to decreased the volume of import in order to improve the country's balance of trade and utilize more in the country's own resources by creating and locating the new one.

By focusing the import and export share of ASEAN countries to Malaysia import and export, it can be seen that since the implementation of AFTA in 1992 the countries' share in export has shown a declining trend while increasing in import share (figure 2). Overall, intra-ASEAN free trade is likely to produce a small effect on member countries' GDP including Malaysia due to the particularly small existing intra-trade between them (Othman, Jamal and Yaghoob, Jafari, 2009). Especially starting from the year of 2000, the declining in the export share's trend shows due to the hard recovery of some ASEAN members' countries after the Asia's financial crisis and it's continues till the early year of global financial crisis in 2008. Therefore, the implementing of Asian Economic Community such as ASEAN+3 and ASEAN+6 like being mentioned in the earlier chapter of this paper are important in order to change the current ASEAN trade condition since ASEAN needs a bigger regional economic power such as China

South Korea and Japan to guide and encourage them in building a more interactive Asian trade environment.

Figure-2. Exports and Imports Share of ASEANs Members

This section is to find out whether the trend of Malaysia's export and import value and export share to the total world export have increased or decreased during the period of study. Also to analyze the annual average growth rate of Malaysia's Export and Import Share Value and Malaysia's export share to the total world export.

Malaysia's export and import value has been increasing throughout the selected period of this study. Export value rose from 23.48 (US billion dollars) in 1981 to 397.58 (US billion dollars) in 2010 enable her to become among the world's top 20 trading nations which also representing an annual average growth rate of 1.02 percent. The value of import, on the other hand, rose from 23.1 (US billion dollar) to 329.17 (US billion dollar) in 2010, representing an annual average growth rate of 0.91 percent. This analysis explain that the two sides of Malaysia's trade have quite far different growth rate, hence, export still dominates in Malaysia's trade, representing an increased in oriented economy. (Figure 3).
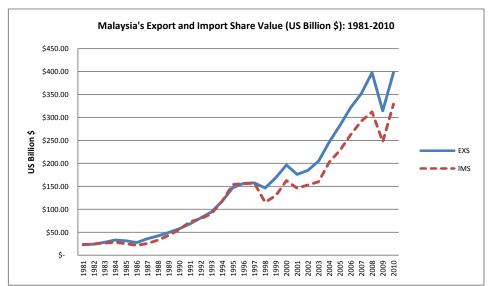

Figure-3. Malaysia's Export and Import Share Value (US Billion $): 1981-2010

Malaysia's export share to the total world export has a decreasing trend over time. The export share's growth shows a decreasing percentage from 0.097 in 1981 to -1 in 2009, and the annual average growth rate has a percentage of -0.86 percent indicates that Malaysia's competitiveness in the world export trade is getting low. If we group the analysis to two different group of period which are from 1981-1998 and 1999 to 2009, the trend of export and import from the first group has an annual average growth rate of -0.8 percent and -0.82 for the second group (figure 4) showing the impact of the Asian financial crisis on the first aggregated group and the impact of the recent global financial crisis on the second group to Malaysia's export share to the total world export.

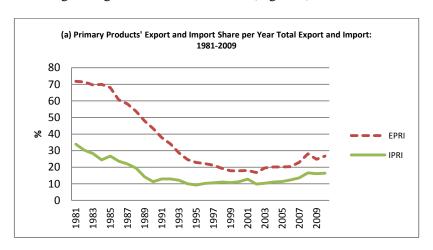**Figure-4.** Malaysia's Export Share (%) to World's Total Expor

To identifying Malaysia's industries (primary and manufacturing) as to which sector contributes more to her import and export.

The analysis will be done using comparison at the share of primary goods to total export and import and also the share of manufactured goods to total export and import. The share of export or import is calculated as follows;

$$SH_{mt} = \frac{X_{mt}}{\sum X_{mt}}$$

Where the left hand side stands for share of export for primary product or manufactured, X_{mt} = export value or import value of manufactured or primary product export at time t, referred as m to differentiate the two sectors. $\sum X_{mt}$ = sum of manufactured or primary product export at time t.

The export and import share profiles at the sector level reveal that Malaysia export and import are both concentrated on manufacturing product (figure 5). The export share of manufacturing products to Malaysia's total export (EMAN) has an annual average growth rate of 0.89 representing an increase in its share between the years 1981-2009. The import share of manufacturing products (IMAN) has an annual growth rate of -0.99 indicates that Malaysia's dependency on import of manufacturing product is decreasing which shows a good sign to its balance of trade (Figure 5)
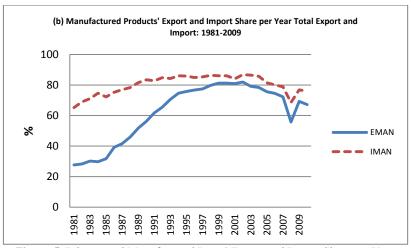
Figure-5. Primary and Manufactured Items' Export and Import Share per Year

According to that, Machinery and transport equipment and manufactured goods classified chiefly by materials attribute to the higher manufactured share (Table 1). Decreasing import share in this sector (annual growth rate of -0.99) shows that not even Malaysia has high competitiveness in this export of sector but she also face a minor and decreasing trend of competition from other countries especially during the latest period of year 2006-2009 (Table 2)

Table-1. Export Share of Manufactured Items by Industry

Year	5	6	7	8	9
1981-1985	0.94	9.10	16.52	2.96	0.31
1986-1990	1.80	8.16	29.71	7.25	0.32
1991-1995	2.32	8.83	48.39	10.12	0.73
1996-2000	3.42	8.26	59.09	8.54	1.00
2001-2005	5.14	7.35	57.99	8.71	1.88
2006-2009	5.85	8.66	44.81	8.48	7.60

Table-2. Import Share of Manufactured Items by Industry

Year	5	6	7	8	9
1981-1985	7.97	15.77	41.86	4.79	0.90
1986-1990	9.74	15.97	47.50	5.90	2.78
1991-1995	7.32	14.96	56.91	5.54	3.80
1996-2000	7.00	11.98	61.44	5.32	3.48
2001-2005	7.54	10.57	60.96	5.86	3.98
2006-2009	8.41	12.21	49.87	5.58	8.91

In case of primary product, export share of primary items (EPRI) to total Malaysia's export has an annual average growth of -1.02 while import share (IPRI) has an annual average growth rate of -1.01. Mineral fuels, lubricants and related materials is the highest contributor in this industries follows by the crude materials, inedible, except fuels and the animal and vegetable oils, fats and waxes categories. The new growth commodity is from the food and animals chiefly by food as being shown by the table

The industries from which Malaysia importation is higher are food and live animals chiefly for food, Mineral fuels, lubricants and related materials, and crude materials, inedible, except fuels. Food and live animals chiefly for food is the leading industry and it takes average of 37.42 percent of the Malaysia's import share in the primary goods industry (Table 4).

Table-3. Export Share of Primary Goods by Industry

Year	0	1	2	3	4
1981-1985	4.08	0.08	24.17	29.08	12.75
1986-1990	5.03	0.12	20.19	18.16	9.25
1991-1995	3.22	0.17	9.03	10.62	6.57
1996-2000	2.13	0.32	3.79	7.76	5.70
2001-2005	2.08	0.36	2.51	8.93	5.06
2006-2009	2.52	0.39	2.72	11.72	7.25

Table-4. Import Share of Primary Goods by Industry

Year	0	1	2	3	4
1981-1985	10.15	0.80	3.83	13.70	0.21
1986-1990	8.49	0.53	3.89	4.77	0.45
1991-1995	4.77	0.34	2.60	3.43	0.32
1996-2000	4.39	0.26	2.47	3.38	0.29
2001-2005	4.24	0.36	2.47	3.55	0.48
2006-2009	5.21	0.40	3.31	5.16	0.94

From the result of this analysis we can see that the Malaysia industry is characterize by the manufacturing items where the most of it contributed by the share of Machinery and Transport Equipment amounting of 51.4 percent from the period of 2001-2009 (appendix 2).

This shows Malaysia commitment of transforming the countries into becoming a High-Income Nation. The Government is aiming for Malaysia to become a high- income nation that is both inclusive and sustainable by 2020. The Government defines the high-income threshold at a per capita income of about RM48,000 or USD15,000 in 2020, based on World Bank's current definition of high income. The Government's high-income objective is not just a quantitative target. It is also about Malaysia becoming an advanced, developed nation with an economy possessing the characteristics of a high-income economy, such as a thriving services sector, a balance between private consumption and investment as well as productivity levels that are similar to those of regional leaders. We will achieve growth without running down Malaysia's natural resources. In environmental terms, the Government is committed to the stewardship and preservation of the natural environment and resources by ensuring that they are properly priced into the cost of development[4].

3.1.2. Analysis the change in the commodities exported from and imported to Malaysia

The methodology is similar to the above done analysis (Industrial characteristics) but instead of using m to differentiate the two sectors, we use j to differentiate commodities at SITC 3-digit level. Specifically, the sum of the top ten commodities' share is used to see which commodities persist in the top ten ranked commodities yearly and also what percentage does the top ten commodities contribute to the total export or import of Malaysia.

Malaysia export profile reveals the minimal attempts to diversify product. Figure 6 shows that export in concentrated of few commodities. For instance, the export done from top ten commodities each year accounted for 85.45 percent of total export in 1981 and 60.5 percent in 2009. Furthermore, major exported commodities from Malaysia are Thermionic, microcircuits, transistors, valves, etc, Petroleum, petroleum products and related materials, and other fixed vegetable oils, fluid or solid, crude, refined which have been dominated much of the export market in the year 1981-1995 and more are continued to take part in top ten even until 1990.

In the period time of 1991 till 2000, more new commodities emerged taking place as the top ten exported goods such as Gramophones, dictating machines and other sound recorders, Television receivers, Automatic data processing machines and units thereof and Electrical apparatus for making and breaking electrical circuits. The period time of 2001 till 2009 shows another some more new commodities emerged such as Special transactions, commodity not classified according to class and Measuring, checking, analysis, controlling instruments, and parts.

The importation of goods in Malaysia shows a quite more diversified characteristic compare to export. The import share of commodities has less than 8 percent of import share to total import when

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[4] 2010 Annual Report from Malaysia Government Transformation Programme (GTP)

aggregated to 10 years period of time, compare to export which is less or equal to 9 percent except for commodities Thermionic, microcircuits, transistors, valves, which has average import share of 15.76 percent on import and 19.39 percent of import in the whole period of study. The most imported commodities which dominate the market are Thermionic, microcircuits, transistors, valves, etc, (the same commodities which dominating Malaysia's export share from 1981 till 2009), Telecommunication equipment, parts and accessories, Parts and accessories for machines of headings, and recently by Office machines and automatic data processing equipment and Crude petroleum and oils obtained from bituminous minerals. Crude petroleum and oils obtained from bituminous minerals was one of the top three imported commodities in the year of 1981-1985 and was gone at the period time of 1986 till 2005 before it become the top 4 of Malaysia's imported goods during the period of 2006 till 2009 must be due to a high demand of crude oil and petroleum in the world market makes Malaysia intensively exporting this natural resources of her which has an excellent quality to the world in order to increase her trade balance and export shares.

Anyhow, since the year of 2006 till 2009, when aggregated, it shows that the share of Malaysia export is decreasing (many commodities are exported) and also in imported commodities. Table 5.
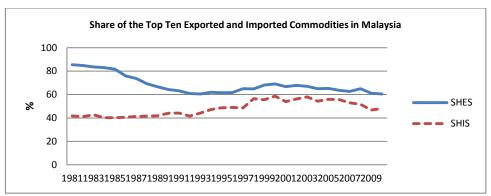

Figure-6. Share of the top Ten Exported and Imported Commodities in Malaysia

Table-5. Export and Import Share of the Top Ten Commodities

Year	Export	Import
1981-1985	83.11	40.49
1986-1990	68.7	40.25
1991-1995	59.89	44.31
1996-2000	65.15	53.36
2001-2005	66.31	55.57
2006-2009	61.64	50.57

3.1.3. Measuring Revealed Comparative Advantage

Using Balassa's (1965), measure of relative export performance by country and industry/commodity, which is defined as a country's share of world exports of a commodity divided by its share of total world export. The index for country I and commodity j is calculated as follows;

$$ RCA_{ij} = \frac{X_{ij}}{X_{wj}} \left\lfloor \frac{X_i}{X_w} \right.$$

Where X_{ij} = ith country's export of commodity j, X_{wj} = world export of commodity j, X_i =the total of commodity i and X_w = total world exports.

The interpretation of the index of revealed comparative advantage (RCA_{ij}) has a relatively simple interpretation. If it takes a value greater than 1, the country has a RCA in that product (i.e. the country is said to be specialized in that commodity or sector and vice versa where (RCA_{ij}) is below 1. Using this index implies the consideration of intrinsic advantages of a particular export commodity and is consistent with changes in the economy's relative factor endowment and productivity. The disadvantage, however, is that it cannot distinguish improvement of factor endowments and pursuit of appropriate trade policies by county j. Since RCA_{ij} turns out to produce and output which cannot be compared on both sides, then it

is vital to consider the symmetric measure of the index which can be obtained as ($RCA_{ij} \square 1$) / ($RCA_{ij} \square 1$); this has a range measure from -1 to =1. The measure is labeled 'symmetric revealed comparative advantage' (SRCA). The pure RCA is no comparable on both sides of unity as the index ranges from zero to one, if a country is said no to be specialized in a given sector, while the value of the index ranges from one to infinity if a country is said to be specialized in given commodity or sector

3.2. Revealed Comparative Advantage (The analysis)

Undertaking the RCA analysis at commodity level using SITC 3-digit level and accumulating the commodities with TCA by finding their export share to the world's total exports using the following index;

$$SHMW_t = \frac{XM_t}{XW_t}$$

Where XM_t is the Malaysia's total exports and XW_t is the world's total exports at time t. Additionally, grouping the commodities into two groups, there the former group includes commodities with CA and the latter includes commodities with Comparative Disadvantages (CDA) using the following ratio equation;

$$SHMW_t^i = \frac{\sum XM_{jt}^i}{\sum XW_{jt}^i}$$

Where superscript i stands for the two groups, the first group includes commodities with CA (SRCA>0) and the second group includes commodities with CDA (SRCA<0), and j stands for the commodities at SITC 3-digit level at time t.

The export share of Malaysia's trade for the group of CA, CDA and AVG (Malaysia's export share to the world's export) has a decreasing trend showing an annual average growth of -0.86, representing that Malaysia's export is decreasing, stagnated or subjected to competition from other countries, where their export might have been increasing.

In terms of groups CA and CDA, Malaysia's export share to the total world's export shows the following trend. CA group has export share annual average growth rate of -0.99 percent representing a fall in Malaysia's export share per world share per commodities in the world market and this study also reveal the decrease in the number of commodities in this group, with an annual growth rate of -0.81 shows that Malaysia's competitiveness is low. The CDA group has an export share annual average growth rate of 0.88 shows an increasing trend which is can be used in balancing the decreasing trend in CA and shows that there is an increase in CA commodities production (Figure 7) The number of commodities shows an annual growth rate of -0.89 which is not competitive to the world export share ratio.
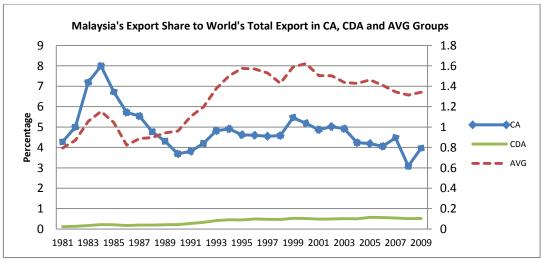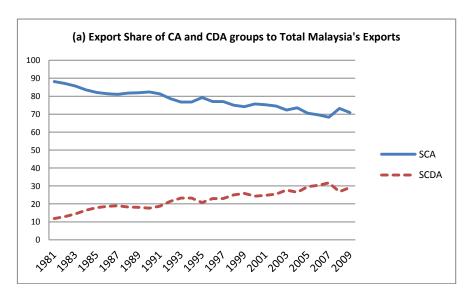

Figure-7. Malaysia's Export Share to Worlds Total Export in CA, CDA and AVG groups
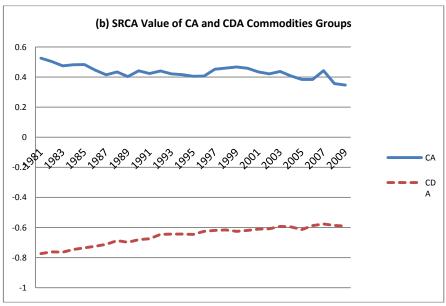
CA analysis measures countries' specialization in a commodity or sector (Balassa 1965). Therefore the study will use the separated groups, to find the export share of each group (CA and CDA) to Malaysia's total export which will be compared with the analysis done for the world share and the following equation is used to obtain the required groups' export share;

$$SH_t^m = \frac{\sum X_{jt}^m}{XM_t}$$

m represent the CA and CDA groups, while j represents the commodities and therefore, $\sum X_{jt}^m$ is the sum of export of j commodities classified as either CA or CDA at time t and XM_t is Malaysia's total export at time t. This analysis will reveal whether the CA or CDA group contributes much to Malaysia total export.

(a) Export Share of CA and CDA groups to Total Malaysia's Exports
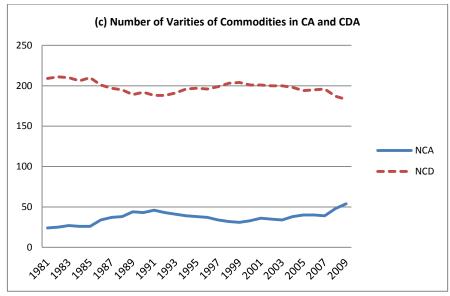

(b) SRCA Value of CA and CDA Commodities Groups

Figure-8. Export share, SRCA value and number of varieties of commodities in CA and CDA

The above analysis reveals that CA group contributes much to Malaysia total export. Additionally, the SRCA values of this group are higher and the number of commodities in this group is not as much as that one find in the CDA group. For instance, CA group had 24 varieties of commodities (NCA) in 1981 much lower compare to the (NCD) but its export share to total Malaysia's export was 88 percent (SCA) and its average SRCA (CA) value was 0.53, while CDA group has 209 varieties (NCDA) of commodities with only 11.82 percent of the total export share (SCDA) and a SRCA (CDA) value of -0.77 (figure a, b, and c).

Figure 8 shows that the export share of CA group to total world export of the related goods accounted to 4.3 percent in 1981 and 3.97 percent in 2009. The difference is not to far away if compares to CDA group which accounted to 0.11 percent in 1981 and 1.34 percent in 2009. The export share to total world export was 0.79 in percent in 1981 and 1.34 percent in 2009, emphasizing that RCA shows how the country specializes.

This further analysis is to show the change of RCA to see the improvement in traded goods and the increase in Malaysia's export share to the world market bearing in mind that changes in comparative advantages can be brought in cases where the state played a crucial role in determining the social and economic conditions of a country. Using SRCA values of each commodity at SITC 3-digit level, we found that trade specialization was too low in 1981 where a large number of commodities revealed comparative disadvantage and few of them show CA: figure 9 (a).

In 2009, the SRCA values of commodities and the number of these commodities changed. There was an increase of commodities in the trade environment. Figure 9 (b) shows a large area of commodities with CA in 2009 that in 1981, some of the commodities gained comparative advantage in 2009 and some remained in CDA group. The number of commodities with CDA is higher reveals that much of the trade in Malaysia comprises of commodities which are CDA. By ranking the value of SRCA without commodities match as in figure 9 (c), shows that in 2009, that graph increased drastically in 2009 compared to the one in 1981. This reveals obviously that there are more commodities in 2009 than 1981 but it also shows that Malaysia's exports are characterized by commodities with CDA. In 2009, however, the improvement in commodities with comparative advantage signifies much that there was more gain in the Malaysia's share per world share in the world market.
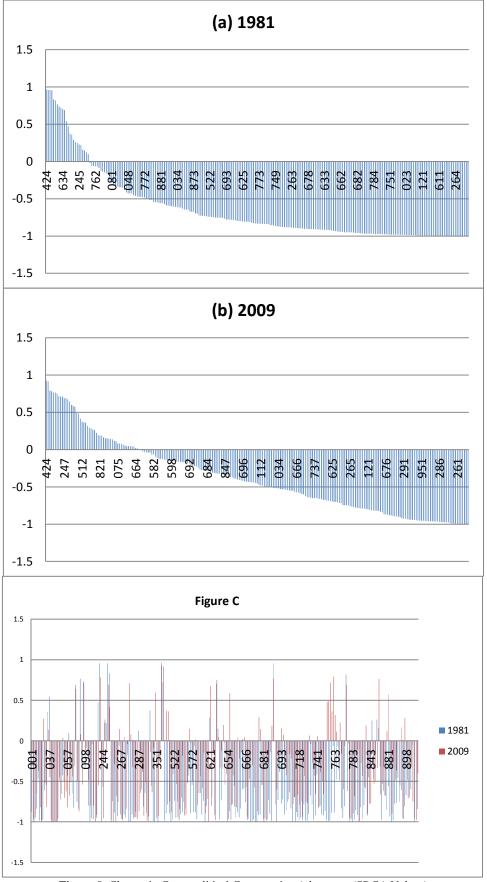
Figure-9. Change in Commodities' Comparative Advantage (SRCA Values)

4. Factor Intensity Analysis

In this study, the factor intensive of Malaysia's export goods will be analyzed to see which types of goods are exported. The theory will used the product Cycle (PC) model developed by R. Vernon (1966) in response to the failure of empirically model by Hecksher-Ohlin model. This model emphasize on manufactured goods, where it is expected that Malaysia export share to the world total export will be more on the manufacturing products which is on Middle high Tech and Middle Low Tech factor intensity. Empirical trade analysis (ETA) will be use for the analysis, the commodities are organized into five groups namely, High Tech intensive product (HT), Middle High Tech intensive products (MHT), Middle Low Tech intensive products (MLT), Low Tech intensive product (LT), and others (OTH). Since Malaysia is depending on her export in the world market and is well known as an exporting country, this analysis will focus more on her share of export to the world total export rather than the share to her export.

To capture the factor intensity specialization, first the export share of commodities in each group will be compared to the total export of Malaysia and the world respectively. The equations are as follows;

$$SH_t^m = \frac{\sum X_{jt}^m}{XM_t}$$

m represent the six groups mentioned above, while j represents the commodities and therefore, $\sum X_t^m$ is the sum of export of j commodities classified in factor groups at time t and $\mathbf{XM_t}$ is Malaysia's total export at time t. The similar ratio using world export data is obtained using the equation below;
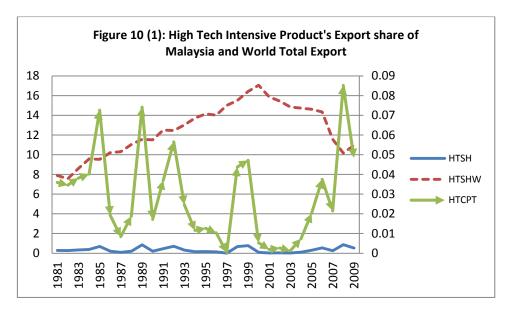
$$SHW_t^m = \frac{\sum XW_{jt}^m}{XWM_t}$$

where m represent the six groups mentioned above, while j represents the commodities and therefore $\sum XW_{jt}^m$ is the sum of export j commodities classifies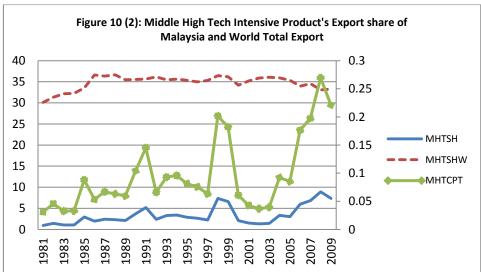 in factor groups (from different countries) at time t and $\mathbf{XWM_t}$ is world's total export at time t. Dividing the both equation will obtain a competitiveness ratio of Malaysia export and the ratio measures the competitiveness of Malaysia's export in the world market (CPT). The CPT ratio measures the competitiveness of Malaysia's export in the world market. If the value of CPT is greater than 1, then such group has a higher share in Malaysia's exports share and the world's exports share, respectively.
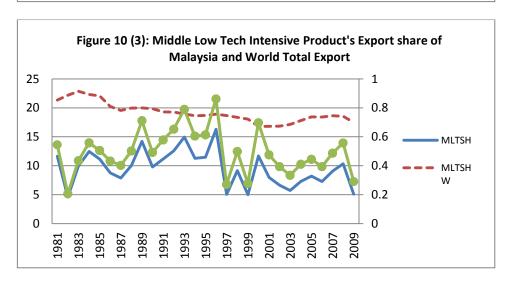
As been mentioned in the previous chapter (Malaysia's factor endowment) that Malaysia not only effective in her manufactured but also in her primary products' trade. The findings explain that commodities categorized as Other products have the highest contribution in the Malaysia's export share and their CPT values are greater than one throughout the year of study and some reached level of value four (Figure 10 (5)). It signifies that the higher share of this category in Malaysia's export share shows and increasing trend since Malaysia is endowed in these kind of commodities. This is follows by the Low Tech product category which it exports' share of Malaysia (LTSH) is showing a decreasing trend when its contribution has reached the highest 51.81 percent in 1997 but decreased to 21.32 percent in 2009 (figure 10).
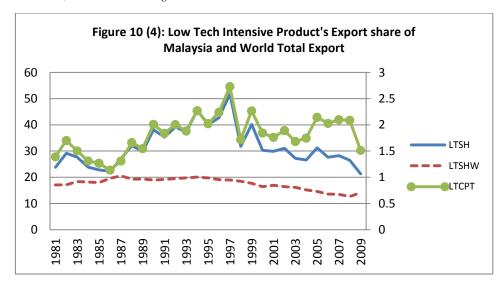
However, as predicted, Malaysia's export share of world total export is the highest in the category of Middle high tech and Middle low tech intensive products which most of them contains the manufactured goods such as Chemicals (but pharmaceuticals), Machinery and equipment (but office, accounting machinery), Electrical machinery and apparatus, Other transport equipment, Motor vehicles, trailer, Medical, precision and optical instruments and Refined petrol production, Rubber and plastics product, Non-metallic mineral products, Iron and steel, Non-ferrous metals, Fabricated metal product, Shipbuilding and repair Manufacturing. Malaysia is depending on these intensive products of export even though their CPT value never shows higher than zero compare to the OTH and Low Tech intensive product (figure 11), but as for the export share world total export, these product categories contribute more when they accounted of 34.78 percent for Middle High Tech and 19.18 percent on Middle Low Tech in average compare to the Other and Low Tech intensive product where the average are 15.93 and 17.54 percent respectively.

Even though Malaysia's export share is characterize by the Low Tech Intensive product but her world export share of this intensive product categories is the lowest compared to all other intensive product and shows a decreasing trend either in export share, world export share and CPT while the high and middle

tech intensive product as predicted showing a decreasing trend especially in world export share and CPT (figure 10). These proved that Malaysia are really committed in pursuing her target to become the world k nown high tech country trader.

Figure 10 (1): High Tech Intensive Product's Export share of Malaysia and World Total Export

Figure 10 (2): Middle High Tech Intensive Product's Export share of Malaysia and World Total Export

Figure 10 (3): Middle Low Tech Intensive Product's Export share of Malaysia and World Total Export

Figure 10 (4): Low Tech Intensive Product's Export share of Malaysia and World Total Export

Figure 10 (5): Other Intensive Product's Export share of Malaysia and World Total Export

Figure-10. Malaysia's and World's Export share categorized into Factor Intensity

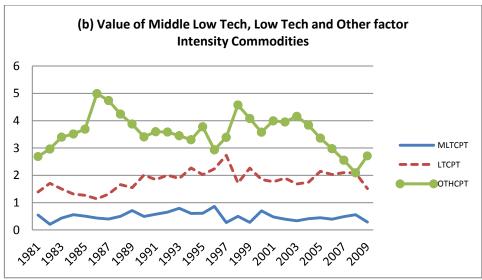(a) Value of High Tech and Middle High Tech factor Intensity Commodities

Figure-11. CPT Values of Commodities Classified into Factor Intensity

Accumulating the exports shares and SRCA's weighted average of each factor group into five year interval (YR1=1981-1985, 1986-1990, …..2006-2009) shows the relationship between factor intensity and comparative advantage, table 6 shows that other intensive products have the highest export share and SRCA weighted average (WSRCA), followed by the low tech intensive product which has negative WRCA representing a comparative disadvantage. However the WRCA for high tech intensive product has shown a positive WRCA in the ten years aggregated period which are from 1996 to 2005 before it's again showed negative value during the period of 2006-2009 due to the recent global financial crisis. However, this analysis result indicates that Malaysia has the potential in having a higher competitiveness in High Tech intensive industry in the future with prediction that the global financial condition is improving.

Table-6. Weighted SRCA and Malaysia's Export Share grouped in Factor Intensity

WRCA					
YEAR	HT	MHT	MLT	LT	OTH
1981-1985	-0.002	-0.011	-0.073	-0.213	-0.327
1986-1990	-0.001	-0.016	-0.060	-0.218	-0.351
1991-1995	0.000	-0.021	-0.058	-0.264	-0.317
1996-2000	0.000	-0.022	-0.054	-0.284	-0.322
2001-2005	0.000	-0.007	-0.052	-0.198	-0.309
2006-2009	-0.001	-0.021	-0.035	-0.138	-0.227
SHARE					
YEAR	HT	MHT	MLT	LT	OTH
1981-1985	0.42	1.66	10.33	25.67	63.02
1986-1990	0.31	2.68	10.46	30.24	61.55
1991-1995	0.37	3.54	12.57	39.65	44.57
1996-2000	0.38	4.58	9.58	39.42	46.76
2001-2005	0.10	2.21	7.18	29.22	61.41
2006-2009	0.55	7.28	7.94	25.94	58.31

However, table 6 shows that in terms of WRCA, the HT is having the highest value compare to other intensive products. This analysis shows that Malaysia is somewhat successful in reaching her target as the high tech trader while at the same time also using effectively her other resources in order to reach her target.

Therefore, the factor analysis reveals that Malaysia's export is characterized by the other and Low tech intensive product in terms of its export share but in terms of her export share of the total world export, it's dominating by the Middle high tech and Middle Low tech intensive industry showing that Malaysia is having both benefits from her Low tech and high tech since the HT and MHT is considered as

High Tech intensive industry and MLT, LT consider as a Low Tech intensive industry generally while OTH is consider as not includes in any of these categorization.

5. Future Research

Some research need to be done in order a prediction regarding how Malaysia can cope up with the future world trade condition that predicted will have a rough path ahead and what are the best measures to be taken in preventing the same situation with Asian financial crisis impact from happening again to Malaysian trade and economy.

All these questions are importance to be answered in order to predict which industries or commodities will be the one that still have the competitiveness in the future and from this, some early steps can be measure in the forms of trade policies to make sure that Malaysia can still survive in the coming challenging world economic condition.

6. Conclusion

Using ETA factor analysis reveals that Malaysia's export is characterized by high and middle high tech intensive product in terms of her export share to the total world export share even though her own share of export are characterized by the low tech and other industry factor intensive. With the population only 27 million people, which much more smaller than other countries with a high labor intensive capability Malaysia therefore is focusing more on the capital intensive product and due to that is having a more high value of share on this category in her export of the world export share.

However, due to a high competition of this category of industry, Malaysia's trade is characterized by a trade deficit and a lack of diversification in export and import markets. There are few countries to which Malaysia export and few countries from which Malaysia import even though import shows a slight more diversification. There is an increase of commodities in the trade environment, but the number of commodities with CDA is higher, revealing that much of the trade in Malaysia comprises of commodities which are at a CDA. Commodities categorized as others have the higher contribution in the Malaysia's export share and their value of CPT is greater than one. Low tech category follows after others intensive product but still these two products categories are having a decreasing trend in their share to the world export and CPT values. Malaysia which consider as a manufacturing countries is having an increasing trend on her high tech intensive product in terms of its export share to the world export and level of competitiveness. Therefore this type of intensive product will gain a lead in Malaysia export share and will dominate her economy in the future which will enable her to become a high income countrie commensurate with the others.

In the context of Industrial characteristic, Malaysia's industries are being powered by the export and import of manufacturing product compare to the primary products. The manufacturing commodities especially the Machinery and Transport Equipment contribute the highest share in her export and import in the whole period of studies in this paper.

As a whole, this study analyzes and examines how Malaysia's economic structure and trade pattern in terms of its Revealed Comparative Advantage and also on its economic characteristics (in terms of its trade shares that have change during the period of study between 1980 till 2009). The paper shows that Malaysia which the structural transformation of her economy over the last 50 years has been spectacular recently of not severely but just moderately affected by the global economic condition.

7. Recommendations

By taking in consideration of the recent world economic condition, Malaysia needs to be more diversifies in the term of her export and import partner. As per shows by the result on this paper, Malaysia dependency of her export and import especially to the US market can cost her if not in the short (if the world condition persist) but will shows its effect in the long term.

Due to her target in becoming an advanced developed nation with an economy possessing the characteristics of a high-income economy, Malaysia should not only focus to the high tech industry development but also need not to take his focus away from the primary industries. As we can see nowadays that the increased of the world food price due to the natural disasters and other significance reasons, the primary based industry such as agriculture might one day emerge as a world key industry. By considering Malaysia's advantage in natural resources, this theory cannot just be ignored and an early step needs to be taken seriously.

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