Business Environment in Emerging Market

Competitiveness of Malaysia:
A Discussion and Further Development

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Abstract
This paper assesses Malaysia’s world competitiveness and gives the government recommendations to move to the next step in terms of economic development and general well-being. We looked at comparable countries that had a similar export structure in 2000 as Malaysia in 2010. Specifically we calculated a series of measures including Revealed Comparative Advantage, intensive and extensive margins as well as physical and human capital endowment for our countries and looked at their evolution during the last decade. We found evidence that Malaysia has not much improved its competitiveness. We believe that Malaysia should further implement its new industrial policy along with a specialization on the development and manufacturing of higher value added products.
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1. Introduction

Malaysia is an upper-middle-income country located in Southeast Asia that has a population of 28.4 millions in 2010\(^1\). Malaysia can be characterized as a new industrialized economy and has the objective to become a fully developed nation by 2020. The performance of the country was impressive over the last 50 years with a real GDP growth of 6.5% on average from 1957 to 2005\(^2\). This growth has enabled Malaysia to become the 30th largest economy in the world, reaching a GDP of $447 billions in 2011\(^3\).

International investments (Foreign direct investment) have led the country growth in the last few years and the electrical and electronics industry has developed greatly, becoming Malaysia’s first export sector\(^4\). However, the dependence on foreign investment has weakened Malaysia’s own indigenous capabilities, as assembling electronics does not require highly skilled workers. Malaysian-owned firms have developed difficulties to create value-added products partly due to the lack of skilled and innovative workforce in the country\(^5\).

The aim of this paper is to analyze the competitiveness of Malaysia and give recommendations for the future development of the country. The analysis of the competitiveness will be done thanks to a set of six countries that will be used as comparables. These countries have been chosen because ten years ago, they had a similar economic profile as Malaysia’s current one. We have decided to analyze the competitiveness of Malaysia for different reasons. Malaysia is a country that stands out in Asia and is very different from its neighbors like Thailand or Vietnam for example. The country is very complex and is characterized by technological capabilities and modernity on one side and poverty and lack of education on the other. The contrast between these two aspects, the use of FDI’s and the dependence of the country towards foreign firms, make the country’s development difficult. Thus came the interest of analyzing Malaysia’s position and understand why it is stuck in the middle of its development while still having a lot of unexploited potential.

2. Competitiveness – The WEF vs. World Bank’s Doing Business

Before analyzing and looking at Malaysia’s competitiveness, it is important to better understand the concept of competitiveness and have a look at already existing indicators. This section will first present a definition of competitiveness as given by the World Economic Forum (WEF) and then emphasize on the Global Competitiveness Index of Malaysia as well as doing business indicators.

According to the World Economic Forum, competitiveness can be defined as “the set of institutions, policies, and factors that determine the level of productivity of a country […] In other words, a more competitive economy is one that is likely to grow faster over time. »\(^6\). The Global Competitiveness Index (GCI) calculated by the WEF for Malaysia is 5.1, which enables the country to be ranked at an honorable 21st place out of 142\(^7\). The WEF considers three possible development phases for the countries. The first one is the stage where the economy is factor-driven. The second phase concerns the efficiency-driven economies and the third one is about innovation-driven economies. The weights of each pillar depend on the development of the

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\(^1\) http://data.worldbank.org/country/malaysia  
\(^2\) http://www.state.gov/r/pa/ei/bgn/2777.htm  
\(^4\) http://atlas.media.mit.edu/explore/tree_map/export/mys/all/show/2010/  
countries. With a GDP per capita of USD 8’423 in 2010, Malaysia is considered as being in the efficiency-driven phase. Therefore, the pillars that are most important for the country are the efficiency enhancers. It is also in this category that Malaysia is the most competitive with a rank of 20th out of 142.

In the category of basic requirements, Malaysia has high scores concerning its infrastructures, its macroeconomic environment as well as its health and primary education systems. The weakness of the country concerns its institution and particularly the business costs of crime and violence, the organized crime and judicial independence. Malaysia’s performance in the “efficiency enhancers” category is superior and particularly for its goods market efficiency. Its labor market efficiency and its financial market development, ranked 3 out of 142, are just behind Singapore and Hong Kong. The two pillars where Malaysia does not perform well are higher education and training, on which the country places a low 38th due to its low secondary and tertiary education enrollment rates, and technological readiness (44th rank). For the innovation and sophistication factors, Malaysia has a good score for business sophistication, but is weaker in what concerns innovation. Finally the WEF also considers the most problematic factors for doing business in the different countries. The three main critical points for Malaysia are the inefficiency of the government bureaucracy, the access to financing and restrictive labor regulations. Malaysia’s GCI in 2011 has gained 5 ranks thus moving from the 26th position in 2010-2011 to the 21st position in 2011-2012. The country’s progresses were mainly important in the macroeconomic environment and institutions pillars as well as in its market efficiency. Summing up, the country has progressed a lot in terms of competitiveness.

The World Bank’s Doing Business indicators\(^8\) provide a ranking of 183 countries in the world, based on the ease for a local entrepreneur to develop a business in a specific country when complying with local regulations. It considers ten areas that are part of a business lifecycle. This ranking gives an overview of the business environment of a country but has to be used carefully, as it does not include all the aspects that may influence the business environment or the competitiveness of the country. Figure 1 below summarizes Malaysia’s different scores on each of the Doing Business indicators.

**Figure 1**

*World Rank Breakdown for Doing Business Indicators, 2011-2012*

Malaysia’s rank advanced from 23/183 in 2011 to 18/183 in 2012. The main difference for Malaysia between 2011 and 2012 concerns the ease of starting a business, which includes all the

\(^8\) [http://www.doingbusiness.org/data/exploreeconomies/malaysia](http://www.doingbusiness.org/data/exploreeconomies/malaysia)
procedures required, their cost, as well as the minimal capital needed. Malaysia is ranked 50th for this indicator in 2012 while it was ranked 111th in 2011. The country has also slightly improved the issues of enforcing contracts as well as resolving insolvency, gaining respectively 29 and 10 ranks between 2011 and 2012.

3. Methodology

In order to assess Malaysia’s competitiveness today and attempt to give recommendations on what to do next to achieve a new step in its economic development, we decided to compare Malaysia to a set of comparable countries that, in year 2000, presented similar characteristics as Malaysia in year 2010. This methodology enables to identify specific sectors that were the source of economic growth for the comparables and that could help Malaysia sustain its development in the years to come. We also looked at the literature concerning the spillover effect of multinational companies on local firms in order to have a larger point of view and thus get a better understanding of the situation and how to improve it.

To develop on the comparatives section that is going to be the core of this paper: the basic tool we used is a chop-shop analysis that one can more easily find in financial analyst reports (LeBaron and Speidell, 1987). The basic idea of this methodology is to have the best possible set of comparables in order to draw the most robust conclusions for our country of interest. We started by analyzing the structure of the export portfolio of Malaysia and compared it with that of every country listed in the World Bank website\(^9\). We used the tree maps for exportation developed by the Observatory of Economic Complexity\(^10\) and made a cross-country comparison. Out of this, we selected the countries that presented a similar export portfolio in year 2000 as that of Malaysia in 2010.

In order to make things comparable, we focused on Asian countries and applied a second filter to refine our selection to six comparable Asian countries. In order to do so, we calculated the Theil index (Conceição and Ferreira, 2000) for each countries and each year from 2000 and 2010 as:

\[
T_j^t = \frac{1}{N} \times \sum_{i} \frac{x_{ij}^t}{x_j^t} \times \ln \frac{x_{ij}^t}{\bar{x}_j^t}
\]

with \(N\) the number of four-digit export items according to the latest HS classification available, \(x_{ij}^t\) country \(j\)’s export value of product \(i\) in year \(t\) and \(\bar{x}_j^t\) the average export value of country \(j\) in year \(t\). Table 1 (on the following page) shows the calculated Theil\(^11\) indexes for the set of Asian countries along with the Excel conditional formatting function to allow for further selection.

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\(^9\) http://data.worldbank.org/country
\(^10\) http://atlas.media.mit.edu/explore/tree_map/export/mys/all/show/2009/
\(^11\) Calculated data from: http://wits.worldbank.org/wits/
<table>
<thead>
<tr>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>China</td>
<td>1.53</td>
<td>1.63</td>
<td>1.79</td>
<td>1.78</td>
<td>1.69</td>
<td>1.78</td>
</tr>
<tr>
<td>Hong Kong</td>
<td>1.94</td>
<td>2.02</td>
<td>2.17</td>
<td>2.36</td>
<td>2.45</td>
<td>2.60</td>
</tr>
<tr>
<td>Indonesia</td>
<td>2.38</td>
<td>2.38</td>
<td>2.41</td>
<td>2.48</td>
<td>2.58</td>
<td>2.65</td>
</tr>
<tr>
<td>Japan</td>
<td>2.29</td>
<td>2.35</td>
<td>2.29</td>
<td>2.31</td>
<td>2.33</td>
<td>2.25</td>
</tr>
<tr>
<td>Korea</td>
<td>2.49</td>
<td>2.44</td>
<td>2.58</td>
<td>2.63</td>
<td>2.68</td>
<td>2.63</td>
</tr>
<tr>
<td>Macao</td>
<td>2.86</td>
<td>2.80</td>
<td>2.92</td>
<td>2.91</td>
<td>2.82</td>
<td>3.60</td>
</tr>
<tr>
<td>Philippines</td>
<td>3.80</td>
<td>3.79</td>
<td>3.59</td>
<td>3.32</td>
<td>3.34</td>
<td>3.35</td>
</tr>
<tr>
<td>Seychelles</td>
<td>4.19</td>
<td>4.34</td>
<td>3.96</td>
<td>4.09</td>
<td>4.36</td>
<td>na</td>
</tr>
<tr>
<td>Singapore</td>
<td>3.20</td>
<td>3.10</td>
<td>3.04</td>
<td>3.15</td>
<td>3.17</td>
<td>3.19</td>
</tr>
<tr>
<td>Sri Lanka</td>
<td>2.96</td>
<td>2.93</td>
<td>2.94</td>
<td>2.86</td>
<td>2.83</td>
<td>2.80</td>
</tr>
<tr>
<td>Thailand</td>
<td>2.13</td>
<td>1.98</td>
<td>1.98</td>
<td>2.10</td>
<td>2.11</td>
<td>2.12</td>
</tr>
<tr>
<td>Malaysia</td>
<td>3.01</td>
<td>2.95</td>
<td>2.82</td>
<td>2.82</td>
<td>2.62</td>
<td>2.65</td>
</tr>
</tbody>
</table>

From that point we selected Hong Kong, Indonesia, Japan, Korea, Singapore and Sri Lanka to constitute our portfolio of countries. For each of these countries and year between 2000 and 2010 we calculated and plotted the Revealed Comparative Advantage Index (RCA) (Balassa, 1965) as well as the country’s intensive and extensive margins\(^\text{12}\). Identifying trends in those figures will constitute the ground of our analysis by comparison and of our recommendations for Malaysia.

The data we used were taken from various queries from the World Bank’s World Integrated Trade Solution (WITS), which compiles the UN-COMTRADE, the UNCTAD, and the IBD and CTS databases. We always used the latest available version of the four-digit Harmonized System (HS) codes to make our analysis and calculation of indexes. Doing so provides a sufficient level of details and enables to precisely identify a family of product on which a country might want to specialize. This information will provide a solid basis for recommendations.

### 4. Results

In this section, we will first look at how Malaysia’s and our comparable countries’ RCAs and extensive and intensive margins have evolved over time and, second, attempt to find systematic trends in these evolutions. Doing so will enable us to identify what have the most competitive countries done between 2000 and 2010 and will serve as a basis for our recommendations in section 5. Because sound recommendations should also be based on a country’s capability, in section 4.3 we will also measure the physical and human capital endowments and their evolution in Malaysia and its comparables. Finally, we will end this section with a literature review on spillover effects.

\(^{12}\) Data collected on http://wits.worldbank.org/wits/
4.1. Evolution in Comparables’ RCAs

In this sub-section, we will look at the evolution of the comparables’ Revealed Comparative Advantages (RCA) and attempt to identify trends in terms of specialization patterns. Bela Balassa (1965) defines country $i$’s RCA for product $k$ as:

$$RCA_k^i = \frac{X_k^i}{X^i}$$

with $X_k^i$, country $i$ export of product $k$, $X^i$, country $i$ total exports, $X_k$, the world export of product $k$ and $X^w$, the total world exports. In figure 2\(^\text{13}\), blue dots and red dots correspond to our countries’ RCAs in 2000 and 2010 respectively. We clearly see that, between 2000 and 2010, advanced countries such as Japan, Singapore, Hong Kong and to a certain extent South Korea have not seen any radical shift in their RCAs but they have strengthened their positioning on some key products.

**Figure 2**

*Evolution of the Comparables’ RCA between 2000 and 2010*

Less developed countries such as Indonesia and Sri Lanka were not specialized in any particular type of goods but achieved some RCAs greater than one on a wide variety of individual goods, as is illustrated in the above figure. The concentration of dots on particular product types is much lower for Indonesia and Sri Lanka than it is for other countries. Also, when looking at what Indonesia and Sri Lanka have built a comparative advantage on, we realized that this advantage stems from low value added products that enter the value chain at the very beginning. For instance, Indonesia is good at exporting commodities such as coffee, cocoa, animal and vegetable fats, and products that require few modifications such as cotton, man-made staples or clothing fibers. The case of Sri Lanka is even worse, not only does the country export fewer items (see sub-section 4.3 on extensive and intensive margins), but it does not achieve significant comparative advantage on broad product categories. The only counter examples are tea, cinnamon and cinnamon tree flowers, and cloves or textile products such as garments, and shoes. Again, the same conclusion as for Indonesia can be drawn. Comparative advantage is achieved on low value-added products. Figures 3 and 4\(^\text{14}\) highlight what we mentioned above. For each broad product

\(^{13}\) [http://wits.worldbank.org/wits/]

\(^{14}\) Calculated with data from: [http://wits.worldbank.org/wits/]
category (2-digit) we plotted the share of products (4-digit) with RCA greater than 1, between 0.85 and 1 and below 0.85 for both the years 2000 and 2010.

Figure 3
Comparables’ RCA Distribution in 2000

Figure 4
Comparables’ RCA Distribution in 2010

The rationale behind this analysis was to identify the categories of products that might become a source of comparative advantage for a specific country in the near future. We now turn our analysis on three countries that have been able to achieve significant comparative advantages on higher value-added products.

4.1.1. RCAs in Korea

South Korea has achieved significant comparative advantage on a set of broad product categories. In Year 2000, the country was good at exporting electric machinery, nuclear reactors, iron and steel, article of iron and also inorganic chemicals. In year 2010, while the country had still a significant comparative advantage in nuclear reactor and inorganic chemicals, it has greatly increased its competitiveness in articles of base metal, natural and cultural pearls and other precious stones. These two categories were not even present in the country’s top ten RCA in year 2000. Another specialization was created in plastic products. Among the losers we find electrical machinery equipments, apparels (knitted and not knitted) as well as articles of copper. The
following table\textsuperscript{15} summarizes the top five product categories for which South Korea increased and decreased the number of RCA greater than one between 2000 and 2010.

**Table 2**

South Korea’s Top increase and Decrease in RCA Greater than One

<table>
<thead>
<tr>
<th>Top Increase</th>
<th>Number of RCA &gt; 1 created</th>
<th>Top Decrease</th>
<th>Number of RCA &gt; 1 lost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Articles of base metal.</td>
<td>23</td>
<td>Electrical machinery sound recorder</td>
<td>-16</td>
</tr>
<tr>
<td>Natural/cultured pearls, precious stones</td>
<td>7</td>
<td>Miscellaneous manufactured articles</td>
<td>-9</td>
</tr>
<tr>
<td>Articles of plastics</td>
<td>6</td>
<td>Apparel &amp; clothing not knitted</td>
<td>-6</td>
</tr>
<tr>
<td>Tin</td>
<td>6</td>
<td>Apparel &amp; clothing knitted</td>
<td>-4</td>
</tr>
<tr>
<td>Nickel</td>
<td>5</td>
<td>Articles of coppers</td>
<td>-4</td>
</tr>
</tbody>
</table>

**4.1.2. RCAs in Singapore**

Singapore has seen a striking shift in its comparative advantages between 2000 and 2010. At the beginning of the new century, the small country was already well developed with specialization in electrical machinery and electronics as well as organic chemicals, nuclear reactors and optical photo materials. One decade later, none of these product categories, except organic chemicals, is listed in the country’s top ten product categories with the greatest number of RCA greater than one. These categories were replaced by vehicles, aircraft and spacecraft, arms and ammunitions and any kind of furniture. The manufacturing of these new specialties requires highly specialized human resources and additional capital. As we will see later, these two factor endowments have increased faster than in any other country within our portfolio of comparables. Also, in 1951, Singapore’s government had already launched the Economic Development Board Singapore\textsuperscript{16} that has contributed to fast economic development in Singapore and helped create one of the most competitive countries in the world. Table 3\textsuperscript{17} again summarizes the tops and flops in number of RCA greater than one for a particular product category.

**Table 3**

Singapore’s Top Increase and Decrease in RCA Greater than One

<table>
<thead>
<tr>
<th>Top Increase</th>
<th>Number of RCA &gt; 1 created</th>
<th>Top Decrease</th>
<th>Number of RCA &gt; 1 lost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vehicles other than railway &amp;</td>
<td>16</td>
<td>Electrical machinery parts and sound recorder</td>
<td>-20</td>
</tr>
<tr>
<td>accessories</td>
<td></td>
<td>Aircraft and spacecraft</td>
<td>15</td>
</tr>
<tr>
<td>Arms and ammunition</td>
<td>9</td>
<td>Nuclear reactors, boilers, machinery</td>
<td>-9</td>
</tr>
<tr>
<td>Furniture, bedding, mattress</td>
<td>5</td>
<td>Optical, photo, precision</td>
<td>-6</td>
</tr>
<tr>
<td>Organic Chemicals</td>
<td>3</td>
<td>Apparel &amp; clothing knitted</td>
<td>-5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Coffee, tea, spices</td>
<td>-3</td>
</tr>
</tbody>
</table>

**4.1.3. RCAs in Japan**

Japan, by far the most industrialized country in our portfolio of comparables, has not seen any radical shift in its comparative advantages between 2000 and 2010. Its top five specialties, nuclear reactors, electrical machinery, inorganic chemicals and radioactive elements, optical and photos, as well as organic chemicals, remained in the top six of its product category with the most RCAs greater than one. Japan also strengthened its iron and steel exports and its knitted fabrics exports. Just like Singapore and South Korea, the country lost a bit of its competitiveness in the electrical

\textsuperscript{15} Calculated with data from: http://wits.worldbank.org/wits/  
\textsuperscript{16} In http://www.edb.gov.sg/edb/sg/en_uk/index.html/  
\textsuperscript{17} Calculated with data from: http://wits.worldbank.org/wits/
machinery industry since other countries such as Malaysia have taken on the assembly of electronic products. A reasonable assumption would be that the more industrialized and thus capitalized a country is, the fewer the changes in the number of products with RCA greater than one. Table 4\textsuperscript{18} summarizes the shifts.

<table>
<thead>
<tr>
<th>Top Increase</th>
<th>Number of RCA &gt; 1 created</th>
<th>Top Decrease</th>
<th>Number of RCA &gt; 1 lost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iron and steel</td>
<td>5</td>
<td>Electrical machinery parts and sound recorder</td>
<td>-8</td>
</tr>
<tr>
<td>Nuclear reactors, boilers, machinery</td>
<td>3</td>
<td>Optical, photo, precision</td>
<td>-4</td>
</tr>
<tr>
<td>Knitted or crocheted fabrics</td>
<td>3</td>
<td>Miscellaneous manufactured articles</td>
<td>-3</td>
</tr>
<tr>
<td>Inorganic chemicals, radioactive elements</td>
<td>2</td>
<td>Ships, boats and floating structures</td>
<td>-2</td>
</tr>
<tr>
<td>Articles of plastics</td>
<td>2</td>
<td>Clocks and watches</td>
<td>-2</td>
</tr>
</tbody>
</table>

We now move on the analysis of the Malaysian case by looking at the structure of its Revealed Comparative Advantages in year 2010. Then comparing the results for Malaysia with those of our comparables will enable us to provide the Malaysian Government with some guidelines for further economic development.

4.2. Current State of Malaysia’s RCAs and Future Evolution

In this sub-section, we analyze the current state of the Malaysian export structure and the type of products the country has been able to create a comparative advantage on. We will also look at the possible future development and try to spot product categories that might turn to become a source of significant comparative advantage.

4.2.1. How Did Malaysia Establish its Comparative Advantages?

Figure 5\textsuperscript{19} illustrates the distribution of Malaysian’s RCAs across product categories in the HS 4-digit nomenclature. Since we plotted the log value of the RCAs, all the dots above zero correspond to a comparative advantage for Malaysia.

\textsuperscript{18} Calculated with data from: http://wits.worldbank.org/wits/
\textsuperscript{19} Calculated with data from: http://wits.worldbank.org/wits/
In 2010, Malaysia has been able to create a comparative advantage mainly on the product categories listed in table 5 along with the respective number of products with RCA greater than one.

Table 5
Malaysia’s Product Categories with the Greatest Number of RCA >1

<table>
<thead>
<tr>
<th>HS Category</th>
<th>RCA &gt; 1</th>
<th>Product Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>85</td>
<td>22</td>
<td>Electrical machinery and equipment; sound recorders and reproducers, television image and sound recorders.</td>
</tr>
<tr>
<td>44</td>
<td>13</td>
<td>Wood and articles of wood; wood charcoal.</td>
</tr>
<tr>
<td>90</td>
<td>11</td>
<td>Optical, photographic, cinematographic, measuring, checking, precision, medical or surgical instruments.</td>
</tr>
<tr>
<td>84</td>
<td>10</td>
<td>Nuclear reactors, boilers, machinery and mechanical appliances.</td>
</tr>
<tr>
<td>29</td>
<td>9</td>
<td>Organic chemicals.</td>
</tr>
<tr>
<td>15</td>
<td>9</td>
<td>Animal or vegetable fats and oils and their cleavage products; prepared edible fats; animal or vegetable waxes.</td>
</tr>
<tr>
<td>40</td>
<td>7</td>
<td>Rubber.</td>
</tr>
<tr>
<td>39</td>
<td>6</td>
<td>Plastics.</td>
</tr>
<tr>
<td>38</td>
<td>6</td>
<td>Miscellaneous chemical products.</td>
</tr>
</tbody>
</table>

We clearly see that Malaysia is already in a transition phase. It has started to specialize in higher value-added products such as electrical machinery, nuclear reactors, or chemicals but the country’s main exports still rely on basic raw materials such as rubber, wood and oil (mainly palm oil) that enter the value chain early on. With evidence from sub-section 4.3 we conclude that Malaysia is stuck mid-way between low development countries such as Sri Lanka and Indonesia and well-advanced and specialized countries such as Singapore, South Korea and Japan.

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20 Ibid.
4.2.2. What Are The Perspectives?

In order to assess in what direction Malaysia is currently going we looked at products with a Revealed Comparative Advantage between 0.85 and 1. Table 6\textsuperscript{21} synthesizes the product categories that have the greatest number of products with RCA between 0.85 and 1.

Table 6

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>48</td>
<td>Paper and paperboard; articles of paper pulp, of paper or of paperboard.</td>
</tr>
<tr>
<td>73</td>
<td>Articles of iron or steel.</td>
</tr>
<tr>
<td>39</td>
<td>Plastics.</td>
</tr>
<tr>
<td>41</td>
<td>Raw hides and skins (other than furskins) and leather.</td>
</tr>
<tr>
<td>69</td>
<td>Ceramic products.</td>
</tr>
<tr>
<td>84</td>
<td>Electrical machinery and equipment; sound recorders and reproducers, television image and sound recorders.</td>
</tr>
</tbody>
</table>

These product categories entail products that are close to being a comparative advantage for Malaysia. We see that the country is still betting on plastics and electrical machinery since these products already constitute its main specialties. We notice however that some new product categories could sustain its economic development in a near future. Typically, paper products, and iron and steel products offer some interesting potential of specialization for Malaysia. We could however question whether it is the right way to go. Before providing a set of recommendations, we believe that it is worth understanding the difference in terms of extensive and intensive margins between Malaysia and our portfolio of comparables as well as the countries endowments in physical and human capital.

4.3. Intensive versus Extensive Margin and Capital Endowments

This sub-section takes a closer look at the evolution between 2000 and 2010 in Malaysia and our comparables’ intensive and extensive margins. In order to have a better idea of Malaysia’s capability, we then analyze the country’s endowments in terms of physical and human capital.

Andriamananjara et al (2010) adjust Hummels and Klenow’s (2005) intensive and extensive margins formula as:

\begin{align}
IM_j^t &= \frac{\sum_{k} X_k^j}{\sum_{k} X_k^{W}} \\
XM_j^t &= \frac{\sum_{k} X_k^{W}}{\sum_{k} X_k^{W}} 
\end{align}

(3.2) \hspace{1cm} (3.3)

With $X_k^j$ country $j$’s export value of product $K$ in dollar, and $X_k^{W}$ the world export of that product also in dollars. In this sense, a country intensive margin for the period $t$ can be interpreted as the country’s market share in what it exports. The extensive margin however measures the share of all products that a country exports in the world export portfolio\textsuperscript{22}. From that point of view, a country’s ability to increase both its intensive and extensive margin is key for it to take the next

\textsuperscript{21} Calculated with data from: http://wits.worldbank.org/wits/

12
step and become a bigger economic player. Figure 6\textsuperscript{23} plots the evolution of both the extensive and intensive margins of our comparables and Malaysia.

**Figure 6**

**Evolution of Malaysia and its Comparables’ Extensive and Intensive Margins, 2000 - 2010**

While all the comparable countries have improved either or both their intensive and extensive margins between 2000 and 2010, it is striking to see that Malaysia has nearly not evolved. Worse, the country has even lost on both margins. This fact confirms the proposition made in sub-section 4.2; Malaysia has been trapped at the same development level for more than ten years. Moving North East in the above graph is clearly warranted. While South Korea and Singapore have made the most impressive jumps, they have mainly increased their extensive margin by adding new products and new destinations in their export portfolio.

Following Shirotori et al. (2010) we calculated the countries’ Real Capital Stock. The historical evolution for each country is plotted in figure7, on the following page\textsuperscript{24}.

\textsuperscript{23} Calculated with data from: http://wits.worldbank.org/wits/

\textsuperscript{24} Calculated with data from: http://data.worldbank.org/country
Interestingly, between 1960 and 2010, Malaysia’s physical capital endowment has increased slower than that of our comparables but Sri Lanka. This is a further sign of the country’s inability to really take the next step in its economic development.

We used the Barro and Lee dataset and their procedure found in Barro and Lee (1993, 2001) to estimate the average year of total schooling of the population aged 15 and more in a given country. According to Shirotori et al. (2010) the Barro and Lee indicator is a good proxy for a country human capital endowment.

The evolution represented in the figure above is good news for Malaysia and its human capital endowment. The government’s willingness to supply better-trained workers is highlighted by the

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fact that human capital endowment in Malaysia is now comparable to that of Hong Kong and is even higher than that of Singapore. Malaysia has made some impressive improvements in both its Real Capital Stock and its Human Capital endowment. The average year of schooling for people aged 15 and more has increased by one year since 2000 and is still on an upward trend. This will undeniably create favorable conditions for further economic development and help attract producers of higher value-added products. This will also help sustain the real capital formation in Malaysia as Foreign Direct Investments are likely to substantially increase in the future.

It is then interesting to focus on the evolution, between 2000 and 2010, of the physical capital productivity and the human capital endowment as shown in Figure 10.

**Figure 9**

The Physical Capital Productivity and Human Capital Endowment of Malaysia and its Comparables, 2000 – 2010

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Figure 9 highlights the fact that less developed economies such as Sri Lanka, Indonesia and Malaysia have seen a faster increase in their physical capital productivity between 2000 and 2010. We believe that this increase in capital productivity will likely decrease as these countries continue to develop infrastructures and create additional physical capital in order to reach higher level of competitiveness.

4.4. Spillover Effects from MNCs – A Literature Review

As previously stated in this paper, Malaysia has benefited from FDI in several different ways. The installation of multinational companies (MNC) in any given country can impact its competitiveness by different manners, one of which is the spillover effect. The establishment of foreign firms coming from more industrialized countries in a developing country can result in informal transfer of productivity, information, knowledge and technology to the indigenous firms. These transfers can occur, for example, by backwards engineering, employee movements, joint ventures or

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26 Calculated with data from: http://data.worldbank.org/country
simply by doing business with the MNC. The entry of a foreign company with highly advanced technology and productivity obviously pushes indigenous firms of the same sector to increase their performance. This is referred to as horizontal spillover. On the other hand, the effect on indigenous companies from other sectors that are going to be in business with said foreign company is referred to as vertical spillover. The literature studying the effects, or even the existence, of these spillovers has drawn diverging results. For example, Haddad and Harrison (1993) conclude that foreign companies in Morocco do not show higher productivity as a rule, thus not inducing spillover. On the other hand, Aitken and Harrison (1999) shows that in Venezuela, foreign owned companies have a higher productivity (for small firms) but the effect measured on indigenous firms is negative. On the contrary, a study of Greek manufacturing firms done in 2002 by Dimelis and Louri shows positive spillover effect.

It is not surprising to see contradicting evidence on a subject as vast and including so many variables as productivity spillovers from MNCs. The question for us is then; what are variables that allow or prevent positive spillovers and how are they present in Malaysia’s economy? Each study highlights a different variable and allows the reader to understand better how the spillover process occurs. Here, in accordance with the rest of paper, we will focus on the added value and technology brought by the MNC and see how it can help or prevent spillovers.

The technological gap between MNCs and local firms has been observed by many authors as being a determinant factor for the creation of a spillover effect. It seems quite logical that in order to have a learning opportunity, the MNC must bring higher technology. But that is not all. In order to have a positive influence on local firms, the local firms have to actually be able to grasp that opportunity and learn from the MNCs. This concept is referred to as absorptive capacity.

In Malaysia, when MNC’s started to invest, there was an actual technological gap that helped the local firms increase their knowledge and thus, on a longer term, helped Malaysia shift from being a factor driven economy to an efficiency driven economy. However, since the dominant FDI in Malaysia were made in manufacturing plants that were not highly technological, it explains why the gap progressively faded. As of today, there is no significant difference of productivity between foreign or local owned firms. This is because investments result mostly from the cheap labor MNCs can find in Malaysia. Those investments are work intensive. In order to recreate a technological gap, Malaysia should incentivize capital intensive investments. This conclusion is in accordance with the results proposed by Driffield in 2001, who highlights that the basic intent of an FDI can determinate its potential for gains for the locals. But as stated previously, getting MNCs with high technology to invest in the country is only half of the

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30 Khalifah, PSFMM, p.146
32 Khalifah, PSFMM, p.148-9
33 Crespo, DFFS, p. 5-9
34 http://en.wikipedia.org/wiki/Absorptive_capacity
36 Khalifah, PSFMM, p.162-3
37 Khalifah, PSFMM, p.163
process. It is useless, in terms of spillovers, if the local workforce cannot learn from it. In order to
permit this learning, two elements are crucial: a healthy financial system and skilled workers. As
previously noted in this paper, Malaysia benefits from a solid financial system. Having access to
credit is thus possible for local firms. This is crucial in the shift to an innovation driven
technology to allow entrepreneurs to have access to the liquidity needed to support investments
inherent to the creation of capital intensive firms. Moreover, the Malaysian education system is of
good quality but it is not accessible to enough people. This means that it does not produce enough
skilled and specialized workers. These workers are key to understand the technological gap and
seize the opportunity to learn from MNCs. Without them the spillover is impossible. Fortunately,
the government has already acknowledged the importance of the human capital and is already
improving its education system.

So, to benefit from spillovers in the future, Malaysian authorities must first, create the opportunity
for it, by incentivizing highly capital intensive investments. Secondly, they must keep improving
the education system in order to have workers that are actually able to seize that opportunity and
initiate the spillover effect.

This section firstly focused on presenting the results of our analysis on the evolution between
2000 and 2010 of our countries’ comparative advantages. We learnt that developed countries
have been able to specialized themselves in the manufacturing and exporting of high value-added
product such as aircrafts or plastic products just like Singapore did. We then treated Malaysia in
particular by looking at where the country is heading in terms of comparative advantage. Then, in
order to assess Malaysia’s capability we calculated the country’s physical and human capitals for
2000 and 2010 and compared it to those of our comparables. Finally, we looked at the literature
on spillovers and production benefits for local firms created by the implementation of MNCs in
order to understand how Malaysia could benefit from it. The main findings were, first, that
Malaysia has not been able to substantiate its export portfolio neither by adding products nor by
adding new destinations and, second, that Malaysia is significantly improving its human and
capital endowments. We now turn to section 5 where we will first present the current government
development policies for horizon 2010 – 2020. We will then use all these information, including
the results from section 4, to formulate a series of recommendations in order for Malaysia to
tackle the next step in its economic development.

5. Future Development and Challenges for Malaysia

This section is aimed at synthesizing what track Malaysia should follow to increase its
competitiveness and move to the next level in its economic development. We will first present the
government’s new industrial policy and then try to give additional recommendations based on our
results from previous sections for Malaysia.

5.1. Malaysia's Current Industrial Policy in the Electronics Sector

We now present the Malaysian industrial policy in the electronics sector, namely the Third
Industrial Master Plan (IMP3) as defined by the Ministry of International Trade and Industry. The
IMP3 aims at enhancing and transforming Malaysia’s industrial capabilities in order to help
the country develop and sustain global competitiveness by 2020. The plan is articulated around
ten strategic thrust that are divided into three categories: development initiatives; promotion of
growth areas and enhancing the enabling environment. IMP3 focuses on 12 industries from which
six are non-resource based industries (electrical and electronics industry is part of them).

38 http://www.miti.gov.my/cms/content.jsp?id=com.tms.cms.section.Section_8ab58e8f-7f000010-72f772f7-
dbf00272
The overall objective of the industrial sector in Malaysia is to ensure the development of highly skilled and innovative workforce; deal with competition for foreign investments and identify new growth opportunities as well as achieving fair and balanced distribution. In addition, concerning the external trade, the aim of the IMP3 is to increase the part of Malaysian-owned firms in the exports of the country by 12%. Specifically for the electrical and electronics sector (E&E), the objectives are to grow the investments and the exports respectively by 7.2% and 7.1% and to diversify the industry while maintaining the position as “largest exporter of manufactured goods”⁴⁹. The strategy is based on the following seven thrusts:

1. Strengthening and deepening the semiconductor sub-segment
2. Deepening and widening the development of the ICT industry value chain
3. Intensifying R&D and design activities
4. Promoting the application of new and emerging technologies
5. Integrating the industry into the regional and global supply chain networks
6. Making available a sufficient supply of highly skilled and innovative workforce, and
7. Strengthening the institutional support for the further development of the industry.

This section highlights the fact that Malaysia has a very precise development plan for the next ten years that emphasizes on some specific elements and industries. In line with our analysis, the overall objective of the industrial sector and specifically the E&E industry concerns the development of human capital skills with a specific focus on innovation.

5.2. Recommendations for Malaysia

In this section we will discuss a series of recommendations for Malaysia, so that the country can take on the next step to increase its international competitiveness and its domestic economic development. As already stated, we base our advices on the results of our analysis that can be found in section 3 of this report. These recommendations are built up on three pillars, namely new export orientations, a favorable business environment and additional capital endowments.

5.2.1. New Export Orientation – Specialization in High Value-Added Products

Recommendations 1 to 3 advise Malaysia on what to change in its export structure to create comparative advantages on high value-added products.

Recommendation 1: Continue to specialize in higher value-added products such as electrical machinery and equipment, optical and surgical equipment, nuclear reactors and mechanical appliances as well as plastic. This also includes components and parts that enter in the bill of material of product on which our comparables have developed significant comparative advantage. A good example would be highly manufactured mechanical parts that can be used on aircrafts and spacecraft, a specialty in Singapore.

Recommendation 2: Increase the number of export lines in paper articles, plastic-based products, and iron and steel products as these product categories have the greatest number of products with RCA close to one. Firms from Malaysia and Japan could commonly develop plastic-based products, a growing specialty both countries share, through the fostering of joint ventures.

Recommendation 3: Reduce the export dependence on low value added products that enter the value chain at the very beginning. Examples of these products include: animal and vegetable fats and oils (palm oil), rubber, wood and wood charcoal. Furthermore recent issues have been raised considering negative impacts of palm oil on the environment and on the human health (Tan et al.,

2007). We infer that basing the exports on this problematic and cheap product is not sustainable. Recommendation 3 follows what has successfully been made in Singapore, South Korea and to some extent Japan over the last decade.

5.2.2. Create a Favorable Business Environment both for MNCs and Local Firms

Recommendations 4 to 7 are aimed at fostering local entrepreneurship as well as attracting MNCs to make them produce high value-added products in Malaysia. Spillover effects are also expected to arise after these recommendations have been implemented.

**Recommendation 4**: Incentivize domestic entrepreneurship by facilitating the registration and construction of new property and facility, by reducing the number and duration of procedures as well as property tax to 10%. Efforts include reduction of approval time from local authorities by at least 30 to 60 days. Launch a tax incentive program aimed at reducing corporate income tax completely or to a maximum of 5% of income.

**Recommendation 5**: Accelerate the procedure for business creation. Suggestions include reduction of fees for legal or professional services to a level as low as 5% of income per capita (currently fees are 16.4%).

**Recommendation 6**: Continue effort in the development of infrastructure such as electricity and road networks by increasing government expenditures in these areas.

**Recommendation 7**: Legal aspects in terms of enforcing contract, protection of physical and intellectual property rights also need improvements. This takes the form of more efficiency and reduced bureaucracy in judgment trial, contract enforcement and in patent registration to smooth the processes.

5.2.3. Improvement in Physical and Human Capital

Recommendations 8 to 10 are key to develop Malaysia’s capability to develop and produce high value-added products. These recommendations aim at further developing the country’s physical and human capital endowments.

**Recommendation 8**: Keep improving the education system by lengthening the average year of schooling of youngsters. This includes, among others, the launch of training programs for teaching staff at the primary school level, increasing the number of school staff to reduce class size and the creation of universities and research poles with international ties.

Even though our analysis did not explicitly focus on Malaysia’s innovation potential nor did it look at the country’s institution effectiveness, we are aware that much still needs to be done in these areas. The resulting gain in Malaysia’s competitiveness might be significant. Thus, we advise Malaysian government to also look further into recommendation 9 and 10.

**Recommendation 9**: Improve collaboration between the new producers of electrical machinery, optical and surgical equipment, and nuclear reactors and universities’ centers for research. This will attract scientists and help create clusters of competences to finally improve Malaysia’s innovative capacity and thus both its innovativeness and GDP per capita (Porter and Stern, 2001).

**Recommendation 10**: Institutions such as the police, political parties and parliament also need to be cleaned from corruption and bribery. We suggest increasing the efforts of freedom of press so that people get independent idea of their political representatives and are more likely to democratically elect politicians. Ruling out laws that thwart the shut down of independent

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40 For more detail see: http://www.internationalpropertyrightsindex.org/profile?location=Malaysia
41 http://www.transparency.org/country#MYS
information websites and blogs is a first step. Reform to deregulate the written and audio media is a second initiative that will pay off in terms of democracy.

Remarks: our recommendations go to some extent in the same direction as the new Malaysian government industrial policies discussed in sub-section 5.1. We believe that our recommendations are complementary to the actions undertaken by the Malaysian government and that implementing them would help the effectiveness of the process. However, we are conscious that these recommendations are not easy to implement and are part of a long term process that requires tremendous will and effort.

In this section we first presented the current industrial policy of the Malaysian government. Then, we formulated a series of complementary recommendations that would help Malaysia shift its comparative advantage towards higher value-added products. In addition to that, we suggested some ways to increase the country’s physical and human capital endowments as well as the transparency of the public institutions. These recommendations along with the new industrial policies should help Malaysia improve its competitiveness and tackle the next step in its economic development.

6. Conclusion

Being one of the fastest growing countries in the world over the last fifty years, Malaysia has mainly directed its export on electronics components and machinery, wood products and vegetable and animal fats. The common denominator of these products is that these are all low-value-added products that enter the value chain at an early stage. In other words, Malaysia has not yet been able to specialize its exports on higher margin products. This striking fact is highlighted by an alarming stability in Malaysia’s both extensive and intensive margins. This paper provides the Malaysian government with a series of recommendations that would complement the country’s current industrial policy and help it take on the next step in its economic development. To do so, we looked at countries presenting similar export characteristics, in terms of Theil Index and export portfolio in 2000, as Malaysia in 2010. This enabled us to isolate relevant comparables, namely Japan, South Korea, Indonesia, Sri Lanka, Singapore and Hong Kong and learn what these countries did over the last decade. Analyzing on what these comparables have built significant comparative advantage and comparing these results to those of Malaysia constituted the first part upon which we based our recommendations for Malaysia. The second part focused on human and physical capital endowments for which we tracked the evolution between 2000 and 2010. While great efforts have already been made in terms of capitalization, much still remains to be done. The last part of the analysis reviewed academic publications on spillover effect, for which several conditions are required for a country to effectively benefit from them. This three part analysis of the current situation in Malaysia helped to back up a series of ten recommendations divided into three pillars, namely a new export focus, a favorable business environment for international and domestic firms, and improvement in the country’s endowment. Implementing these recommendations along with the new government industrial policies, would put Malaysia on a good track to take on the new challenge of becoming an innovation driven economy. Of course, this paper has some limitations that should be overcome in future research. First, we did not assess the degree of openness of Malaysia and our comparables. This could have impacted on the choice of the most appropriate comparables. Second, this paper lacks quantitative analysis to measure the response effect of any of our recommendations on Malaysia’s economy. Also with robust statistical inference, we could have quantified the impact on a country’s economy of having comparative advantage on particular products. This, however, would constitute at least a paper on its own. To complete our recommendation future research should take these shortcomings into account.
References


Blomström, Magnus and A. Kokko (2003), ”The economics of foreign direct investment incentives”, National Bureau of Economic Research 1050 Massachusetts Avenue Cambridge.


Appendix A

Figure 10
Malaysia’s RCA Distribution, 2010

Malaysia 2010

<table>
<thead>
<tr>
<th>RCA &gt; 1</th>
<th>0.85 &lt; RCA ≤ 1</th>
<th>RCA &lt; 0.85</th>
</tr>
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<tbody>
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Appendix B

Figure 11
The evolution of the countries Gross Capital Formation, 1960 – 2010

The World Bank defines Gross Capital Formation\(^{43}\) (formerly gross domestic investment) as “outlays on additions to the fixed assets of the economy plus net changes in the level of inventories. Fixed assets include land improvements (fences, ditches, drains, and so on); plant, machinery, and equipment purchases; and the construction of roads, railways, and the like, including schools, offices, hospitals, private residential dwellings, and commercial and industrial buildings. Inventories are stocks of goods held by firms to meet temporary or unexpected fluctuations in production or sales, and "work in progress." According to the 1993 SNA, net acquisitions of valuables are also considered capital formation.”

We thus infer that Gross capital formation is a basis for the calculation of a country’s physical capital endowment.

\(^{43}\) http://data.worldbank.org/indicator/NE.GDI.TOTL.CD