

**Tesis para optar por el título de Maestría en Economía**

**Título:** Tropical Economic Miracles

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## 1. INTRODUCTION

The difference between the growth rates of Tropical and Nontropical countries has been widely studied by economic literature. It is a well recognized fact that *Tropical* countries (*i.e.* those located within geographical tropics, between latitude 23.45° N and 23.45° S), on average have had an inferior economic performance than Nontropical countries. As Sachs *et al.* (1998) extensive study on the effect of geography on economic performance concludes, geography does matter for economic development, and one of the geographic facts that matters in this sense is the latitude of the country, “Tropical regions are hindered in development in comparison to temperate regions, probably because of higher disease burdens and limitations on agricultural productivity” (Sachs *et al.*, 1998, p. 8).

According to Madison’s (2008) data, Real GDP per capita (RGDP) adjusted by PPP for the 79 Tropical<sup>1</sup> countries in the sample grew<sup>2</sup> at a mean rate of 173% between 1960 and 2006, whereas for the 61 Nontropical countries this rate was 216%, which establishes a clear measure of the huge differences between Tropical countries and the rest on terms of their economic performance. This gap is even more significant if we observe the RGDP<sup>3</sup> levels: in 1960 the average RGDP (in 1990 Geary-Khamis dollars) for the Tropical countries, was \$1773 and for Nontropical ones it added up to \$4891. However, 46 years later the average RGDP corresponding to Nontropical countries was \$11783, whereas in Tropical countries it amounted to \$4390, which is even below the average for Nontropical countries in 1960. This overwhelming result can be summarized by the fact that although the average RGDP for Nontropical countries was almost 3 times the average for Tropical ones in 1960, the mean growth rate of the RGDP between 1960 and 2006 was 43 percentage points higher in Nontropical countries.

However, as we explore other characteristics of the distribution of the RGDP for Tropical and Nontropical countries we find some interesting information. That is the case of the maximum value of RGDP. In 1960 United Arab Emirates (UAE), with a RGDP of \$22433

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<sup>1</sup> Our definition of Tropical and Nontropical countries differs from the one used by Sachs *et al.* (1998). We classify a country as Tropical if 50% or more of its area is within the tropics and Nontropical if less than 50% is within geographical tropics. Geographical information was obtained from the Center for International Development (CID) at Harvard University. <http://www.cid.harvard.edu/ciddata/ciddata.html>

<sup>2</sup> Table 1, Appendix 1.

<sup>3</sup> Tables 2 and 3, Appendix 1.

had the maximum RDGP among Tropical countries, occupying the third place in a 140 countries sample, and being one out of the three<sup>4</sup> Tropical countries ranked in the top 20. UAE's RGDP in 1960 amounted to two thirds of that of Qatar which is Nontropical and had the highest RGDP of the sample for that year, \$33104. In 2006 the United States achieved the highest RGDP of the sample (\$31049) but it was only 5% higher than the highest ranked Tropical country, Hong Kong, which reported a RGDP of \$29489, occupying the second place in the whole sample for that year.

The change in RGDP distribution<sup>5</sup> for Tropical countries, and in particular the change on its right tail, clearly suggests that the average (for both the growth rate and RGDP level) may be hiding the spectacular economic performance of some Tropical countries through the 1960-2006 period. Being this the case, it would reveal to us that Tropical countries are not necessarily doomed to be poor. As a matter of fact, we find that during the second half of the last century, some Tropical countries actually outperformed Nontropical ones. Those Tropical countries, which behaved above the expectations (we can derive from the "average behavior"), are the countries on which we are eager to focus our study, and we would like to coin those countries as Tropical Economic Miracles (TEMs).

Despite the fact that material achievement (economic growth) is not the only dimension of economic development (Sen, 1988), it still happens to be an important part of it, and that is why this variable has been the core of multiple studies on economic development. Nevertheless, there is no doubt that understanding economic growth is an issue of great relevance on both theoretical and empirical economics. Thus, by implementing a case study on each of the TEMs we pretend to achieve a better understanding of the role that issues such as political and economic institutions have over economic growth, under an "adverse" geographic situation (*i.e.* being located within the geographical tropics). All these goes to the objective of providing answers to the following question: How did these countries became economic miracles? Is there any path to follow or are there a set of circumstances that would make of each case a very singular outcome?

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<sup>4</sup> The other tropical countries in 1960's Top 20 RGDP were Venezuela and, Trinidad and Tobago.

<sup>5</sup> See Figure 2, Appendix 1.

If those economic miracles within the tropics happen to be in fact “black swans” (Taleb, 2008), generalization from their experiences would be impossible, nonetheless we would have the opportunity to learn what did differentiate these Tropical countries that achieved a great economic performance from those that did not.

This document is composed of eight sections, including this introduction. In Section 2 we present the objectives of this research project. In Section 3 literature on the empirical determinants of economic growth is presented. In Section 4 we describe the Case Study Methodology and justify its pertinence for the current study, in this section we also present the cases we choose to study (Botswana and Singapore) and the algorithm that we use to select it. Section 5 presents an empirical exercise that supports the Case Study as methodological approach for our research question. Sections 6 and 7 are the case studies of Botswana and Singapore, respectively. And in Section 8 we conclude.

## **2. OBJECTIVES**

### *General*

To identify the main economic and institutional features of each TEM and its role on economic growth.

### *Specific*

- To generate a valid set of criteria to classify countries as Economic Miracles.
- To identify, according to these criteria, the TEMs that took place in the period 1960-2006.
- Identify if those TEMs share common features, in order to classify these features as important conditions to be taken account in order to achieve a good economic performance despite of being under a disadvantageous geographic situation.

### 3. BACKGROUND

Due to the empirical nature of our document, we will emphasize on the empirical literature of economic growth. Nonetheless, it is still important to recognize that this kind of literature is based on the rich theoretical literature on the subject (Solow, 1956; Swan, 1956; Romer, 1986, 1990; just to mention a few studies).

In the last part of the 1980's and all through the 1990's, a great deal of empirical studies appeared, aimed to compare international evidence on economic growth, probably inspired by the new flow of theoretical literature which surged during those years (*i.e.*, Endogenous Growth Theory). In this section we present some studies aimed to analyze the determinants of economic growth, and that used cross-country evidence for that purpose.

It is compulsory to start this review by mentioning the work of Sachs *et al.* (1998), as it constitutes our main reference point given that it is, to the best of our understanding, the most complete study relating economic growth with geographical features, which is exactly the departure point of our work. They summarize their findings in four main results: *i)* Tropical countries had a slower economic development than Nontropical ones; *ii)* Coastal regions are in an advantageous position towards development; *iii)* Population density is favorable for economic development in Coastal regions; and *iv)* Population growth is negatively related with the potential for growth. Those countries that do not fit in the first result are going to be our subject of study.

Barro and Lee's (1994) study is one of many which explore the sources of economic growth on a more "traditional" line. Using data from the World Bank and the Penn Tables in their fourth and fifth versions, they identify 5 key variables that could impact economic growth (obtained sign of the effect in parenthesis): *i)* Initial GDP per capita (-), once controlled for secondary attainment and life expectancy, they find evidence of conditional convergence, which means that the lower the initial GDP the higher the growth; *ii)* Government's size (-), measured as the Government expenditure to GDP ratio; *iii)* Distortion of markets created by the government (-), measured by the black market foreign exchange premium; *iv)* Political instability (-), measured through the propensity to

revolutions; *v*) Investment as proportion of the GDP (+), from which they obtain the neoclassical result of a positive relation between investment and growth.

Similar results have already been found by Romer (1986)<sup>6</sup> and Barro (1989), with the only difference that in the former the literacy rate is interpreted as a proxy of technological change instead of a Human Capital's proxy, which was one of the reasons why the latter shows up. Barro (1989) also encounters that the school enrollment fits better as a proxy of Human Capital, than the literacy rate.

From Barro (1996) cross-country study we can extract two more results that may be relevant for our purposes: *i*) democracy does not seem to show a clear effect (measured as a function of the freedom to participate in the political processes) on economic growth. Nonetheless, the author claims that evidence may be suggesting that a higher degree of democracy (political freedom) increases economic growth when the level of democracy is either low or high, and will generate a decrease in growth when democracy is at an intermediate level; *ii*) high long-term inflation may reduce economic growth, even though the estimated effect of inflation is not large, it is still negative: an increase of 10% in the average annual inflation will reduce the annual growth by 0.3% to 0.4%.

On the other hand Garrison and Lee (1995), find that large budget deficits, high levels of government expenditure, high rates of inflation and high tax rates have no impact on economic growth. As we have seen in the papers quoted above, some of these variables are associated with a decrease in economic growth. Instead, they find that countries with a low variability of economic growth and with an orientation toward international trade may have a better economic performance.

In regard to democracy, Gupta *et al.* (1998) find evidence that supports the fact that democracy leads to a higher economic growth, but only if democracy is sustained and has long-run stability, if it is either unstable or leads to the marginalization of one group that as a consequence could rebel against this democratization (*e.g.* Tamil Tigers in Sri Lanka), it may have a negative effect on growth. The authors also highlight the fact that democracy

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<sup>6</sup> These results are part of his empirical evidence for his spill-over effects model.

must be accompanied by policies toward education, international trade and land redistribution.

Sachs and Warner (1995a) establish two sets of criteria to classify countries either as countries with “appropriate” market-based policies during the period of analysis (1970-1989) or not. The first set of criteria is related with property rights, and the second is related with the integration of the economy to international trade. They find strong evidence which supports the fact that poorer countries with a correct protection of property rights and with a reasonable position towards international trade (low levels of protectionism) may achieve growth rates that increase their income to the rich economies’.

Using a Bayesian approach, Sala-i-Martin *et al.* (2004), put into question the robustness of the correlation between a large set of variables and the long run economic growth. They find strong evidence in favor of primary school enrollment, the relative price of investment and the initial level of income (supporting the existence of conditional convergence). They also find that the region and some human capital/health variables do matter.

In their work on Demographic Transitions in Emerging Asia, Bloom and Williamson (1998) add another variable to the pool of possible determinants of a country’s good economic performance. They find that the population dynamics in the East Asian countries were a determinant of the great economic growth that those countries achieved during the second half of the last century. They estimate that one third of the annual economic growth between 1965 and 1990 may be accrued to the demography transition. In particular, they argue that a faster growth of the Working Age Population (WAP), compared with the rest of population, generates a positive effect on economic growth through the increase in per capita productivity.

Other branch of literature that is worth to mention is the literature focused on the effect of natural resources on economic growth, since most Tropical countries are resource abundant. Sachs and Warner (1995b, 1999, 2001), Gylfason (2001) and Gylfason and Zoega (2002), among others, find evidence that supports the so-called hypothesis of “the curse of natural resources”, which claims that countries which are rich in natural resources, experience slow economic growth. Being the misallocation of resources the main channel

through which this “curse” works. Basically, when the natural resource exploitation is prosperous, the incentives to invest in human or physical capital to be used in other sectors are offset, and by these means the economic growth is stagnated. These studies also stress out that natural resource dependent economies are characterized for high prices (through the Dutch Disease channel) that impede the right development of an industrialized exporting sector since the cost of production is inflated, and thus the international competitiveness is seriously harmed.

Table 1. Determinants of growth.

Group	Variable	Sign	Source
Economic	Initial GDP	(-)	Romer (1986), Barro (1989), Barro and Lee (1994), Sala-i-Martin <i>et al.</i> (2004)
	Government size	(-)	Romer (1986), Barro (1989), Barro and Lee (1994)
	Investment	(+)	Romer (1986), Barro (1989), Barro and Lee (1994)
	Education	(+)	Romer (1986), Barro (1989), Barro and Lee (1994), Sala-i-Martin <i>et al.</i> (2004)
	Inflation	(-)	Barro (1996)
	Openness	(+)	Garrison and Lee (1995), Sachs and Warner (1995a)
	Rest of pop/WAP	(+)	Bloom and Williamson (1998)
Institutional	Political Freedom	(?)	Barro (1996)
	Political stability	(+)	Barro and Lee (1994) Gupta <i>et al.</i> (1998)
	Protection of Property Rights	(+)	Sachs and Warner (1995a)

Source: Author’s construction

Finally it is important to quote the study of Easterly *et al.* (1993), given the impact of its conclusions on the future development of our study. The authors call the attention on the fact that despite the stability in countries’ characteristics, high volatility of growth rates over decades remains a remarkable factor, as, in their own words: “... countries are ‘success stories’ one period and disappointments the next.”<sup>7</sup> They find that much of this variation in the economic growth is caused by random shocks. That conclusion, in particular, constitutes a warning regarding the criteria that we want to use to define the “miracles” in our paper. On practical terms, we have to evade the possibility of misinterpret a random shock as a good policy result. A good way to avoid this problem is by including in our definition of “miracle” not only current growth rates but also the future growth rates,

<sup>7</sup> Easterly *et al.* (1993).

for example by defining the growth rate for a decade as a centered moving average. Table 1 presents a summary of the main determinants of growth identified by the empirical literature reviewed in this section.

#### 4. METHODOLOGY

Given that we want to construct a case study for each identified TEM in our sample in order to identify the characteristics of each “miracle”, it is logical that the most proper methodological approach is the case study. As a matter of fact, as we do not intend to identify an independent phenomenon or cause, but instead our goal is related to recognize the interaction of the causes of each TEM and their outcome (“The Miracle”) as a whole, the case study is a useful approach according to Feagin *et al.* (1991).

For our matter of study the case study methodology results appropriate since “*Case study analyses provide both the author and the reader with the opportunity to develop a rich understanding of the conditions, processes, and outcomes that have governed the growth experience of actual economies. As such, they provide a means of testing the implications of existing theories and developing one's thinking on the growth process.*” (Young 1992, 13). Though for a different subject of study<sup>8</sup>, Sambanis (2004) also draw attention to the importance of performing case studies to complement statistical evidence, when one is dealing with problems that have multiple causes and a lot of heterogeneity in the information, due to the sources. And that is exactly the kind of problem we are dealing with in this study.

Hence, this methodological approach is our best choice since our matter of study has multiple causes: impressive economic performances achieved by TEMs do not have a single cause; instead they are the result of a system of multiple interacting causes. And to get as much information as possible for each miracle it would be necessary to recur to different sources in each case, aggregating some heterogeneity to the information.

In regard to the kind of study that we will perform, Yin (2003a) in his survey on case studies, estates that case studies should be classified in six classes: exploratory, descriptive, and explanatory, and each of this three may be single-case or a multiple-cases studies.

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<sup>8</sup> His study is on the causes of civil war.

According to our understanding of each category, this study belongs to the descriptive and exploratory multiple-cases studies categories. Is descriptive in the sense that we will present a complete description of the TEMs and its contexts, and is exploratory since we do not know yet the causes of the extraordinary growth.

According to Yin (2003b) case studies have five main components on their research design, which, as the author states, serves as a logical plan to evolve from the research questions to the conclusions. Here we present these components and their equivalent for the current research proposal:

1. Study's question: How did some Tropical countries became economic miracles? Why these countries, and not others? Do these "Miracles" share common features?
2. Propositions or Purpose: As our study is in part exploratory, we need to define our purpose instead of stating some propositions. The purpose of this research is to identify the main economic and institutional characteristics of the TEMs and if possible to find out if these economic miracles share any features.
3. Unit of analysis: Is evident that the unit of analysis is each TEM, and from each individual case we will construct our multiple cases study. However, it is worth to mention that the TEM must be defined in both space (a country) and time (in some specific period). For example<sup>9</sup> we would say: "Hong Kong became an economic miracle during the 1980's". So Hong Kong's economic policy during the 2000's will not be relevant for our study, since we are interested in the facts that cause a great performance during the 1980's.
4. Linking data with purposes: Since this component is closely related with the relevance of the data to be reviewed, our starting point is the background literature on empirical economic growth, so we need to focus in aspects such as, investment, education, and Political Stability, among other recognized catalysts of economic growth.

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<sup>9</sup> This is not the anticipation of a result.

5. Criteria for interpreting the findings: This component is highly important when we have rival propositions to prove and exists the need to choose one, but since our study is exploratory and we are not looking for a single explanation or cause, but for a set of multiple causes, the best way to include this component in our research is by contrasting several sources of information, both statistical and historical, and be sure that our findings are widely accepted.

Finally in Table 1 in Appendix 4 we present our version of Yin's (2003b) case study protocol, as it will give us a route to follow during the recollection of information for each of the single cases that will be part of the complete multiple cases study.

#### *Case selection*

In order to select the countries that are going to be part of our study we follow a simple algorithm:

1. We compute the 10-year growth rate for each country.
2. With the purpose to avoid having "false" economic miracles, that is countries which exhibit a great performances during one decade but during the following decade are a disaster (Easterly *et al.*, 1993) we calculate the moving centered average of order 21 of the growth rates computed at  $t$ , for each year. For example at 1975 we have the average of the 10-year growth rates from 1965 to 1985.
3. We select the two Tropical countries that remained more consecutive years among the top 10 of the moving centered average calculated at 2. According to Maddison's (2008) dataset we obtain that the pair of cases adjusted to this criteria are: Botswana (1970-1994) and Singapore (1971-1993). When the exercise is replicated for the data from the World Bank's World Development Indicators (WDI), results are the same in terms of countries and quite similar in terms of the period: Botswana (1970-1996) and Singapore (1970-1987)<sup>10</sup>.

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<sup>10</sup> Hong Kong ranked third after Botswana and Singapore, thus it also deserves to be labeled as a TEM. However we decided to exclude it from our study because it remained under the British control until 1997.

Of course this algorithm is not an indisputable way to select TEMs, as there are other possible cases that by a different set of criteria may be classified as miracles. However, what is indisputable is that Botswana and Singapore had an amazing economic performance during the second half of the last century, and thus they deserve to be labeled as “Economic Miracles” and thus to be part of our study. In other words, we maybe failing for the exclusion of some cases, but we are not failing for the inclusion of these two cases.

## 5. EMPIRICAL EXERCISE

In order to add to the pertinence of the case study as methodological approach to determine the causes of the Economic Miracles within the tropics, we perform a classical economic growth measuring exercise. This exercise serve us to prove how growth paths differ between Tropical and Nontropical countries, and to demonstrate how growth measuring exercises may fail to find the specific sources of growth, in particular for the countries that achieved extraordinary economic performances under unfavorable geographic situations.

Table 2. Descriptive Statistics and Source

<b>Variable</b>	<b>Obs</b>	<b>Mean</b>	<b>Std. Dev.</b>	<b>Source</b>
Growth	5653	22.699	0.449	Heston <i>et al.</i> (2009)
Ki	6622	19.872	0.146	Heston <i>et al.</i> (2009)
Kg	6626	18.209	0.127	Heston <i>et al.</i> (2009)
Lsc	4525	8.251	0.130	Barro and Lee (2000)
110.rgdp	5653	7580.631	130.961	Heston <i>et al.</i> (2009)

Author’s calculations

In this regard we estimate four econometric models, following the main findings of Barro and Lee (1994) as a benchmark. In each model the dependent variable is RGDP per capita’s ten-year growth rate, while the explanatory variables are: Investment/GDP ratio (*ki*), Government Expenditure/GDP ratio (*kg*), as proxy of human capital we use the percentage of the population older than 25 year that completed secondary (*lsc*), and the 10<sup>th</sup> lag of the RGDP per capita to control for convergence (*110.rgdp*). Observations, Mean, Standard Deviation, and Source of these variables are presented in Table 2. With exception of *lsc* which is in a quinquennial structure, every variable came in a yearly structure. In order to express *lsc* yearly we imputed the precedent quinquennial value for the four year interval without observations, for example: from 1961 to 1964 the variable takes its value of 1960.

Estimations were performed for 102 countries, 50 Nontropical and 52 Tropical, between 1960 and 2005.

The first Model presented in Table 3 is an *OLS* pooled regression. From this benchmark exercise it is possible to observe that the classical results of Barro and Lee (1994) are maintained: growth depends positively on investment and human capital; and negatively on initial RGDP evidencing the existence of convergence, and on Government Expenditure as percentage of the GDP. These results do not change when controlled for *tropical*, a dummy that is active when more than 50% of the country's area is within the tropics, according to the CID geographical data; *tropical* has the expected (negative) sign. In addition to the *OLS* models, Panel Data models are estimated, both in Random Effects (RE) and Fixed Effects (FE) specifications.

Table 3. Determinants of Economic Growth

Variable	Linear	Linear2	RE	FE
ki	1.3174*** (0.0566)	1.2311*** (0.0575)	1.0869*** (0.0592)	0.9989*** (0.0622)
kg	-0.6339*** (0.0665)	-0.6998*** (0.0647)	-1.1866*** (0.0845)	-1.2385*** (0.0882)
lsc	0.9038*** (0.0646)	0.7686*** (0.0675)	0.3699*** (0.0843)	0.2573*** (0.0865)
tropical		-10.0469*** (1.1624)		
l10.rgdp	-0.0015*** (0.0001)	-0.0017*** (0.0001)	-0.0025*** (0.0001)	-0.0026*** (0.0001)
Constant	9.1356*** (1.6474)	19.6413*** (2.0617)	33.9799*** (2.7595)	39.7128*** (2.2083)
Observations	3973	3973	3973	3973
R-squared	0.279	0.296		0.257
Number of id			102	102

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Source: Heston et al. (2009); Barro and Lee (2000). Author's calculations.

Results are robust to the different specifications of the model<sup>11</sup>, and when the usual consistency tests are performed the FE model results to be the most recommended. This implies that there are country-specific characteristics, besides these usual “growth sources”, that explain the economic performance of each country. However, these specific variables,

<sup>11</sup> And are also robust to different specifications of the dependent variable: exercises with a five-year growth rate only change in magnitude but not in sign.

such as the institutional frame, are hard to measure so it is difficult to incorporate it in a cross-country analysis where the comparability of the variable is necessary.

Finally in Table 4, we present the fixed effects obtained from the FE model. Results are consistent with our case selection, as Botswana has the largest fixed effect for the Tropical countries and Singapore has the third behind Hong Kong. It is possible to observe that the difference between our selected cases (Botswana and Singapore) and the rest of the Tropical countries is huge, and its fixed effect is even above the mean of the Nontropical countries<sup>12</sup>. Moreover, when Botswana is compared with rest of Africa differences are even extremer, as its fixed effect is almost four times the value of the second largest (Lesotho).

Table 4. Fixed Effects

	<b>Obs</b>	<b>Mean</b>	<b>Std. Dev.</b>	<b>Min</b>	<b>Max</b>
World	102	-0.8382	24.9842	-62.1887	80.0580
Botswana		44.7798			
Singapore		26.0800			
Rest of Tropical*	50	-14.0446	20.0965	-62.1887	36.4595
Nontropical	50	10.9176	22.5061	-51.0011	80.0580
Rest of Africa**	30	-17.7943	19.0967	-62.1887	11.3013

\*Excluding Botswana and Singapore. \*\*Excluding Botswana

Source: Heston *et al.* (2009); Barro and Lee (2000). Author's calculations.

This evidence results important for our purpose in two dimensions: *i*) classical determinants of growth are not sufficient to explain countries economic performance thus country-specific analysis, in particular the case-study approach, results necessary in order to deepen on the catalysts of great economic performance; and *ii*) the fixed effects obtained are compatible with our case selection, demonstrating that despite being Tropical, Botswana and Singapore, had some specific features that allowed it to achieve an incredible economic growth.

In order to unveil the particular characteristics that accounted for Botswana's and Singapore's rapid economic growth, the following two sections of this document are devoted to expand on each of these cases, with particular emphasis in the 1970's and 1980's.

<sup>12</sup> Fixed Effects' distribution functions are presented in Figure 3 in Appendix 1.

## 6. BOTSWANA – A RESOURCE BLESSING

We decided to start this part of the document with, what we believe, is one of the most amazing cases of economic success during the second half of the last century. Botswana is located in the poorest continent of the world, is landlocked, around 70% of its territory is within the geographical tropics, and about the same percentage is covered by the Kalahari Desert. However, despite these “unfortunate” geographical circumstances Botswana managed to exhibit an incredible economic performance that, countries with better “initial conditions” have not achieved. According to Madisson’s data (2008), from 1970 to 1990 Botswana’s RGDP grew 411%, in 1970 the RGDP added to \$647 (1990 US dollars) occupying the 128th out of 140, while by 1990 its RGDP was \$3,306 and it ranked 87 out of 162 countries in the sample.

What were the keys for this “unexpected” outcome? We believe that the visible causes of this result can be grouped in three categories: *i)* Political Stability; *ii)* Mining; and *iii)* Trade Policy. It is important to highlight that beneath each of these categories and in their interactions, inheritance of Tswana<sup>13</sup> people’s ancient institutions (traditions) played an important role, since a great deal of civil servants’ attitude towards public resources and decision making processes was in fact, inherited from the pre-independence tribal times. Political Stability allowed Botswana to elaborate and execute long run development plans, as well as establish positive relationships with foreign investors that perceived a good business climate, since risk of expropriation was lower compared with other African countries where democracy was not as stable as in Botswana. The case of economic transformation due to its mineral richness is perhaps the most known cause of Botswana’s prosperity, which evolved from an agricultural economy to a mineral-industrialized economy. The way in which diamond richness was managed, is a clear example of how resource wealth can be converted into a blessing instead of a curse (as many other African countries have experienced). Botswana’s success may be labeled as a *resource blessing*, being “adequate resource management” the line that separates blessings from curses. Finally, regarding to Trade Policy, Botswana has had a pro-openness position since its independence, evidence of this was its early membership to the Southern Africa Custom

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<sup>13</sup> Botswana’s ethnic majority.

Unions<sup>14</sup> (SACU). As a consequence of the impossibility to set its own tariffs freely, Botswana could not totally protect its national industry, avoiding the negative effects on external competitiveness of the import substitution industrialization model followed by many developing countries during the 1980's (Leith, 2005).

We will start this section by presenting some economic indicators, to understand the context in which the amazing economic growth was accomplished, and then we will return to the description of each of these three categories that we believe were the key determinants for Botswana to become an Economic Miracle.

### *6.1 BOTSWANA'S ECONOMIC CONTEXT*

Besides its impressive GDP per capita growth (see Figure 1 in Appendix 2 (A2)), Botswana achieved positive results in other macroeconomic indicators. Though inflation may be labeled as high using developed countries' standards, when compared with developing countries in particular with other African countries Botswana's inflation level was relatively low, always under 18%, as shown by Figure 2 in A2, having an annual average of 10.3% between 1974 and 2005. This economy did not suffer of "modern" hyperinflationary processes as many developed countries had<sup>15</sup>, avoiding the misallocation of resources, that results from such processes. This "low" level of inflation is even more remarkable when one thinks that Botswana's major export is diamonds. As stated above, according to Barro (1996) findings long-term high inflation has a negative effect on economic growth.

As Leith (2005) points out, one of the most impressive changes evidenced in Botswana, was the rapid transformation of its economic activity structure. At 1975 both industry (which includes mining) and agriculture, account for a 30% of the GDP each. From then, industry experienced a fast expansion, while agriculture experienced the complete opposite. By 1989, the former accounted for 2/3 of the GDP, while the latter was less than 5% of the GDP (See Figure 3 in A2). The increase of more "prone to accumulation" activities, as those of the industrial and mineral sector is closely related with the evolution of economy's investment. Figure 4 in A2, shows an increase of the gross capital formation as percentage

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<sup>14</sup> The other members of this Customs Union are: South Africa, Lesotho, Swaziland, and Namibia.

<sup>15</sup> At the beginning of the 1990's Peru and Brazil experienced hyperinflations, and more recently Botswana's neighbor, Zimbabwe.

of the GDP from the mid 1960's to the beginning of the 1970's, then investment fluctuates around 45% of the GDP until the end of the 1980's. At the beginning of the 1990's the investment/GDP ratio was back to its pre-crisis levels.

Regarding to the its economic relation with the rest of the world, Botswana's exports as percentage of the GPD experienced a constant increase from 1969 to 1987, period in which this value augmented from 23% to 75% (see Figure 5 in A2), after the world crisis at the 1980's, diamond sales declined around the world, thus Botswana's exports reduced to 50% of the GDP by the end of that decade, and remained around that level until now. Imports as percentage of the GDP increased during the first post-independence years until 1981, when its level was 71%, after that, a rapid decrease is observed, falling below 40% at the beginning of the current decade. Imports behavior can be partially explained by, Botswana's general Trade Policy. Instead of protecting local industry with high tariffs, maintaining low import levels, but with an uncompetitive national productive system, Botswana followed an opened model, and signed into the SACU. Hence, instead having low imports/GDP ratio at first, and a high ratio when openness became inevitable, Botswana managed to "substitute" imports by having a constantly competing local industry, ready to compete in the long-run with its closer partners.

As exports and imports grew in importance, Botswana's trade picked at the end of the 1980's, when total trade represented 123% of the GDP as shown in Figure 6 in A2. These numbers validate our view of the importance of trade on Botswana's economic achievements. After that, trade slowed down and during 1990's and 2000's, fluctuating between 80% and 90%. Figure 6 in A2, also shows the External Balance, which remained negative until 1983 when the commercial deficit was around 20%, from 1984 Botswana always achieved current account surpluses, whit its highest point at the end of the 1980's. Overall, the trade "picture" of Botswana seems rather positive. Not only the ability to penetrate international markets is evident, but also the capability to sustain a positive balance with the rest of the world in the long-run.

Finally, regarding to the population structure, Botswana had a positive evolution as its working age population increased in relation to the rest. From the mid 1960's to 2008, the dependence index reduced steadily to a half of its value. Bloom and Williamson (1998),

find that Demographic Transition played a main role in East Asian rapid economic development, since a reduction in the dependency index implies an increase in labor's productivity. So from Figure 7 in A2, it is observed that regarding to population, Botswana may experienced a similar transition to that of the East Asian countries. In addition Botswana also experienced an important reduction in the percentage of unschooled population over 25, by 1965 72% of this group was unschooled, and by 1995 this percentage was reduced in a half to 36% (Barro and Lee, 2000).

This brief review of some of Botswana's macro-indicators leaves the following broad conclusions about its economic context: *i)* macroeconomic stability, at least monetary stability, was achieved; *ii)* trade played a main role, and a sustainable a positive relation with the rest of the world was attained; *iii)* high levels of capital investment were accomplished; and finally *iv)* Botswana experienced a demographic transition favorable to foster economic growth, and an important reduction in the unschooled population.

## 6.2 BOTSWANA'S KEYS FOR THE "MIRACLE"

### *i. Political Stability*

Though Botswana is a young nation, independent since September 1966, its democracy and political institutions have been quite stable. First elections were celebrated in 1965, still as British Protectorate, and since then they took place every five years. Botswana has never suffered a coup, nor civil neither military, contrary to the experience of several other African countries. Botswana's Democratic Party (BDP) has been the ruling party uninterruptedly since first elections, basically because it represents the Botswana's ethnic majority (Tswanas) and because it managed to have healthy relations with both rural peasants and elites<sup>16</sup>. The BDP<sup>17</sup> was founded by the most significant statesman of Botswana, Seretse Khama. Khama was the first president, and served in the office until his dead in 1980, playing an important role in the country's transformation from one of the

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<sup>16</sup> During the years, popular support to the BDP has been declining due to the urbanization of the population in particular, the BDP seems to have little support from the urban working class.

<sup>17</sup> Initially under the name of Bechuanaland Democratic Party because by its foundation in 1961 current Botswana still was a British Protectorate, The Bechuanaland Protectorate.

poorest nations in the world<sup>18</sup> to a prosperous independent nation. As addressed by Leith (2005) and Matin (2008), Khama's leadership, had an undisputable effect on Botswana's development. One fact that in particular depicts his long-run vision of a developmental state was the Mines and Mineral act of 1967, which entitles the Central Government with the rights of exploitation of the subsoil wealth. As remarked by Leith (2005), Khama believed that leaving these rights in hands of the regional authorities or of private companies would deprive the Central Government of an important revenue font to finance public investment. This single fact would have an impressive impact on Botswana's mineral-guided economic development.

Besides Khama's leadership, according to Tsie (1996) Political Stability in Botswana is explained by the government's rule of law, as well as by the low level of corruption and human rights' violations. This author also emphasizes in the fact that Political Stability has been a central element in Botswana's accelerated development process.

Nonetheless it is worth to mention an important feature of Botswana due to its impact on the future development of the country and its Political Stability: At independence its major an almost unique mean of accumulation was cattle. This fact had an important effect on its political context through three main channels: *i*) as cattle is easy to move, it was "protected" against predatory practices (Leith, 2005) discouraging the formation of corrupt predatory institutions, that deter the private initiative; *ii*) not all individuals own cattle, and in some cases they have to recur to the good-will of owners to borrow it, this situation created a patron-client system of loyalty between cattle owners (future political elite), and rural peasants (future political capital of the BDP; Samatar, 1997); *iii*) as principal source of national wealth, prosperity of cattle sector was a common interest not only for cattle owners, but for the whole society, providing to the new independent government a unique environment of social cohesion towards the common objective of developing this sector, which also facilitated the coordination of the Trade Policy, as there was no rival interests. Thus, Botswana's government did not have to start for achieving agreement between its political and economic majorities, but for maintaining the *ex-ante* concurrence, which

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<sup>18</sup> According to Maddison (2008), Botswana's RGDP in 1966 was 473 (1990 US dollars), occupying the 137th place of 140.

implies that at least the first step through Political Stability was accomplished even before independence.

Regarding to this common interests by the time of independence several scholars (Tsie, 1996; Samatar, 1997; Acemoglu *et al.*, 2003; Leith, 2005, Martin, 2008), recognize that a great deal of this shared interests rest on the need for maintaining a competitive beef exporting sector, in particular a competitive exchange rate was desired. They also coincide in the fact that fortunately, rulers understand that the best way to protect these interests was by the impulsion of economic growth and development promoting policies. Government's position in favor of the capitalist accumulation and property rights protection, derived from the elites' interests, definitely trace the path for Botswana to have a development promoting state instead of a predatory one, and the evolution of "good" institutions in the terms of Acemoglu *et al.* (2002).

In addition to the importance of the common interests at independence on Botswana's Political Stability, another remarkable feature was the formation of a prepared political body. In 1966 Botswana lacked of prepared civil servants, president Khama who lived and studied in England during the mid 1940s, decided that the best way to build an efficient civil service, was by enrolling prepared foreigners and Batswana expatriates, instead of employing unprepared residents<sup>19</sup>. Other African countries fail to build a responsible public apparatus under the pretext of protect their national interests, but president Khama had a different view on the subject, in his own words: "*we should never sacrifice efficiency on the altar of localization*" (Leith 2005, 57)<sup>20</sup>. The foreign nature of the civil service was born in the form of technical assistance, but not the common short-term assistance; instead these foreign experts lived for long periods in Botswana, and some of them even adopted the nationality, as remarked by Leith (2005). This long-term character of the assistance has two outcomes, first policy recommendations were designed according to Botswana's characteristics and needs; second foreign experts were able to train Botswana's nationals, whom will be the base of a national professional civil service.

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<sup>19</sup> According to Acemoglu *et al.* (2003), at independence only 22 Batswana were graduated from University.

<sup>20</sup> Leith (2005) cited it from Fawcus and Tilbuy (2000).

As Samatar (1997) highlights, merit and professional capability were on the basis of the construction of this modern bureaucratic system, professionalization from the beginning allowed to have an efficient public apparatus. Since its independence, due to its own decisions, Botswana had the benefit of counting with experts on public policy design, and the result of it was evident when compared with other regimes less prone to employ foreigners, as Somalia. This efficient apparatus has an important share on the constant success of the BDP, but the relation goes in two ways. Given the long time needed to construct such a professional system, beginning from the “imports” of experts, if Botswana did not have Political Stability this bureaucratic system would never be emplaced.

A general outcome of Political Stability was economic stability, clearly reinforced through the middle-term National Development Plans<sup>21</sup>. These plans create in advance boundaries on fiscal expenditure, impeding excessive expenditure, and thus excess of money circulation (hence inflation) during the booms of fiscal revenues (closely related to booms in the diamond market as explained bellow, which as external shocks result hard to manage). Instead, during positive shocks on revenues, government was able to accumulate foreign exchange reserves, which played an essential role in maintaining a favorable exchange rate, in order to avoid the negative effects of Dutch Disease on the exports sectors other than mining (Leith, 2005; Martin, 2008).

However, the most important particular consequence of Botswana’s Political Stability, which has been always associated with its public commitment to the protection of property rights (Acemoglu *et al.*, 2003), is its undisputable impact on government’s social contract with foreign investors. Foreign investors perceived protection of their interest and low political risk; Leith (2005) remarks that investors perceived low risk of time-inconsistent policies, a perception funded in the large political majority achieved by the BDP, which deterred a “winner takes all” behavior because, after all the party will remain in the power. In exchange for this favorable climate, investors were more prone to do long-term investments and to reinvest their revenues, which were essential for the construction of

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<sup>21</sup> As Leith (2005) mentions this Plans were inherited from the last years of the Bechuanaland Protectorate when, in order to receive aid from Great Britain a detailed plan of the way in which this aid was going to be used must be submitted.

modern infrastructure in Botswana. FDI played an important role in Botswana's economic performance (*Op. Cit.*).

The most remarkable example of this long-term links between government and foreign investors, as pointed by Tsie (1996), Martin (2008), and Acemoglu *et al.* (2003), is the joint-venture that took place between De Beers<sup>22</sup> and Botswana's government over Debswana<sup>23</sup>, company in charge of the Botswana's diamond exploitation. This relation with De Beers was quite favorable both for the private investors and for the government. De Beers perceived a higher level of protection due to the joint participation of the government in the company, increasing its incentives to assume the initial costs of the exploitation given the lower probability of expropriation (Martin, 2008). In regard to the government, on the one hand it has access to one half of Debswana's revenues, allowing it to finance its investment in physical and human capital (Leith, 2005), key factors on the positive economic performance during 1970s and 1980s. On the other hand, the government took advantage of De Beers' expertise in the diamonds market and its ability to sustain a favorable price, due to its market power (Martin 2008). Botswana's production was completely marketed through De Beers' sales filial, Central Selling Organization, which controls the majority of the diamonds' sales around the world (Gemawat and Lenk, 1990; Modise, 2000).

## *ii. Mining*

One of the most remarkable features of Botswana is the importance that diamond exploitation acquired. However, at independence Botswana did not export any diamonds, in fact diamond mining did not start until early 1970s (Modise, 2000). During the 1970s Botswana experienced a rapid transformation of its economic structure (see Figure 3 in A2). As Leith (2005) remarks Botswana was an agricultural (cattle) state at the beginning of the 1970s, and by the end of that decade mining was the second largest sector in the economy, and this trend continue during the 1980s. This impressive transformation was a central element on Botswana's economic performance.

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<sup>22</sup> Since its establishment in 1888, De Beers controlled the world supply of diamonds. Ghemawat and Lenk (1990)

<sup>23</sup> De Beers Botswana Mining Company. Botswana's government own one half of the company and DeBeers own the other half.

The first great mineral finding occurred in 1967, when De Beer's geologist found the Orapa Kimberlite pipe<sup>24</sup>. *"The Botswana government signed a joint-venture agreement with De Beers creating... Debswana. Under this agreement De Beers started up the Orapa mine in 1971 and continue to operate it on Behalf of the government"* (Ghemawat and Lenk 1990, 3). Another major finding, which marked the role of Botswana as one of the major diamond exporters in the world market was the opening of the Jwaneng mine in 1982 (Gemawat and Lenk, 1990; Modise, 2000); as an scholar points out *"The commissioning of the Jwaneng diamond mine in 1982 further reinforced this structural change in Botswana's economy from one dominated by beef exports to a diamond-dependent one"* (Tsie 1996, 599).

Those great findings would trace the path for Botswana to become a main participant in diamond's world market. Between 1981 and 1982 Botswana's diamond output increased by more than a 50%. Diamond's production in Botswana grew from 2.4 million carats in 1976 to 10.9 million carats in 1983. This impressive growth in diamond's production was achieved through the massive De Beers' investments in Orapa and Jwaneng mining complexes (Curry, 1987). Nonetheless, these investments proved to be more than effective, since by 1982, Botswana's diamond mines were among the most productive in the world: \$10 dollars per carat in 1982, against \$20 and \$98 dollars per carat in South Africa and Namibia respectively (Gemawat and Lenk, 1990).

In the core of the relation mineral richness – economic development, was the Mine and Mineral Act of 1967. Proposed by president Khama, this act guaranteed the rights of the Central Government on the subsoil mineral richness. This "crucial decision" as labeled by Acemoglu *et al.* (2003), demonstrates Khama's interest in general progress, since before the act mineral richness was entitled to the tribe than owns the land, and despite that Bangwato tribe (of which Khama was the chief) owned the richest mineral lands, he preferred to transfer the ownership of mineral sources to the central government. Leith (2005) remarks that Khama chose to use mineral revenues for national purposes, ownership of mineral richness allowed the government to finance investment in physical and human capital, that by the time of independence were quite limited in Botswana.

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<sup>24</sup> Kimberlite pipes are the main source of mined diamonds. Diamonds in this kind of mines are embedded in Kimberlite rocks.

In order to obtain revenues from mineral activity, Botswana's government opted for an alternative to the "common" royalties' model (Leith, 2005). Even though, companies have to pay a royalty for exploitation rights, and to pay a tax according to their revenues. Government decided to have a more direct participation in mineral activity through its joint-venture with the private sector, Debswana. This participation as owner, allowed the Government to have a firsthand control of private initiatives, that otherwise may deter transfers from private to public hands (Curry, 1987). According to Gemawat and Lenk (1990), 20% of Debswana's revenues were directed to Operating Costs, 25% to De Beers and 55% to Botswana's government. This combined model of taxation and participation, proved to be successful mainly because a long-run relation between private investors and government was build, allowing the reinvestment and redistribution of mining revenues which, all in all is the way in which mineral richness was translated into economic prosperity.

Joint participation, continuous private investments and a mineral richness well above expectations, improved government's bargaining power, and thus its ability to obtain fiscal revenues from the mineral activity, Curry (1987). As Hill (1991) states, the Botswana government had two main sources of revenues, custom revenues and mineral revenues. These mining revenues came mainly from the diamond exploitation, through the long-term agreements with De Beers. According to Curry (1987), by 1982 mineral production represented around 40% of the GDP, twice as its value four years before. By the mid 1980s mineral revenues represented almost a half of the total fiscal revenues and this trend continued during the 1990s.

Acemoglu *et al.* (2003) highlight that the existence of institutions that respect and protect the property rights, as well as the low levels of corruption in Botswana, were quite important in the process of reinvestment of the revenues obtained from mineral exploitation. Important reduction of illiteracy and poverty rates would never being achieved if revenues were predated. According to the UNDP (2005), Botswana government has a decided position toward the utilization of mineral revenues in human capital formation, infrastructure development, and diversification of economic activity. At independence Botswana had 7 kilometers of paved roads, in contrast to the 6,872 kilometers at 2002; life

expectancy at birth in 1966 was 46 years, it increased to 67.5 years in 1999; under-five child mortality decreased from 15% in 1981 to 5% in 1997; net enrollment rate grew from 42% in 1971 to 98% in 1997 (*Op. Cit.*).

Even though mineral richness played a key role in the development of Botswana, resource richness has been a curse more than a blessing for most of the Sub-Saharan countries (Sachs and Warner, 1995b, 1999, 2001; Gylfason, 2001; Gylfason and Zoega, 2002; for the particular case of Botswana: Martin, 2008; and Mikesell, 1997 for the case of mineral rich countries). This means that what appears to be a particularly positive initial endowment results in an unmanageable burden. Those countries that find out how to exploit the possibilities allowed by this richness seem to be the exception rather than the rule.

Botswana's case turned out to be a resource blessing (or a Miracle) for the mixing of two causes: good luck and good institutions. Good luck, as stated by Leith (2005), firstly because of the nature of the diamonds that are founded in Botswana, diamonds there (and in the rest of Southern Africa), are embedded in Kimberlite rocks, thus a huge extractive infrastructure is needed in order to exploit the Kimberlite pipes. This eases the state control over the mineral activity, the legality of it, and the transfer of revenues from the extractors to the government; contrary to the alluvial exploitation of diamonds, which is done in small scale, hardly regulated and are sadly known for being the financing source of several conflicts in Central Africa (*e.g.* Angola, Democratic Republic of Congo, and Sierra Leone), since its exploitation is commonly controlled by illegal armed groups. Secondly because of the quality of the foreign investors, which instead of corrupting and bribing the government decided to establish a long-run relationship with it; this healthy behavior was encouraged by the amazing richness of the subsoil, which guaranteed revenues over a very long time horizon.

Nonetheless, the need of a huge extractive infrastructure does not assure a successful management of resource wealth, oil extraction is highly capital-intensive and some of the largest producers in Africa were or are embedded in large civil conflicts, and remain poor in terms of infrastructure and human capital (*e.g.* Nigeria, Angola in particular the separatist region of Cabinda, and Sudan). Here appears the other element of the equation the good institutions, as Boschini *et al.* (2007) remark, a resource curse can be reverted

through high quality institutions. An institutional framework devoted to the protection of property rights, inherited from the pre-colonial institutions<sup>25</sup>, favored the presence of foreign investors decided to maintain long-run investments, and allowed the existence of a healthy relation between the government and the private entrepreneurs. Without the adequate legal enforcement of property rights, foreign investors would never emplace such impressive extraction complexes in Botswana, and much of its richness would probably be unexploited (*Op. Cit.*). In addition to the protection of property rights, Khama's leadership allowed the redistribution of mineral revenues. As part of his agenda, first he ensured the property of the subsoil richness to the Central Government, and then devoted the mineral revenues to improve the country's infrastructure, access to education, and health. It is clear that without the proper institutional framework Botswana would never achieve the impressive mineral-guided progress that turned it into an Economic Miracle.

### *iii. Trade Policy*

The SACU was established at the beginning of the 20<sup>th</sup> century, well before Botswana's independence, between South Africa and the British High Commission Territories (which included the Bechuanaland protectorate, current Botswana). After Botswana's, Lesotho's, and Swaziland's independence, SACU terms were renegotiated in 1969 with South Africa in order to favor the three smaller and least developed members of this union. Renegotiation of SACU terms allowed Botswana to obtain a more share of the revenues from imports' tariffs, and thus accelerate its "economic" independence from the Great Britain, that during the first decade of independence provided a good amount of the fiscal revenues in the form of foreign aid (Leith, 2005; Tsie 1996). As remarked by Hill (1991) joint to mineral revenues, customs revenues were one of the largest sources of public income, and mineral activity had a positive impact on customs revenues, a great deal of capital goods had to be imported for mineral exploitation. According to Curry's (1987) data around 25% of fiscal revenues during the first half of the 1980s came from customs revenues.

As South Africa maintained the control of the SACU until the mid 1990s, Botswana's government had nothing to say about tariffs, this implied that it lacked of the necessary

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<sup>25</sup> For more details: Acemoglu *et al.*, 2003 and Robinson, 2009.

power to protect the local industry, which somehow avoided the implementation of an Imports Substitution Industrialization (Leith, 2005). Nonetheless, the local manufacturing industry remained underdeveloped, mainly because of the high competitiveness of neighbor industries and the appreciation of the local currency (the Pula) against the South African Rand (Taylor, 2002).

Besides fiscal revenues, Botswana's Trade Policy left two important outcomes first, in 1975 an agreement that covered beef exports to Europe was achieved, allowing the entry to Europe of beef from Botswana at a favorable tariff. This agreement fostered beef exports to Europe, favoring most of the rural population, which were almost exclusively devoted to ranching, well as large cattle owners or as humble peasants. Second, as a member of the Customs Union, Botswana has the right to move its merchandise freely through the whole territory of the Union allowing it to access the coast, which in some degree helped to diminish the negative geographical condition of being landlocked (Leith, 2005).

By the mid 1980's diamonds already represented around a half of Botswana's exports (Curry, 1987). Other success of Botswana's Trade Policy was the agreement of commercialization of these diamonds. The government had agreement which guaranteed that all of its diamond production was bought by the Central Selling Office (CSO), De Beers' distribution branch. This agreement favored the government since it took advantage of De Beers' large expertise in the diamond market, and also allowed it to obtain rents from the market power exerted the CSO (Leith, 2005; Ghemawat and Lenk, 1990).

### *6.3 FINAL REMARKS ON BOTSWANA*

Even though, Political Stability, Mining, and Trade Policy may be appointed as the visible causes of Botswana success, beneath them institutional framework played a fundamental role in the design of the developmental strategy. Botswana had the good luck of inheriting pre-colonial tribal institutions in which the endowment and respect of property rights were in core of the personal relations. Since these tribal institutions remained unalienated under the British protectorate, after independence the Botswana government was always a defender of the private property. Protection of private property proved to be central for the diamond-guided development of Botswana (Acemoglu *et al.*, 2003; Robinson, 2009).

Government functioning also exhibits an inheritance from Tswana's institutions, in its accountability and consensus-seeking decision process. Back in the tribal times, each tribe had a *Kgotla*, a sort of a local council where "tribal policies" were debated and approved. After independence they were replaced with actual councils that acted as overseers of Central Government's policies. It was also a convention the Government's seek for consensus, policies were usually debated among several ministries in order to obtain a more pluralistic, objective and popular outcome (Samatar, 1997; Leith, 2005).

A final feature of the inherited institutional framework was the attitude towards saving. Victim of crude and long-lasting droughts Tswana people learn that during prosperous times a portion of the outcome must be saved for the less favorable times (Leith, 2005), similarly to what happens in countries with seasons (Zuleta, 2008). This attitude, joint to the necessity accountability exercised by the British government over the financial aid offered during the first years after independence, evolved into a middle and long-term planning of fiscal expenditures, which maintain the expenditure fixed and devoted to developmental projects, thus unexpected income was saved. Government savings during exports booms served as a macroeconomic stabilizer, as Hill (1991) points out that Botswana's government used unexpected revenues from mining booms to accumulate international reserves, instead of using it for additional public expenditure. This policy helped to avoid the exchange rate appreciation, a typical symptom of the Dutch Disease, and thus it helped to protect the exporting sector, in contrast to the experience of African oil producers.

However, as may be inferred from by the recently re-elected president Ian Khama's inauguration, *Diamonds are not forever*<sup>26</sup>. Botswana still has two serious –related– challenges for the future: *i*) diversify its diamond dependent economy; *ii*) reduce the high levels of unemployment, currently above the 17% according to World Bank. Despite the efforts to impulse other sectors beside the mineral one, diversification still remains incipient in Botswana. And as mineral exploitation is highly capital intensive, Botswana economy's capacity to generate employment, in particular for the growing urban working class, remains low. The government has been promoting new entrepreneurs through

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<sup>26</sup> The Economist, October 24, 2009.

developmental banks however this policy is far from success, and as highlighted by Martin (2008) there is still a need for the redistribution of mineral richness among the whole population. Nonetheless, Botswana achieved so much with very obscure prospects at the time of independence, so there are reasons to believe that Botswana's economic prosperity would eventually reach those who remain not favored.

## 7. SINGAPORE – THE LION CITY<sup>27</sup>

Singapore is one of the most remarked cases of economic success during the second half of the last century. Regardless of its minuscule area, 710 km<sup>2</sup>, and the complete absence of natural resources, Singapore managed to transform its economy into one of the most powerful and modern systems of the world. Geographically, Singapore took advantage of its position that, in addition to its size and the fact that it is an island, created a complete dependency on the rest of the world, proof of this is that even water must be imported.

Singapore experienced an amazing progress from a middle income economy to a rich one, according to Maddison's (2008) dataset, in 1970 Singapore's RGDP per capita ranked 39 of 140 with a value of \$4,439 (1990 US dollars), by 1990 its RGDP per capita grew 220% reaching a value of \$14,220 occupying the 18<sup>th</sup> place in the sample. At 2006 Singapore had the 5<sup>th</sup> largest RGDP per capita of the world.

Beneath this impressive performance we found three gross causes: *i)* the Political Stability; *ii)* the Economic Transformation; and *iii)* its sounded Openness. As in the case of Botswana, Singapore has a major ruling party the People's Action Party (PAP), which since independence has obtained the majority of the sits in the parliament (Haas, 1999). This situation, allowed the continuity of developmental and transforming policies, and strengthened investors' confidence since the PAP's regime demonstrated a full commitment with the protection of the property rights, and enhanced the private initiative. Again, stability of political institutions devoted to the enforcement of private property demonstrated to be central for the attraction of foreign capital. Singapore also experienced a notable Economic Transformation, from a raw labor intensive manufacturing economy with high unemployment rates at the mid 1960's, to a developed services center by the 1980's,

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<sup>27</sup>Lion city is the meaning of *Singapura*, The Malayan (original) name of the island.

with an intensive use of both physical and human capital. Its production path moved from manufactured merchandises with a low level of value-added, to the production of technological goods (*e.g.* microchips, electronics) and services, which off course involve a higher level of value-added. Finally as stated by Rumbaugh (1995), Singapore may be labeled as a free trade regime, not only because of the free flow of merchandise and services, but also because of the low level of restrictions on capital flow. Its open position toward trade both inwards and outwards is related with the fact that imports are necessary for an island that lacks of natural resources and land; as well as exports are essential to develop the economic apparatus due to the small size of the domestic market. In addition to the low barriers for international trade, Singapore also facilitated the flow of capitals, as a remarkable portion of its development relayed in Foreign Direct Investment. Hand in hand with its Economic Transformation its exporting path evolved from simple re-exports to exports of services and high-technology goods.

All three main causes are linked trough the attraction of foreign capital. Political Stability and Openness set the proper environment for the arrival of international capitals. While Economic Transformation and rapid expansion of exports, would never be achieved in the absence of the financial muscle provided by the foreign investors. In the following part we provide an outlook of the economic environment of the Singapore's Miracle, and then we will return to explore the importance of each of these three gross causes.

### *7.1 SINGAPORE'S ECONOMIC CONTEXT.*

Along its prosperity process (See Figure 1 in Appendix 3 (A3)) Singapore achieved a more than satisfactory level of macroeconomic stability. Inflation always exhibited very low levels, with an average annual change in the CPI of 3.3% between 1961 and 1995, as shown by Figure 2 in A3. This demonstrates that the Monetary Authority of Singapore (MAS) so far succeeded in its main objective: maintaining a low and stable level of inflation. According to Barro (1996) this low level of inflation may have a positive impact on economic growth in the long-run.

During this prosperity and price stability period Singapore also experienced an important Economic Transformation. As van Elkan (1995) presents, during the 1970's and 1980's

Singapore moved its production to activities with higher value-added levels, which implied the more intensive utilization of human and physical capital. As shown in Figure 3 in A3 from the mid 1970's the Services sector presented an increasing participation in Singapore's GDP. Moreover, this sector has had the largest participation in the economy, always above the 60% of the total production. In particular, Singapore emerged as an international financial center, due to the government policies toward the attraction of foreign capital, and the general favorable climate for investment. As a result the supply of several financial and business services increased during the last stages of Singapore's development at the 1980s.

Capital inflows are at the core of Singapore's splendid economic performance and Economic Transformation. The Singapore government was able to attract capital, and to use it for the rapid Economic Transformation and development of the country. As an outcome gross capital formation as GDP percentage rose steadily from 10% at the beginning of the 1960s to a peak level of 50% by the mid 1980s, and after the 1986 crisis it stabilized around 35% (See Figure 4 in A3).

The high level of investment allowed to transform the economic apparatus, providing the possibility to participate in more capital intensive activities with higher value-added. This capital-led industrialization brought Singapore's exports to a new level. Singapore's exportations evolved from re-exports to exports of oil derivatives and then to manufactures of a high technological value and services that embedded a large participation of human capital. According to the World Bank's WDI, between 1989 and 1999 High-technology exports as percentage of the total manufactured exports grew steadily from 36% to 60%. As result of this transformation, in addition to the export promotion policy, external balance on goods and services grew continuously from a 20% of the GDP deficit at the mid 1970s to a 20% surplus 20 years later (See Figure 5 in A3). Singapore's reliance on foreign trade is evident when total trade as percentage of GDP is explored. According to Heston *et al.* (2009) data, by 1965 total trade as percentage of the GDP was 210%, since then it rose rapidly and steadily, by 1980 it was 400% of the GDP then it retroceded to 300% by the mid-1980s due to the world crisis, and by the beginning of the 2000s it reached again its level of 1980 (See Figure 6 in A3).

Finally in relation to population, Singapore experienced a favorable demographic transition, in which relative its WAP increased in relation to the rest of the population, as presented by the dependency index in Figure 7 in A3. Since the mid 1960s, the WAP grew constantly in relation with the rest of the population, causing a fall in the dependency index from 0.85 in 1965 beneath 0.4 at the beginning of the 1990s. This rapid and strong change in Singapore's population structure may have a positive effect on economic growth through two main channels: On the one hand as the dependency index decreases average productivity of the labor input increases (Bloom and Williamson, 1998). On the other hand, during this kind of demographic transition saving rate is expected to grow under the Life-Cycle Hypothesis; Husain (1995) finds empirical evidence that supports the positive impact of the demographic transition on the private saving rate in Singapore. In addition to this favorable change in the population structure, Singapore's development was also fostered by an improvement in its human capital, according to Barro and Lee (2000) data, by 1960 a 61% of the total population over 25 was unschooled, and by 1995 this percentage was reduced to 14%.

From this review of Singapore's macro-indicators we derive the following conclusions about its economic context: *i*) monetary stability was achieved, in fact inflation has always been quite low; *ii*) very high levels of capital investment were accomplished, having an impact on Singapore's Economic Transformation and exports' composition; *iii*); trade has a central role for Singapore's economy, and a positive external balance was achieved through the increase in the exports' value-added; *iv*) as in the case of Botswana, Singapore experienced a demographic transition favorable to foster economic growth and a rapid reduction in the percentage of unschooled population.

## *7.2 SINGAPORE'S KEYS FOR THE "MIRACLE"*

### *i. Political Stability*

Singapore is young nation, autonomous from the British rule since 1959 year in which Lee Kuan Yew, Singapore's renowned leader, was appointed as prime minister. Since that year and until now the People's Action Party (PAP), Lee's party, dominated every parliamentary election. However, transition to independency was far more complex than in the case of

Botswana. Complexity of Singapore's independence was born in the PAP's prerogative of merging Singapore with Malaysia, and this premise was rooted in the need to expand the market and to have access to more resources. The merger had a large popular acceptance; in 1962 the referendum over Lee's proposal for the merger was supported by the majority of Singaporeans. In 1963 The Federation of Malaysia was officially established with Singapore as one of its states. Nonetheless, Singapore obtained very little political representation in the Federation and its economic development was not in the top of the agenda, as it was for the PAP. Political tensions between the Malayan government and Singaporeans leaders rose, due to the feeling of marginalization of Singapore's priorities, and Singapore was finally expelled from the Federation in 1965 (Haas, 1999).

As political climate stabilized, and PAP's dominance<sup>28</sup> and position toward economic development strengthened, Singapore's regime gained credibility and confidence among foreign investors. By the end of the 1960s inflows of FDI started to rise, as the PAP was able to guarantee the continuation of its policies in favor of the private initiative and of the protection of property rights.

As stated by Neher (1999), PAP's popular support was grounded in its role during independence from the British rule, and also in the government's ability to maintain a successful developmental path which translated into economic prosperity for Singaporean population. As mentioned by this author, PAP's total dominance of the parliament was not judged by the common Singaporean, since the state demonstrated an impressive ability to satisfy Singaporeans' needs.

The PAP not only succeeded in improving the life standard of the common Singaporean, but more importantly for its consolidation as Singapore's single ruling party, it was able to generate a broad consensus around the idea that individual liberties, including the possibility to chose among different parties, are less important than common welfare and generalized economic prosperity.

This preponderance of common interest over individual needs, at the core of the party's and civil population beliefs, is grounded in Lee Kuan Yew's "Asian Values" ideology. Asian

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<sup>28</sup> All the seats of the 1968 parliamentary elections were won by the PAP, Haas (1999).

Values are defined as an alternative to what Lee labeled as Western Values, which in his view were not suitable for Singapore's context: "*The West is viewed as having too much democracy, resulting in chaos, licentiousness, and lack of respect for societal needs*" (Neher 1999, 47). Lee's Asian Values are of central importance for the maintenance of the PAP as Singapore's unique ruling party: "*As such, the AV (Asian Values) project's ability to secure citizen's co-operation in de-legitimizing ideological alternatives and preventing social fragmentation in the name of communitarianism makes it a social technology par excellence for the sustaining of one-party ideological dominance*" (Sim 2001, 64). Lee's capability to incorporate these values into a mixed society<sup>29</sup>, and his direct association with the independence from the British rule and the separation from Malaysia to create an independent nation, elevated him to the quality of Singapore's father. His leadership and his strong belief in the incorruptibility of the civil servant allowed him to stay in the charge of Prime Minister from 1959 to 1990. Lee is recognized for his impulse of a meritocratic and transparent civil service, as well as for his commitment to the capitalistic development of Singapore's economy. It is impossible to unlink Lee's work as Prime Minister of Singapore's development, as under his command Singapore achieved one of the highest rates of economic growth in the world.

Even though Singapore is not the best example of a democratic system, in fact its case is cited as a frustrating one by Chua (1994) since great economic performance was not accompanied by democratization, improvement in Singaporeans' material welfare legitimized the PAP's hegemony and Lee's extended service as Prime Minister. Moreover, popular acceptance of PAP's domination allowed the government to have a severe intervention in Singapore's economic system, leading it through several phases of development from a simple *entrepôt* to an active financial and business center, and to give continuity to its development plan.

Attracting overseas capital was absolutely important for the transformation of the economic apparatus, thus the Singapore government intervention always had a positive impact on the protection of the foreign investors' interests. During all the phases of development the government has intervened in the labor market. During the first stages of development the

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<sup>29</sup> According to Haas (1999) Singapore's multiethnic population has three main ethnic groups: Chinese (77%), Malays (15%) and Indians (6%).

government kept low costs of labor and controlled trade unions, in order to attract foreign investors to foster the industrialization process and to reduce the unemployment. In 1968 the Employment Act and the Industrial Relations Act were introduced to limit the workers' negotiation power, and as consequence the firms did not have to deal with expensive labor and, powerful and problematic trade unions. (Grice and Drakakis-Smith, 1985; van Elkan, 1995; Lam, 2000). This intervention proved to be successful not only to attract foreign investment to foster the industrialization process, but also to significantly reduce the unemployment rate.

However, as new "cheap labor" centers emerged in South East Asia, the Singapore government had to change the developmental path in order to maintain its competitive advantage in the attraction of foreign capital. By the mid 1970s the government decided to impulse investment in activities more intensive in the use of technology (van Elkan, 1995). The government also incentivized the investment in human capital, due to the increasing demand of skilled workers, that rose as a consequence of the emergence of this activities with higher value-added. The government gave incentives to the firms that invested in workers' training and the National Wages Council<sup>30</sup> created a new wage structure in order to reward investment in human capital (Grice and Drakakis-Smith, 1985). This new phase in Singapore's development which lasted until the beginning of the 1990s, resulted highly successful and is clearly the best-known part of its economic success, as affirmed by Neher (1999) it was the outcome of a perfect match between human capital and foreign investment.

Besides intervening in the labor market to direct it in the same way of its developmental path, the Singapore government made another major intervention in Singaporean economy by the creation of the Central Provident Fund (CPF), which is a mandatory pension scheme and described as "... *the greatest element of government control over the economy*" (Lingle and Wickman 1999, 68). The CPF was established in 1955, and started with mandatory contribution rates over the wage of 5% by the employees and 5% by the employers. These rates increased steadily between 1968 and 1984 reaching a maximum rate of 25% by each the employee and the employer. After the 1986 crisis the employers' rate was reduced to

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<sup>30</sup> The NWC is in charge of producing the wage guidelines for the government intervention in the labor market.

10% to reduce the firm's costs, then this rate was increased steadily and by the beginning of the 1990s it was over the 18%. Contributions from both employers and employees totaled 40% of the wage by then. Impact over private saving was huge, as savings through the CPF amounted for a 50% of the total private savings by the mid 1980s (Husain, 1999). This program might be one of the causes of the large saving rates in Singapore, one of the highest of the world. According to the IMF data during the 1980s Singapore had an average saving rate of around 40% of the GNP, in contrast to the 32% of Japan, renowned for its large saving rates.

*ii. Economic Transformation*

According to van Elkan (1995), Singapore's development could be separated into 4 phases, from its beginning dedicated to the *entrepôt* trade, to the vibrant business and financial services center of the 1990s. We will follow her 4 phases *timing* of Singapore's development in this section. These phases are: *i*) Import-Substitution Policies (1959 - 1965); *ii*) Export Orientation (1966 - 1973); *iii*) Industrial Restructuring (1973 - 1984); *iv*) Economic Diversification (1985 - ).

The first phase was characterized for the need to abate unemployment and to replace its declining *entrepôt* trade activities due to the emergence of direct trade routes between East and West. Besides the impulse caused by growth in the local market derived from the merger with Malaysia, the industrialization process was directly supported by the government with the implementation of fiscal incentives to labor-intensive firms. These incentives were granted under the Pioneer Industries Ordinance and the Industrial Expansion Ordinance introduced in 1959. Along with the fiscal incentives, at the beginning of 1960s the government decided to raise the tariffs and impose quotas to imports in order to protect local industry and new investors from foreign competition. In order to coordinate its industrial policy the Economic Development Board (EDB) was established in 1961 (van Elkan, 1995).

However, separation from Malaysia in 1965 and the withdrawal of British troops still emplaced in Singapore had a great impact over Singaporean economy, caused by the reduction of its local market. As a consequence the import substitution strategy resulted

insufficient to promote industry and to reduce the two digits levels of unemployment. Thus, at the mid 1960s a new phase in the development process started with the re-orientation of production to rest of the world: the phase of export oriented industrialization began. One of the most sounded policies followed to promote exports were the fiscal incentives to exports introduced in 1967, this incentives consisted in providing 90%<sup>31</sup> tax exemptions for export profits (Young, 1992). *“In principle, these (fiscal) incentives do not discriminate between domestic and foreign investors. In practice, because they are usually linked to sizable investments involving advanced technologies in new (targeted) industries, the overwhelming majority of participants are foreign.”* (Young 1992, 23). Thus most of the firms devoted to produce only for the local market ceased to exist as tariff and quotas were removed, while a large amount of foreign investment, attracted by the new industrial policy, arrived to Singapore.

Besides the “directed” fiscal incentives, a clear government position towards labor market reinforced the strategy to attract the foreign investment necessary to promote the export oriented industrialization, and to drive this capital to labor-intensive activities in order to assuage the high unemployment rate. This stage of Singapore’s development obligated the government to commit with the provision of a “cheap” and stable labor force (Kuruville, 1995). Government intervention to drive foreign investment to labor-intensive activities was based in the needs of the moment: by the mid 1960s Singapore had a high rate of unemployment, with a growing labor force as female participation increased, and there was an abundance of unskilled labor (Carling, 1995).

This stage of development generated positive results in two levels. First, the government succeeded in the attraction of foreign investment, by promoting Singapore as a country with a unique location, good infrastructure and low wages (van Elkan, 1995). *“Foreign direct investment in manufacturing, which averaged less than S\$30 million per annum during 1960-1965, and only S\$73 million during 1966-1967, reached S\$151 million in 1968, S\$708 million in 1972”* (Young 1992, 23), which evidently had a major impact over Singapore’s export activities. Second, expansion of manufacturing in particular in

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<sup>31</sup> According to van Elkan (1995), this reduction was granted under the Economic Expansion Incentives Act, which reduced the corporate tax rate from 40 to 4 percent, for selected exporters.

electronics, ship repair, petroleum refining, and textiles<sup>32</sup> absorbed much of the unemployment. According to Young (1992) employment in textiles sector grew by more than 50% between 1971 and 1973. In this sense the export oriented industrialization was so successful, that workers started to be scarce and wages began to rise. Thus the government had to attract foreign workers to satisfy the demand; by 1970 nonresident workers account for an 11% of the labor force (van Elkan, 1995).

As wages increased in Singapore and new “cheap” labor centers appear in South East Asia the Singapore government adopted a new turn in its developmental strategy. Given that unemployment was already abated, two new (interconnected) needs seemed to appear in the Singapore government developmental agenda.

On the one hand, the emergence of other South East Asian countries with low cost of labor, at the same time that Singapore experienced an increase of its wage and a shortage of raw labor, obligated the government to change its strategy towards the labor market (“cheap” work force), in order to maintain a comparative advantage in the attraction of foreign capital. On the other hand, little technological advance was achieved in the preceding stages, thus Singapore should incentivize the presence of foreign investment directed to technology and human capital intensive activities, and take advantage of this presence by achieving a technological catch-up.

This stage could be considered as Singapore’s transition from a low wage and low value added manufacturing center, to a technological business and financial services exporter. As described by van Elkan (1995) the government established tax incentives both to firms that were involved in high-technology activities, which were more -physical and human- capital intensive. The government promoted the investment in new technologies, as well as the participation of firms in the training of workers. Joint (public-private) training centers were established to meet the increasing demand of skilled workers.

According to Carling (1995) three labor market policies were introduced to compliment the industrial modernization by generating more incentives to migrate from labor-intensive activities to high value-added ones: *i*) the NWC recommended an increase in wages above

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<sup>32</sup> These sectors were particularly favored by the new industrial policy. (van Elkan, 1995).

productivity, and the employers' contribution to the CPF was increased; as the relative cost of labor increased, firms had incentives to use capital instead of labor. "... *average earnings in manufacturing rose by 81 per cent between 1978 and 1982, giving in turn an additional incentive for firms to substitute capital for labor, particularly in the fields of advanced technology*" (Grice and Drakakis-Smith 1985, 56). *ii*) As described above, the government procured an improvement in workers characteristics. The Skills Development Fund was established to finance training centers and on the job training. *iii*) The government announced that by 1984 demand of non-Malaysian unskilled foreign labor would be finished.

This resolute position towards the transformation of economic activity, the "second industrial revolution" as labeled by the government, had impressive results: Between 1980 and 1981 the value-added per worker increased by 85% (Grice and Drakakis-Smith, 1985); by 1980 Singapore did not produce any computer's component, three years later it was the largest exporter of disk drives in the world (Young, 1992).

After this rapid change in the economy, with a great impact on the labor supply, Singapore arrived to its final stage of development: a diversification of its economic activity. High levels of human capital allowed Singapore to participate in activities with even higher value-added, the business and financial services, without abandoning its participation in the high-tech industry.

In order to allocate foreign capital in correspondence with each country's characteristics, the Johor-Riau-Singapore growth triangle, a joint initiative with Malaysia and Indonesia was established in 1989. The idea behind this initiative was that firms establish their labor-intensive activities in places with lower wages (Malaysia and Indonesia) while human capital intensive activities, the headquarters were established in Singapore. "*The basic advantage is that Singapore contributes capital, transport and logistic facilities, whereas Indonesia and Malaysia contribute abundant and cheap labor and land.*" (Lingle and Wickman 1999, 61). Again the fiscal incentives strategy was used, tax reliefs were emplaced to attract headquarters operations in Singapore.

This agreement also marked a general change Singapore's position towards foreign investment, since the government was no longer focused only in the inflows, but also started to intervene in the direction of the outflows. Local firms were incentivized to establish their operations abroad, outflows of direct investment grew from S\$2.2 million in 1976 to S\$14.2 million in 1989 (van Elkan, 1995). Nonetheless inflows of FDI continued to grow, according to Lingle and Wickman (1999), by 1994 it accounted for S\$4.3 billion against the S\$2.5 billion of 1985.

Since independence Singapore experienced a considerable transformation of its economic activity. In particular the 1970s and 1980s witnessed one of the most rapid changes around the world. This transformation was clearly and very well directed by the government, with interventions in the labor market, and by providing fiscal incentives and protection to foreign investors. However, after the recession of the mid 1980s interventions in the labor market were reduced, as these interventions seem to have some distortive effects on labor allocation and might have a negative impact over inflation (Young, 1992; Carling, 1999; Lam, 2000).

### *iii. Openness*

As stated by Rumbaugh (1995) Singapore is an open regime, not only for its pro-free trade position and export-led development, but also for the low level of restrictions on the capital account, that allowed it to attract the necessary inflows of foreign capital to perform its industrial change. As economic transformation took place during the 1970s and 1980s, Singapore also transformed the nature of its exports allowing it to develop its trade from simple re-exporting to high value-added and technologically intensive exports.

This rapid transformation on its exporting path is reflected in the facts that: *i*) its external balance on goods and services increased steadily from a 20% deficit in 1970 to a 15% surplus by the mid 1990s (WDI); *ii*) according to the IMF data, in 1970 60% of Singapore's exports were related with oil refinement and 10% were Machinery and Equipment, while by 1993 the former represented only the 20% and the latter the 60% of total exports; and *iii*) between 1989 and 1999 high-technology exports grew from 36% to 60% of the total exports of manufactured goods (WDI).

On the side of imports, high dependency in international production after separation from Malaysia, due to Singapore's scarcity of resources, obligated it to have a very low level of tariffs on imports, for example by 1967 the effective rate of protection for the manufacturing sector was just 6%, and by the beginning of the 1990s 96% of imports entered to Singapore free of any restriction, which makes it a true free trade regime (Rumbaugh, 1995). The obvious cause of this pro-free trade behavior is the small size of Singapore's internal market and its lack of natural resources. On the one hand, it is impossible to produce domestically the necessary goods and services to satisfy the internal demand, nowadays potable water has to be imported from Malaysia, and as stated by Lingle and Wickman (1999) Singapore is self-sufficient just in egg and poultry production. On the other hand, internal demand is not sufficient to sustain a competitive modern economic apparatus, thus for economic transformation to succeed Singapore's had to find foreign demanders for its production. This dependency on international trade was fostered by the sudden reduction of internal market that separation from Malaysia in 1965 caused.

Besides maintaining low tariffs on imports, and incentivizing exports as described previously, in the search for external markets, Singapore has had a very active participation in bounding ties with the rest of the world. Despite its tense relations with Malaysia by the time of the separation, Singapore managed to enter as founding member of ASEAN<sup>33</sup> in 1967, however interaction with neighbors remained relatively marginal until 1989 when Lee Kwan Yew launched the Johor-Riau-Singapore growth triangle. This cooperation agreement allowed Malaysian and Indonesia to take advantage of Singapore's capital, permitted Singapore to had access to Malaysia's and Indonesia's cheap labor, while the triangle itself had a favorable position as a link between East and West. Moreover, Singapore was also founding member of APEC in 1982, and in 1992 it was designated to host the Secretariat of this organization (Rumbaugh, 1995; Haas, 1999). Economic transformation and foreign policy also had an impact on the trade regional pattern (See Table 1 in A3). Even though from 1970 most of Singapore's trade has always being done with ASEAN countries, during the 1980s trade with the United States and Japan grew in importance, due to the exports of high-technology goods to this countries. Nonetheless, by

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<sup>33</sup> The other founding members were: Indonesia, Malaysia, the Philippines, and Thailand. Currently it has other five members: Brunei, Burma, Cambodia, Laos and Vietnam.

the beginning of the 1990s trade with ASEAN countries gain participation again as the rest of the South East Asian economies became richer and started to import high value-added Singaporean goods and services (Rumbaugh, 1995).

Singapore's impressive levels of trade are evident when trade as percentage of GDP is calculated. According to Heston *et al.* (2009) since 1965 Singapore's trade has always being more than 200% of the GDP, and by 1980 it reached the 400%, then it slowed down to 300% during the mid 1980s due to the world economic downturn, during the 1990s this percentage grew again and by 2003 it reached its 1980 level (See Figure 6 in A3). These relative levels of trade are result even more striking when compared with the rest of the countries, since 1974<sup>34</sup> Singapore has had the largest level openness in Heston *et al.* (2009) sample, with the exception of 1983 and 1986 when it was second behind Iraq.

In regard to the capital inflows Singapore adopted an open position towards foreign investment, at the same time that it guaranteed the protection of foreign investors' interests, in order to attract the necessary capital for its economic transformation and export-led development. In addition to the directed fiscal incentives, that promoted industrialization and exports in certain sectors dominated by foreign investors, as described in the previous subsection, *"the government issued a solemn promise that no foreign company, under any pretext, would be nationalized"* (Lingle and Wickman 1999, 65). The abolishment of restrictions to capital movements that took place at the end of the 1970s, respect for foreigners' property, and the directed tax reliefs, had a major impact on Singapore's inflows of Foreign Direct Investment (See Figure 8 in A3). By 1972 net inflows of FDI accounted for 5.5% of the GDP, the average FDI between 1972 and 1979 was 6% of the GDP, for the 1980s this average grew to 10% and for the 1990s it grew to 11.5%. Hence Singapore's strategy to attract foreign capital proved to be successful, not only for the increase in FDI, but also because the Singapore government interventions in the labor market and its directed fiscal incentives drive foreign resources to those sectors that needed to be developed (Grice and Drakakis-Smith, 1985, Young, 1992; Lam 2000).

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<sup>34</sup> Since 1960, Singapore was never ranked under the third place in the level of openness according to Heston *et al.* (2009) sample.

### 7.3 FINAL REMARKS ON SINGAPORE

During the second half of the last century Singapore achieved one of the most impressive economic performances in the world. This city-state that declared its independence from British rule to merge with Malaysia and a couple of years later was expelled from the Malaysian Federation, represented a clear case of government planned development within a market system. Despite the lack of own resources and the small size of its internal market, Singapore managed to rapidly transform its economy as few countries had ever done. It took advantage of its favorable location, to become one of the most if not the most important business and financial center of South East Asia.

The center pillar of Singapore's rapid development has been its Political Stability. Political Stability let the government to intervene in several aspects of Singaporeans life and in its economy, allowing it to promote Singapore's Economic Transformation and the export-led development. Nevertheless, government intervention and policy continuity would never be achieved if: *i*) Singaporeans did not internalize the fact that personal interests are less important than the societal benefit, belief that is at the core of Lee's Asian Values (Lingle and Wickman, 1999; Neher, 1999; Sim 2001); and *ii*) the developmental strategy did not bring material welfare to the population delegitimizing the PAP's hegemony (Chua, 1994).

Singapore also benefited from the "accidental" fact that after separation from Malaysia it could never pursue a protectionist policy, obligating it to compete with the rest of the world, and to rely on foreign investment to rapidly industrialize its economy. In other words, Singapore developed a "defense mechanism" against its unfavorable initial conditions based on the attraction of investment, accumulation of human capital, and the openness to international trade; this "defense mechanism" resulted to be a highly successful collection of development instruments.

## 8. CONCLUSIONS

Case study methodology allowed us to deepen into the particular features of Botswana's and Singapore's spectacular economic performances during the second half of the last century. This methodology let us add to the more general findings of the literature on

empirical economic growth, by permitting us to identify specific characteristics and causes of Botswana and Singapore rapid economic development.

Initially one would think that Botswana and Singapore had no common features on its “Miracles”. Botswana had a development centered on the prosperity of one single sector (mining), while Singapore achieved its rapid development by diversifying its economy. Botswana evolved from a poor economy to a middle income economy, which implies that it is still at an early stage of development, with the unresolved tasks of diversify its industry and of allowing that economic prosperity reach the less favored individuals; on the other hand Singapore is a rich-highly diversified economy, where individuals had experienced a rapid improvement in its material welfare, and the economy is devoted to the production of high value-added goods and services. In sum, if we want to think in development as a stages process, Singapore is various stages ahead of Botswana.

However when we get into the details of each “Miracle” some common characteristics arise:

- After independence both countries were under the British rule. Both are very young nations, Botswana get its independence in 1966, while Singapore obtain its full autonomy when separated from Malaysia in 1965.
- Both countries have a parliamentary political system with a single ruling political party, which has been in the power since independence. In fact these parties leaded their respective independency movement, the BDP in Botswana and the PAP in Singapore. Moreover, since independence both countries were under the large rule of each greatest statesman, and founder leaders of the ruling parties. In the case of Botswana Seretse Khama governed from 1966 to 1980; meanwhile in Singapore Lee Kuan Yew was first minister from 1959 to 1990. Both leaders played a main role in the development of their countries, by promoting a meritocratic corruption-intolerant civil service, by giving preponderance to the social welfare above the individual interest, and by acting as bounding links between the common individual and the ruling party.

Even though Botswana's and Singapore's political systems do not really fit into the western paradigm of a Democracy - none of Held's (1996) models of democracy seems to describe neither Botswana's nor Singapore's system, of a historically unique ruling party -, in neither case the hegemony of one party, and moreover of one individual, has led to the appearance of predatory institutions. On the contrary in both cases good institutions, in the sense of Acemoglu *et al.* (2002), were developed: protection of property rights, law enforcement, and a meritocratic civil service are common characteristics of the BDP's and the PAP's rule.

Proof of the quality of the institutions in terms of the protection of property rights is Gwartney *et al.* (2009) Economic Freedom Index (see Table 4. in Appendix 1) in the area of "Legal Structure and Protection of Property Rights", where Botswana obtained a rate similar to that of the Nontropical countries mean, and well above the mean of the Tropical and the mean Africa where it always was the highest-ranked country; while Singapore has always had a very high rate, being the highest-ranked Tropical country.

- Botswana and Singapore relied heavily on FDI to achieve their economic transformation, the former to develop an industrialized mining sector and the latter to diversify and foster its exports. Both succeeded in the attraction of foreign capital, precisely because both governments guaranteed the protection of the investors' interests, among other factors such as the fiscal incentives. Both achieved very large levels of gross capital formation.
- Both countries have had an "obligated" pro-trade policy that allowed it to avoid the negative effects of the import substitution policy. In the case of Botswana the "obligation" was born in its early membership in the SACU, where external tariffs were fixed by South Africa and there was no protection for within the SACU trade, and continued with its need to promote its cattle-related and diamond exports. For Singapore open trade came as a solution to its lack of resources to satisfy the consumers' demand, and to the small size of the domestic market that would impede any competitive industry to progress.

In this regard both countries were very well ranked in Gwartney *et al.* (2009) Economic Freedom Index (see Table 4. in Appendix 1) in the area of “Freedom to Trade Internationally”. For each year Singapore was always ranked second in the sample, behind Hong Kong; and Botswana was in the top 5 within the Tropical countries and the highest ranked African country.

- Small and docile populations favored Political Stability, and government intervention in Economic Transformation and law enforcement. Docility is embedded in the national culture, in the case of Botswana it is rooted in the client-patron relations inherited from the Tswana institutions, while for Singaporeans confidence in the government and legitimacy of its extended rule lays in the “social above individual interest” principle of the Asian Values.
- Besides these positive features, both countries experienced a favorable progress in the economic determinants of growth identified by the empirical literature. Table 5 in A1 presents the evolution of the main determinants for the 1960s, 1970s and 1980s. Even though, these variables do not account for the whole economic development of Botswana and Singapore, its favorable change surely had a positive impact on these countries’ economic achievement.

Though some of these features might be replicated, such as the position towards FDI and trade, others as the political systems, population size, and the informal institutions make of each of these two cases a unique event, and that is why we labeled as “Miracles”. Botswana is rather exceptional in the African context because it managed to avoid being another resource curse, even though it had a perfect ingredient to be one, its large allocation of diamonds. The quality of its institutions, that seem to be above those of most of the developing countries, played a central role in avoiding the disaster. In the case of Singapore its uniqueness is characterized by its city-state structure and by its incredible rapid economic transformation, in which from no any good prospects by the mid 1960s it acquired the quality of a world leading economy by the 1990s.

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## APPENDIX 1

Table 1. 1960-2006 Real GDP per capita growth rate (%).

Country	Obs	Mean	Std. Dev.	Min	Max
Tropical	79	173.11	37.08	-69.19	2171.46
Nontropical	61	216.03	32.18	-65.52	1374.57

Source: Maddison (2008). Author's calculations.

Table 2. 1960 Real GDP per capita (1990 Geary-Khamis dollars).

Country	Obs	Mean	Std. Dev.	Min	Max
Tropical	79	1772.65	305.46	391.85	22432.80
Nontropical	61	4890.59	730.32	458.08	33104.21

Source: Maddison (2008). Author's calculations.

Table 3. 2006 Real GDP per capita (1990 Geary-Khamis dollars).

Country	Obs	Mean	Std. Dev.	Min	Max
Tropical	79	4388.30	678.53	230.4	29480.87
Nontropical	61	11782.59	1143.07	770.84	31048.90

Source: Maddison (2008). Author's calculations.

Table 4. Economic Freedom Index

Area		1980	1985	1990	1995
Legal Structure and Security of Property Rights	Botswana		6.75	6.71	6.79
	Singapore	9.48	8.45	8.45	8.31
	Rest of Tropical*	4.11	3.95	4.13	4.57
	Nontropical	6.64	6.75	7.08	6.77
	Rest of Africa**		3.99	4.02	4.39
Freedom to Trade Internationally	Botswana	7.11	7.07	7.33	6.77
	Singapore	9.29	9.70	9.70	9.68
	Rest of Tropical*	4.76	4.69	5.31	6.18
	Nontropical	6.22	6.12	6.41	7.02
	Rest of Africa**	4.44	4.44	4.78	5.58

\*Excluding Botswana and Singapore. \*\*Excluding Botswana.

Both areas are graded from 0 to 10, being 10 the maximum level of freedom and 0 the minimum.

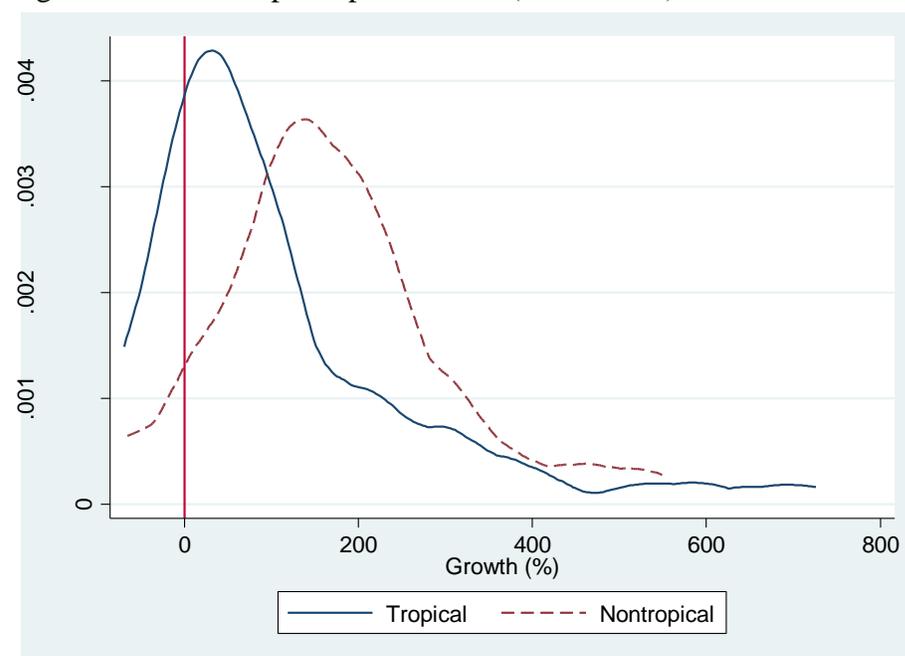
Source: Gwartney *et al.* (2009). Author's calculations.

Table 5. Economic Determinants of Growth

Variable	Measure	Sign	Source	Botswana			Singapore		
				1960s	1970s	1980s	1960s	1970s	1980s
Government size	G/GDP	(-)	WDI	22.63%	18.43%	24.34%	10.32%	11.05%	11.22%
Investment	I/GDP	(+)	WDI	17.38%	42.54%	29.96%	21.50%	40.49%	42.55%
Education	% of unschooled > 25 years	(+)	BL	72.10%	69.10%	52.40%	57.50%	44.20%	39.50%
Inflation	CPI variation	(-)	WDI		11.53%	10.81%		5.91%	2.79%
Openness	(X+M)/GDP	(+)	PT	76.1%	106.7%	120%	287.8%	301.3%	360%
Dependency Index	Rest of pop/WAP	(-)	WDI	1.05	1	0.95	0.83	0.6	0.42

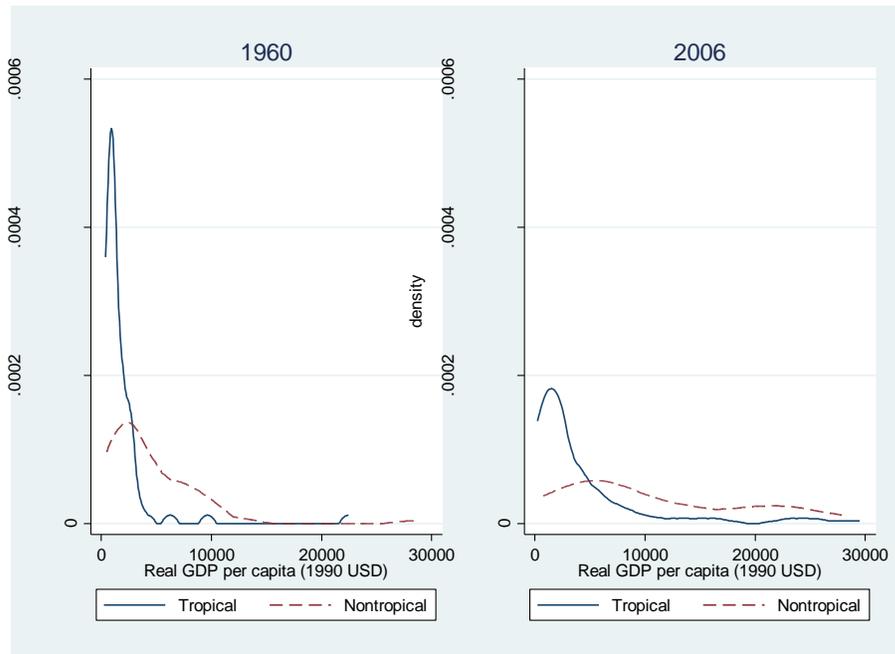
WDI: World Development Indicators; BL: Barro and Lee (2000); PT: Heston *et. al* (2009). Author's calculations

Figure 1. Real GDP per capita Growth (1960 -2006)



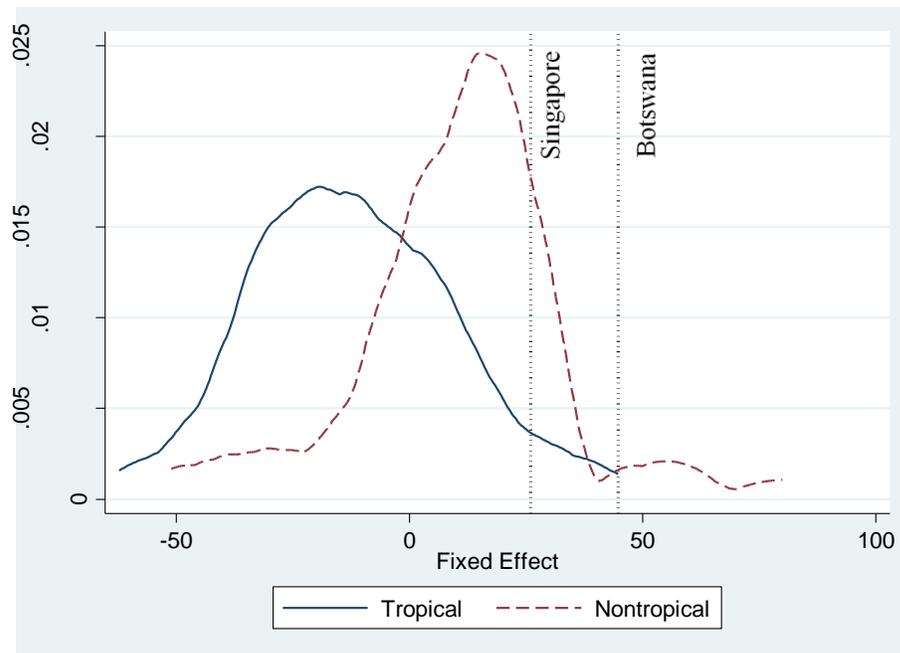
Source: Maddison (2008). Author's calculations.

Figure 2. Real GDP per capita



Source: Maddison (2008). Author's calculations.

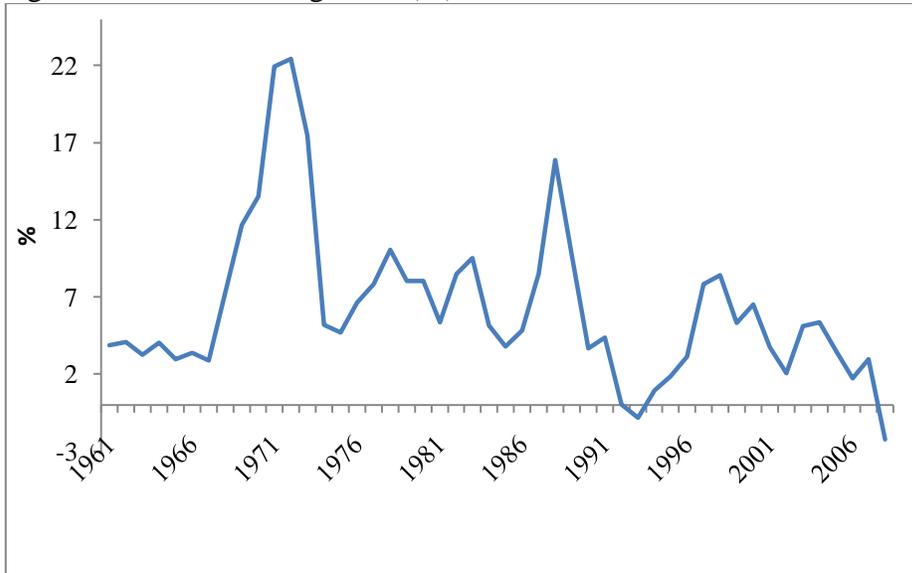
Figure 3. Fixed Effects.



Source: Heston et al. (2009); Barro and Lee (2000). Author's calculations.

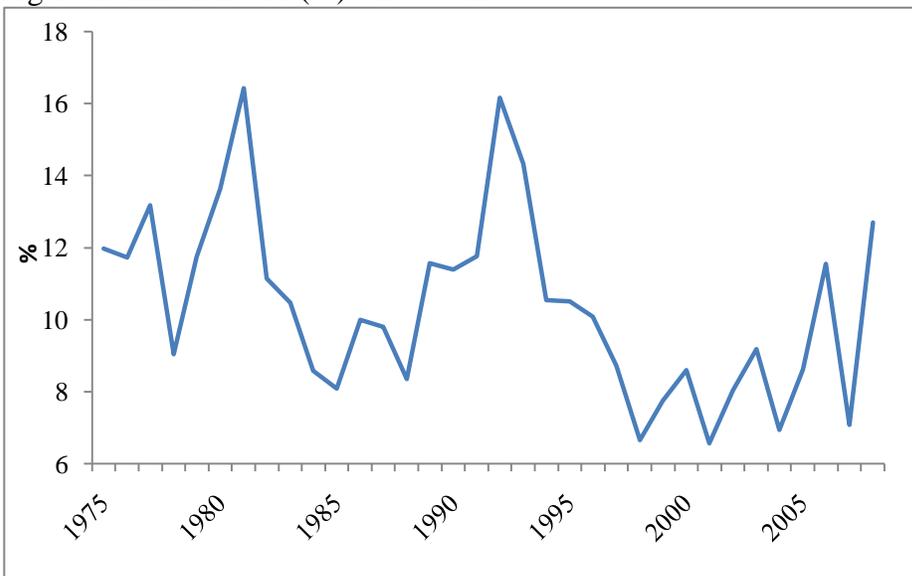
APPENDIX 2 - BOTSWANA

Figure 1. RGDP annual growth (%) – Botswana



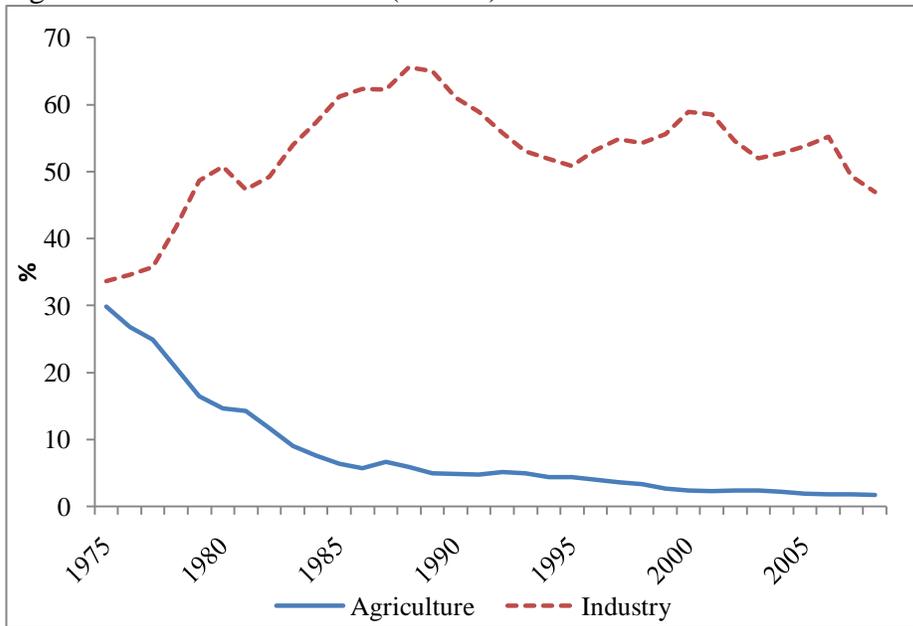
Source: WDI – World Bank.

Figure 2. Inflation CPI (%) - Botswana



Source: WDI – World Bank.

Figure 3. Economic Structure (% GDP) – Botswana



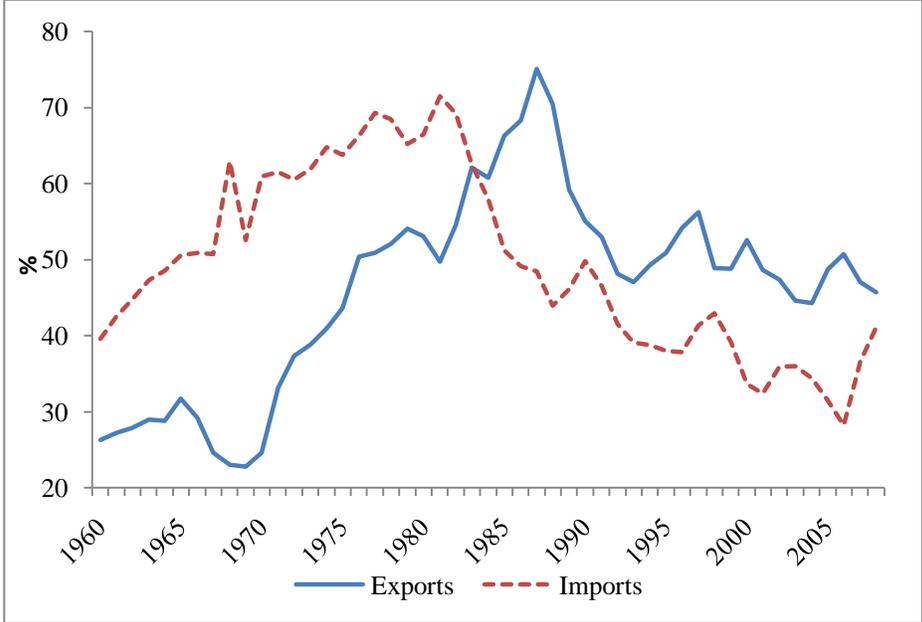
Source: WDI – World Bank.

Figure 4. Gross Capital Formation (% GDP) - Botswana



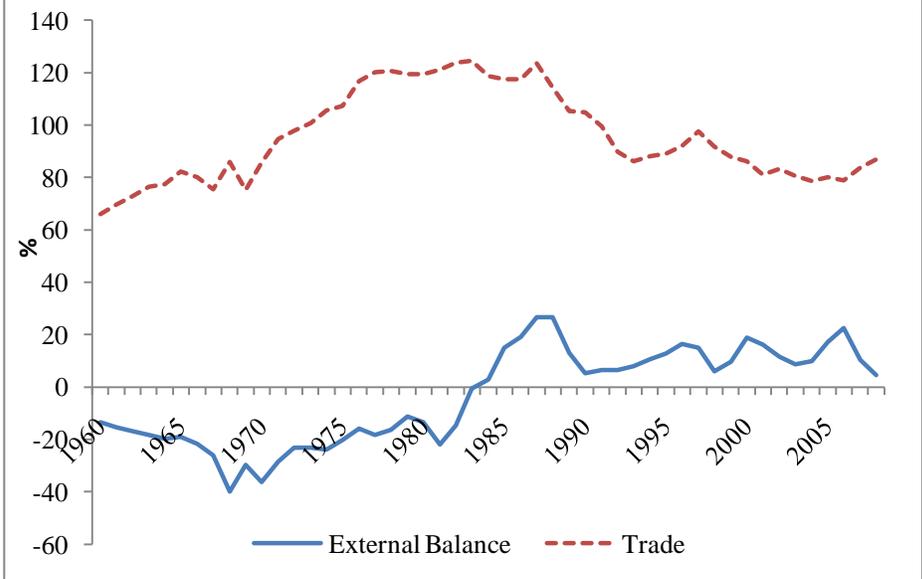
Source: WDI – World Bank.

Figure 5. Exports and Imports (%GDP) - Botswana



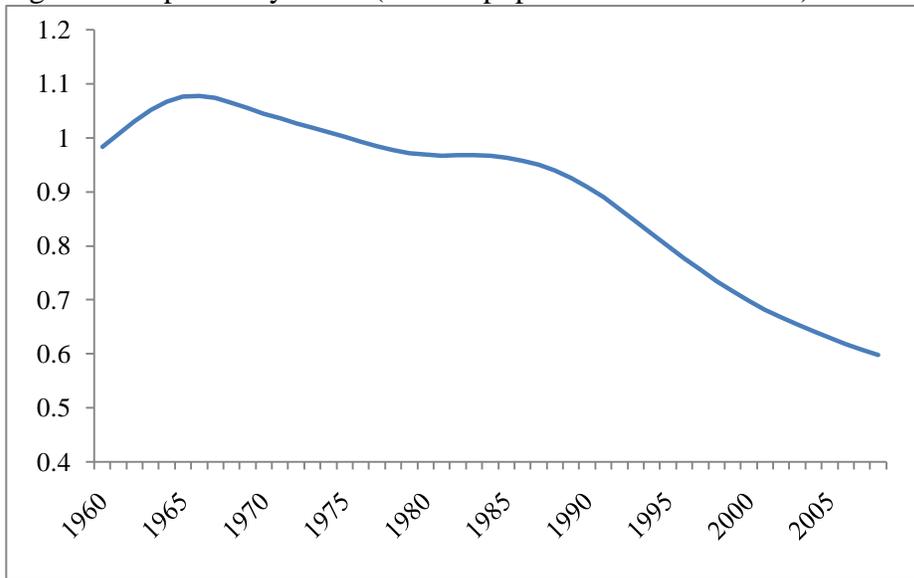
Source: WDI – World Bank.

Figure 6. External Balance and Trade (% GDP) - Botswana



Source: WDI – World Bank.

Figure 7. Dependency Index (Rest of population as % of WAP) - Botswana



Source: WDI – World Bank.

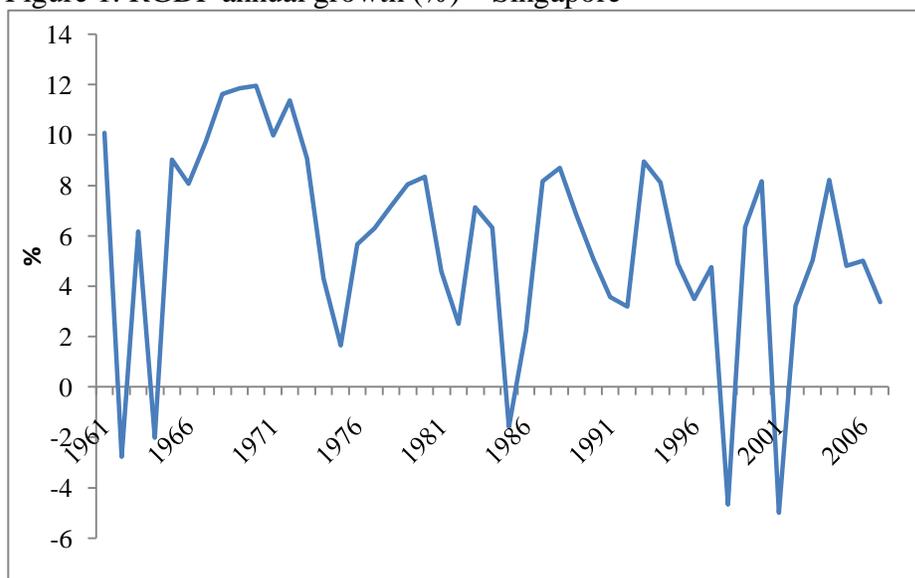
### Appendix 3 - Singapore

Table 1. Singapore's Regional Trade Pattern (% of total trade)

	1970	1975	1980	1985	1990
ASEAN	26.45	18.71	25.16	23.23	21.29
U.S.	10.32	14.84	12.90	16.77	18.06
Japan	14.84	13.55	12.90	12.90	14.84

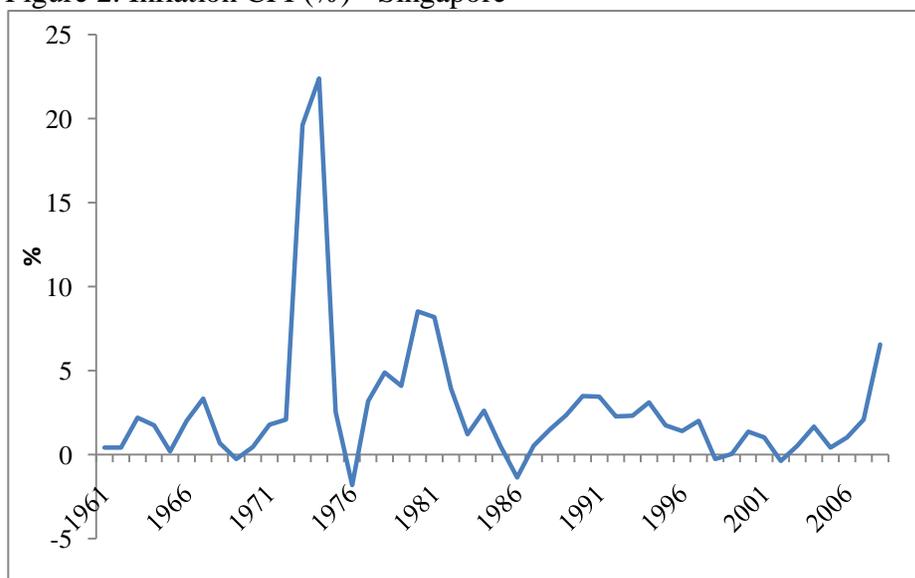
Source: Rumbaugh (1995) – IMF

Figure 1. RGDP annual growth (%) – Singapore



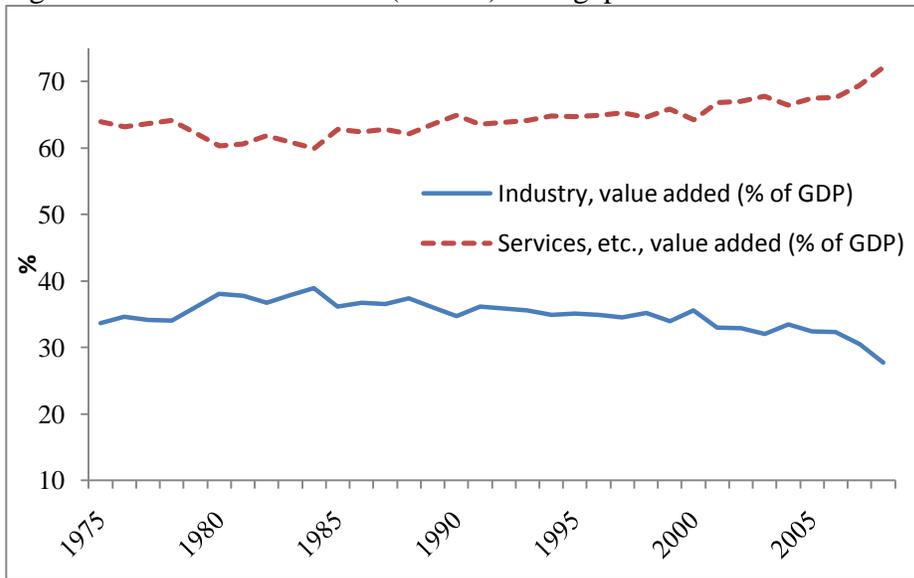
Source: WDI – World Bank.

Figure 2. Inflation CPI (%) - Singapore



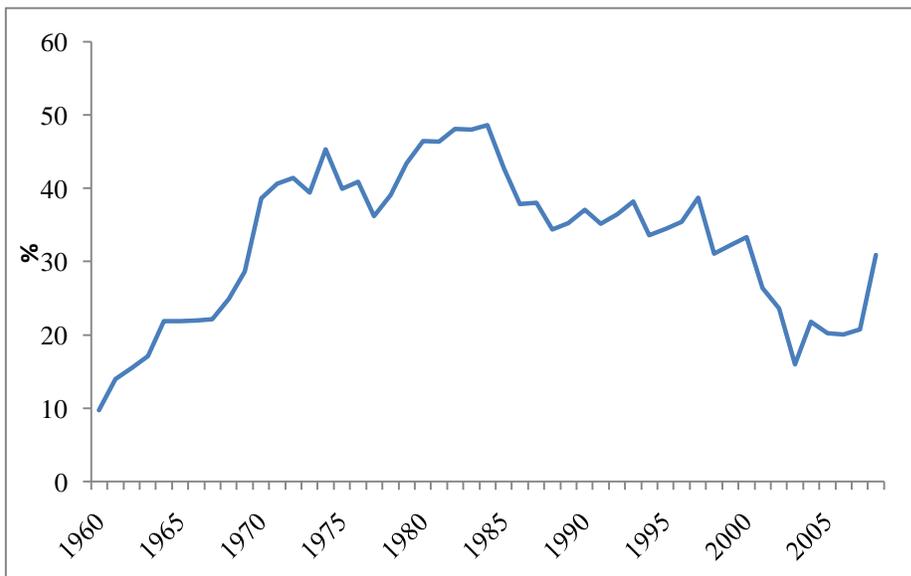
Source: WDI – World Bank.

Figure 3. Economic Structure (%GDP) – Singapore



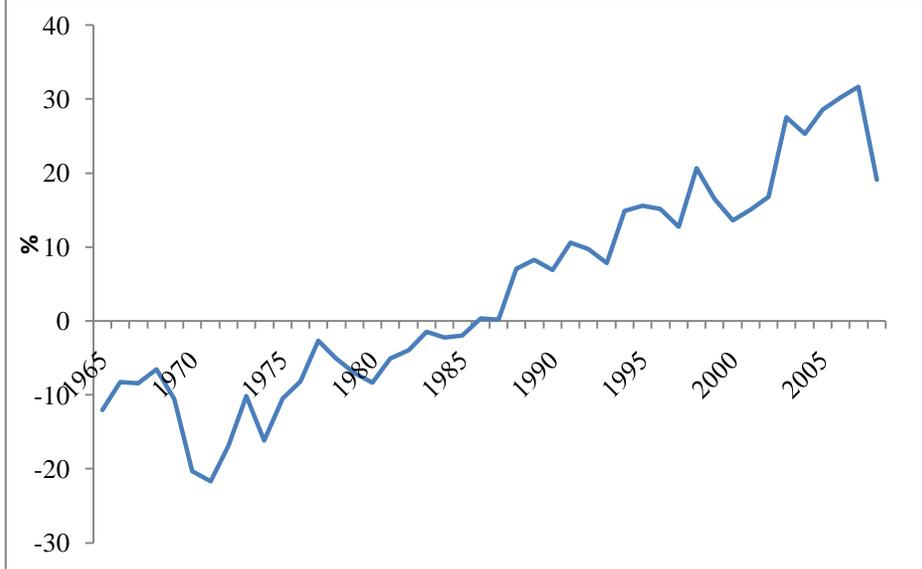
Source: WDI – World Bank.

Figure 4. Gross Capital Formation (%GDP) - Singapore



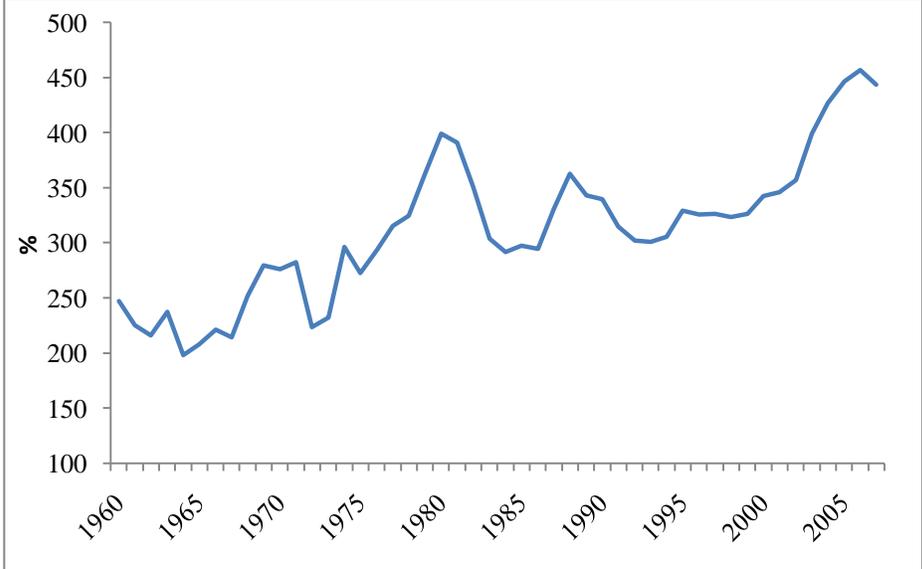
Source: WDI – World Bank.

Figure 5. External Balance (%GDP) - Singapore



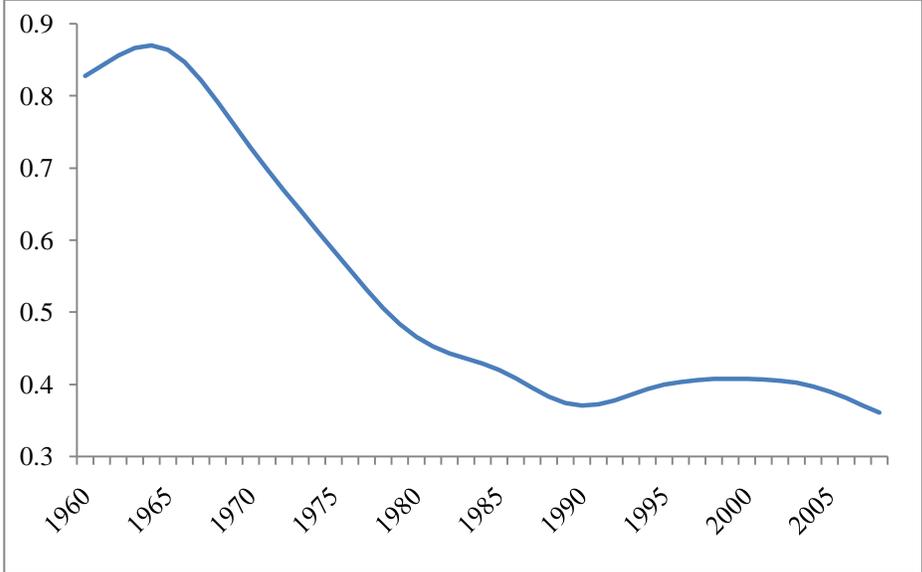
Source: WDI – World Bank.

Figure 6. Trade (% GDP) - Singapore



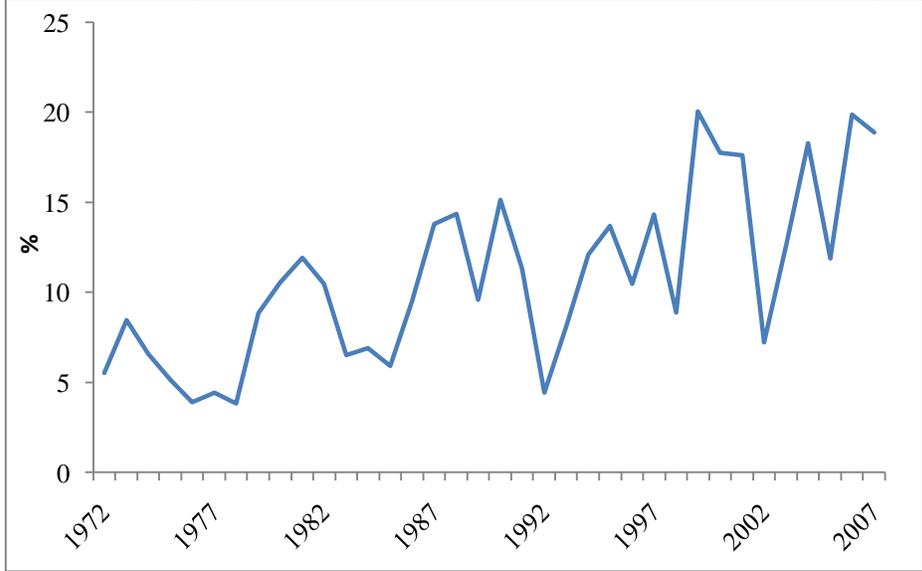
Source: Heston et al. (2009).

Figure 7. Dependency Index (Rest of population as % of WAP) - Singapore



Source: WDI – World Bank.

Figure 8. Foreign Direct Investment (net inflows % of GDP) - Singapore



Source: WDI – World Bank.

**APPENDIX 4**

Table 1. Research Protocol

		<b>Component of the Research Project: Tropical Economic Miracles</b>				
		<b>Theoretical Framework</b>	<b>Rationale</b>	<b>Research Questions</b>	<b>Methods of Collection and Analyzing Information</b>	
					Primary	Secondary
<b>Section of the Case – Study Protocol</b>	1. Overview of the project. Objectives and case study issues.	Economic growth literature.  Development Economics literature.	The main determinants of economic growth have been already studied, but it is necessary to contrast them in the context of an “disadvantaged” Tropical country.	How did some Tropical countries become economic miracles?		
	2. Field procedures (access to information)			What was the economic, political and institutional frame of each TEM?	National Statistics Offices of each country.  Historical records on the political/institutional frame.	World development indicators – World Bank. Penn Tables.
	3. Questions. Specificity to data collection.			Is it possible to identify common features among the TEMs?		Previous cross-country evidence on the determinants of economic growth.
	4. Guide for the Report. Outline, form of the narrative.		Redaction of an academic report that could be replicated as case study.	Main economic political features of the TEMs.		Summarizing statistics and historical/anecdotic evidence.