



저작자표시-비영리-동일조건변경허락 2.0 대한민국

이용자는 아래의 조건을 따르는 경우에 한하여 자유롭게

- 이 저작물을 복제, 배포, 전송, 전시, 공연 및 방송할 수 있습니다.
- 이차적 저작물을 작성할 수 있습니다.

다음과 같은 조건을 따라야 합니다:



저작자표시. 귀하는 원저작자를 표시하여야 합니다.



비영리. 귀하는 이 저작물을 영리 목적으로 이용할 수 없습니다.



동일조건변경허락. 귀하가 이 저작물을 개작, 변형 또는 가공했을 경우에는, 이 저작물과 동일한 이용허락조건하에서만 배포할 수 있습니다.

- 귀하는, 이 저작물의 재이용이나 배포의 경우, 이 저작물에 적용된 이용허락조건을 명확하게 나타내어야 합니다.
- 저작권자로부터 별도의 허가를 받으면 이러한 조건들은 적용되지 않습니다.

저작권법에 따른 이용자의 권리는 위의 내용에 의하여 영향을 받지 않습니다.

이것은 [이용허락규약\(Legal Code\)](#)을 이해하기 쉽게 요약한 것입니다.

[Disclaimer](#)

Master's Degree in International Development Policy

**Natural Resources Abundances and Economic
Growth in Latin America 1996-2010: In search of
Empirical Evidence on the Resource Curse**

February, 2014

Program in International Development Policy

Graduate School of International Studies

Seoul National University

Bismarck Enrique Rodriguez Blandon

**Natural Resources Abundances and Economic
Growth in Latin America 1996-2010: In search of
Empirical Evidence on the Resource Curse**

A thesis presented

by

Bismarck Enrique Rodriguez Blandon

A dissertation submitted in partial fulfillment
of the requirements for the degree of Master
of International Development Policy

**Graduate School of International Studies
Seoul National University
Seoul, Korea**

February 2014

The Graduate School of International Studies

Seoul National University

THESIS ACCEPTANCE CERTIFICATE

The undersigned, appointed by

The Graduate School of International Studies
Seoul National University

Have examined the thesis entitled

**Natural Resources Abundances and Economic Growth in Latin America
1996-2010: In search of Empirical Evidence on the Resource Curse**

Presented by **Bismarck Enrique Rodriguez Blandon**

Candidate for the degree of Master of International Studies, and hereby certify
that the examined thesis is worthy of acceptance:

February 2014

Signature
Chair

Dukgeun Ahn



Signature
Vice Chair

Kisoo Eun



Signature
Thesis Advisor

Chong-Sup Kim



© Copyright by Bismarck Enrique Rodriguez Blandon 2014

All Rights Reserved

ABSTRACT

Natural Resources Abundance and Economic Growth in Latin America 1996-2010

In search of Empirical Evidence on the Resource Curse

Bismarck Rodriguez

Student ID: 2012-24131

Based on the Sachs and Warner model (1995), this paper presents the impact of primary exports on economic growth. The results are interpreted as the role that natural resources abundance (measured as Total Natural Rents) play in determining the pace of economic development. The study is focused on 26 different Latin American Countries between 1996-2010.

We find that the Foreign Direct Investment flows (measured as their share of the recipient countries' GDP) have a positive and significant relationship with the countries' economic development (measured as the Income per Capita Growth Rates).

This refers to inflows of FDI without specific regard to the destination sector. However it serves as a preliminary symptom on the countries' capability to absorb the expected spillovers that arise from the economic exchange. For the most part, diversification still appears as one of the region's most daunting challenges. Succeeding in this endeavor will deepen the regional protection from commodity export price volatility..

Large endowments of natural resources also proved to have a positive and significant relationship with the countries' economic performance. This result contradicts the broadly

accepted knowledge about the generalized prevalence of the Resource Curse theory; according to which, the presence of large endowments of natural resources will have a negative relation with the country's rate of economic growth. Hence, countries with abundant natural resources should display slower economic development.

However, this paper has contributed to prove that the sole presence of natural resources is not enough explanation for the country's economic success or failure. In reality, any given outcome depends from the interaction of at least a number of key factors, which warrant detailed analysis, in order to determine a country's capability to benefit from its natural wealth.

In summary, it can be concluded that the Resource Curse is not an inevitable fate for resource abundant countries. In reality, it is latent risk, avoided only through skillful implementation of various policies that can protect the economy from the thread of unmanaged natural revenues. Nonetheless, those necessary policies are not easy to arrange and are set specially at risk by the sole presence of abundant natural endowment.

In essence, these results were then analyzed in the light of the relevant theories. Four main elements were identified as key actors to determine the existence of the Resource Curse: education, quality of institutions, level of diversification measured as the development of the manufacturing sector, and the soundness of monetary policy expressed as the management of real exchange rates.

Key words: Total Natural Rents, Foreign Direct Investment, Resource Curse.

Table of Contents

ABSTRACT.....	i
Table of Contents	iii
List of Figures and Tables.....	iv
I. Introduction	1
II. Background	4
III. Literature Review	8
3.1 FDI and Economic Growth	8
3.2 The Resource Curse & the Dutch Disease	11
3.3 Natural Resources as a blessing and the Role of Institutions.....	13
3.4 Policy Options to Counteract the Resource Curse	16
V. Empirical Analysis.....	27
5.1 The Impact of FDI on Economic Growth in Latin America 1996-2010.....	27
5.2 Evidence on the Resource Curse in Latin America 1996-2010	33
5.3 Further Implications	37
VI. Conclusions	42
VII. References	45
VIII. Appendix	49

List of Figures and Tables

Fig 1 Net FDI Inflows by Region	28
Fig 2 FDI as Percentage of GDP.....	29
Fig 3 World Average FDI % GDP versus GDP per Capita Growth Rates	29
Fig 4 Latin America Average FDI % GDP versus GDP per Capita Growth Rates.....	30
Fig 5 Relationship between FDI Inflows and Economic Growth in Latin America.....	31
Fig 6 Relationship between Natural Resources and Economic Growth in Latin America	34
Fig 7 Role of Real Exchange Rates	37
Fig 8 Latin America – Public and publicly guaranteed debt service	38
Fig 9 Mean years of schooling by Region	39
Fig 10 GDP Composition in Latin America.....	40
Fig 11 Quality of Institutions by Geographic Region.....	41
Fig 12 Sub-Saharan Africa GDP Composition	58
Fig 13 South Asia GDP Composition	59
Table 1 Summary of all regressions tested for this study.....	25
Table 2 Regressions Results of GDP Growth Rates and FDI % GDP (BY YEAR).	32
Table 3 Regressions Results of GDP per Capita Growth Rates and FDI % GDP	32
Table 4 Regressions Results of GDP Growth Rates and Natural Rents (BY YEAR).....	34
Table 5 Regressions Results of GDP per Capita Growth Rates and Total Natural Rents.....	35

I. Introduction

According to the Economic Commission for Latin America and the Caribbean in 2012, for the third year in a row, countries of Latin America and the Caribbean continued to attract growing flows in foreign direct investment. The new increase in FDI posted brought the region's share of global FDI flows up to 12% in 2012. Economic growth in the region (3%) and the high prices of natural resources have undoubtedly contributed to sustaining the level of foreign investment in the region over the past year.

Setting aside the current conditions, FDI patterns across the various sectors lean increasingly towards natural-resource exploitation, and have thus entrenched the region's existing production structure; which is, precisely, one of the most important regional demands which have to be addressed. It is therefore increasingly important to tap the region's advantages as an FDI destination to improve the countries' production matrices. This could be achieved by increasing efforts to channel part of the profits from transnational into production development funds and by pursuing initiatives to direct FDI towards sectors which the countries view as priorities.

Given such circumstances, it is imperative to address the question whether exploiting abundant natural resources really contributes to national economic growth. Moreover, special emphasis should be given to analyze the key elements that appear as potential explanations for natural resources to either become a curse or a blessing.

This issue has been wealthy discussed by many scholars. Generally speaking, it has been

proven that there is no universal link between Foreign Direct Investment inflows – regardless of the destinations sector - and the host country’s economic performance; which will be determined by the country’s ability to benefit from the FDI flows.

Literature offers little consensus in determining the impact of great natural resources endowment on economic growth. The so called Resource Curse explains how countries with large endowments of any given natural resource show slower economic growth. However, the theory has also shown that natural wealth can promote economic growth through the injection of necessary resources to finance economic development. Lastly, another group of scholars have determined that the relationship between natural resources and economic growth largely depends on other factors that affect economic performance.

This paper collects evidence from 26 different Latin American countries in the period 1996-2010 and analyzes the impact that primary exports have had in their respective per Capita Income growth rates.

Based on the model proposed by Sachs and Warner (1995), this paper will present the impact that primary exports have on economic growth. The results are interpreted as the role that natural resources abundance plays in determining the pace of economic development.

Moreover, the analysis will consider four key elements that, according to theory, are determinant of a country’s capacity to benefit from its natural wealth: a) Education; b) Quality of Institutions; c) Real Exchange Rates; and d) GDP composition and the role of the manufacturing sector.

The results obtained from the initial set of regressions will be presented as a starting point; and will then be combined with both theoretical and empirical evidence to analyze the role that each one of the key elements has played in Latin America. Based on the available literature, this paper will contribute to strengthen the existing evidence to support that natural resources can become both a curse and a blessing.

II. Background

According to the Economic Commission for Latin America and the Caribbean (2012-2013), in 2011 worldwide FDI climbed by 17% over the previous year, reaching US\$1.51 trillion; while net FDI inflows to developing and transition economies increased by 15.5%, reaching US\$0.075 trillion. Latin America and the Caribbean posted the largest gains (31%) and received US\$8.246 billion in FDI in 2011. Nonetheless, more than half of these investments took place in the region's most developed countries, such as Brazil, Mexico, Chile and Colombia.

In 2012, for the third year in a row, the countries of Latin America and the Caribbean continued to attract growing flows of foreign direct investment. The figures for 2012 were particularly significant because they were set in an international context of falling global FDI flows. The new FDI increase brought the region's share of global FDI flows up to 12% in 2012. Economic growth in the region (3%) and the high prices of natural resources have undoubtedly contributed to sustaining the level of foreign investment in the region over the past year.

In 2012 FDI flowing into Latin America and the Caribbean hit a new record of US\$ 173.361 billion. This is 6.7% above the level posted in 2011 and confirms the consistent uptrend that began in 2010. These figures were set in a complex scenario of falling international FDI flows throughout the year, which was sharpest in flows to developed countries (22.5%), and much more modest to developing countries as a whole (3%).

Local conditions in Latin America are favorable and, presently, particularly attractive to

global investors. Natural resources, especially metals, are enjoying a sustained high price boom, while the region's domestic markets have seen several years of steady growth and offer business opportunities for services development (telecoms, commerce and financial services).

In 2011, the ECLAC report shows that South America continues to receive FDI flows mainly into the natural resources sector. While in Mexico, Central America and the Caribbean only 8% of the total FDI went to natural-resource-related activities; services (53%) and manufactures (40%) still accounted for the bulk of inflows.

In 2012, the distribution of FDI across the region sectors as a whole was similar to the average for the past five years, although the share going to services edged up to 44% in 2012. Manufacturing slid slightly but continues to represent 30% of the total. The proportion going to sectors based on natural resources remained virtually identical in 2012 (26%) to the previous years, 2007 to 2011.

Setting aside the current conditions, sectoral patterns of FDI are leaning increasingly towards natural-resource exploitation, and thus entrenched the region's existing production structure; which is, precisely, one of the most important needs the regions is called upon to address. It is therefore increasingly important to tap the region's advantages as an FDI destination to improve the countries' production matrices. This could be achieved by making greater efforts to channel part of the profits from transnational into funds for production development and by pursuing initiatives to direct FDI towards sector which the countries view as priorities (ECLAC 2013).

ECLAC Executive Secretary Alicia Barcena stated that: "It is urgent to boost policies to direct FDI and take advantage of its potential benefits, including the transference of knowledge and technology" (ECLAC 2012).

According to De la Torre (2011), 93% of Latin America's population and 97% of the region's economic activity (GDP) lies in countries that are net exporters of commodities (including Mexico, where although significant diversification of exports has been attained, with income tax depending heavily on oil). However, net exporters of commodities represent only about 50% (15 out of 28) of the countries in the region. It stands, therefore, as a marked asymmetry in Latin America, with net importers of goods mainly located in Central America and the Caribbean. Despite this asymmetry in terms of number of countries, the relative economic and public relative importance of net commodities export countries is such that it is natural to speak of the region as a net exporter of commodities.

In Nicaragua, inward FDI reached US\$ 968 million in 2011, this represents an increase of 91% from 2010. In the same year, the country was ranked as the Latin American nation with the highest ratio of foreign direct investment as percent of GDP.

These are major achievements that led the Nicaraguan investment-promotion agency, ProNicaragua, to be awarded as the world's top investment-promotion agency, according to Global Investment Promotion Benchmarking (GIPB), a comparative study put out by the World Bank, the International Finance Corporation and the Multilateral Investment Guarantee Agency. Of 189 investment-promotion agencies evaluated on a global level, ProNicaragua

was the only one in the world to receive “Best Practice” ratings in all three categories: “Overall Performance;” “Inquiry Handling Performance” and “Website Performance.”

The mining sector has established itself as one of the leading exporters within the country, with a total of \$422 million in exports in 2012, an increase of 16 percent compared to 2011. Gold has been ranked among the top five export products Nicaragua.

Based on figures from 2012, Nicaragua is the only country to post substantial growth of FDI towards the mining industry, which grew 12%, compared to its total for 2011. Inflows rose for all sectors, but the sharpest increases were in mining (US\$114 million) and commerce and services (US\$118 million).

III. Literature Review

3.1 FDI and Economic Growth

According to the Organization for Economic Cooperation and Development (2008), foreign direct investment is a category of investment that reflects the objective of establishing a lasting interest by a resident enterprise in one economy in an enterprise that is resident in a foreign economy. The lasting interest implies the existence of a long-term relationship between the direct investor, the direct investment enterprise and a significant degree of influence on the management of the enterprise.

FDI is a key element in the rapidly evolving international economic integration, also referred to as globalization. FDI provides a means for creating direct, stable and long-lasting links between economies. Under the right policy environment, it can serve as an important vehicle for local enterprise development, and it may also help improve the competitive position of both the recipient (“host”) and the investing (“home”) economy. In particular, FDI encourages the transfer of technology and know-how between economies. It also provides an opportunity for the host economy to promote its products more widely on the international market. FDI, in addition to its positive effect on the development of international trade, is an important source of capital for a range of host and home economies.

As a starting point, Lipsey and Sjöholm establish that theory shows relatively wide consensus on the “inability to find a universal relationship between inward FDI and host country economic performance; which is determined by a country’s ability to benefit from FDI” (in

Moran et al. 2005).

Theodore Moran examines the special challenges of encouraging FDI in natural resources and infrastructure sectors, and asks how, what has often proved to be a “*Resource Curse*”, can be transformed into a force for broad-based social development (Moran 2006).

The author concludes that theory offers diverse analytical tools to assess FDI’s impact on a country’s development. First of all, the so-called “Washington consensus” held that FDI was “good” for development – as long as the foreign firms did not engage in flagrant worker abuse or environmental pollution. However, the accumulated evidence shows that this consensus is fundamentally flawed, both as a starting point for analysis, and as a guide for policy. In reality, FDI can be a force that is beneficial for development, or a force that is detrimental for development. (Ibid)

On the other hand, academic skepticism proposes a perspective where “*one dollar of FDI is worth no more (and no less) than a dollar of any other kind of investment*”. Lastly, some developing countries have proposed that host countries development objectives can be achieved only by imposing performance requirements on multinational investors. The trade-and-investment agenda for the World Trade Organization (...) “must therefore be reshaped to allow host governments to force technology transfer, promote inputs of domestic origin, and ensure that backward linkages to the local economy occur”.

All of these three perspectives are inaccurate and provide misleading –or even harmful- advice about how developing countries might harness FDI to enhance their growth and

welfare. Much of the research emphasizes that FDI is particularly growth enhancing after the host country acquires a minimum stock of human capital (Moran et al. 2005).

Many scholars have implemented diverse instruments to determine the existence of a “causal link” between FDI and economic growth (measured in GDP). However, these tests do not provide homogenous results, but diverse evidence that varies among the countries subject of study.

Samad (2011), for instance, obtained results that vary from unidirectional causality, to unidirectional and bidirectional short run causal links after using Cointegration technique, Granger causality test and Error Correction Model. The author shows some findings that support the tendency of FDI to promote economic growth, by providing new production process, techniques, managerial skills, new varieties of capital goods and technology spillover. Alternatively, others results found that FDI comes after economic growth, since the latter provides necessary and conducive factors for FDI to play a positive role for economic development. For example, spillover effect can only be successful by a host country with absorbing capacity.

The potential benefits that a country might obtain from devoting domestic resources to the attraction of FDI depends greatly in the concept of positive externalities, which can be defined as “benefits created by the project that are not appropriated by the foreign investor (...) nor by the factors of production employed by the project, nor by the suppliers to the project unless possibly the suppliers are able to expand their activity beyond that directly accounted for by the project” (Moran et al. 2005).

According to the Economic Commission for Latin America and the Caribbean (2012), “the ability of FDI to transform the production structure of the economies (...) largely depends on the pattern of investment destination sectors.”

As a result, the issue has been extensively debated between those pro-foreign-investment who picture FDI as adding new resources, such as capital, technology, management and marketing, to the host economy in a way that improves efficiency and stimulates change opposed to the dependency school which claims that FDI leads to outside domination of key sectors of the economy, the creation of a small labor elite and exacerbation of unemployment, and the capture of high profits for transfer to corporate headquarters far away using inappropriate technologies in response to their labor/capital proportions, and driving domestic producers out of the market (Moran 1986).

3.2 The Resource Curse & the Dutch Disease

Leaderman and Maloney (2007) take aim at the conventional wisdom of the Resource Curse, and provide a wide range of possibilities about the true effects of natural resources. One possibility is that natural resources hurt economic growth (along with democracy, transparency, peace, and other desirable outcomes); a second is that they help growth; a third is that they have little effect on growth one way or another. A fourth possibility that may be consistent with each of the first three is that the effects of resources are highly conditional

The Resource Curse describes how resource abundant countries are unable to use their

natural resources to develop their economy. It was proven that countries with a high ratio of natural resource exports to GDP, tend to grow slower than their counterparts with less reliance on natural resources.

Leif Wenar (2008) defines the Resource Curse as the paradox in which natural resource abundant countries specifically point-source non-renewable resources like minerals and fuels tend to have less economic growth and worse development outcomes than countries with fewer natural resources.

The so-called Resource Curse was first presented by Auty (1993), who described it as the curse of how resource abundant countries are unable to use their natural resources to develop their economy. Nonetheless, the main Resource Curse research that has received increased attention is the one from Sachs & Warner (1995), which showed a negative relationship between resource abundance and economic development by using cross-country data. What these authors were able to show is that countries with greater natural endowments tended to grow slower than countries with less resource availability.

Auty's book attempted to explain why resource abundant countries are poorer based on the Dutch Disease concept, which was invented by The Economist (1997). The Dutch Disease concept explains that increase in income from natural resources will make a nation's economy worse by raising the exchange rate which makes the manufacturing sector less competitive. This concept explains the stagnation and decline in the Dutch manufacturing sector, as a result of the discovery of reserves of oil and gas in the 1960s (Cabrales and Hauk, 2011).

There are two main reasons to explain the existence of the Resource Curse; economic and institutions. The common economic explanation of the Resource Curse is the Dutch Disease concept. The appreciation of the national currency and the increase in price level are both negative for total export and the overall nation's economy. Another reason of why countries with natural resources are poor is the institutional explanation. (Sanglmsuwan, 2010).

3.3 Natural Resources as a blessing and the Role of Institutions

Gelb (1988) analyzed the effects of what he viewed in retrospect as the “*oil windfalls of the 1970s*”, and explains that the unexpected revenue booms resulting from the oil price increase created an enormous development opportunity for less-well off countries exporting oil. The author assesses the extent to which these short term windfall gains could be translated into a long term self sustaining development. He concludes that most states were not at the stage of development where economic diversification through industrialization was a viable option.

Sachs and Warner (1999) stresses that poor economies need some sort of large demand expansion, to enlarge the size of the market, so that entrepreneurs will find it profitable to incur the fixed costs of industrialization. In the big-push logic, anything that stimulates demand will do, whether a large public spending program, foreign aid, discovery of minerals, or a rise in the world price of a natural resource.

The authors examined eleven major Latin American economies over the period 1960-1994: Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Mexico, Paraguay, Peru, Uruguay and

Venezuela. They encountered mixed evidence on the effect of the resource boom on GDP per capita; some countries showed a positive, lasting effect, some others showed no major effect and others showed a negative effect.

At that time, one of the region's main features was the nature of its trading relationship with the rest of the world. Latin America, by and large, remained as an exporter of primary commodities, or manufactured products based on those primary commodities

The authors conclude that, when the increasing-returns-to-scale (IRS) sector is non-tradeable, a resource boom can pull more goods into that sector, and thereby set on a dynamic growth process. On the other hand, when the IRS sector is in tradable manufactures, a resource boom can frustrate growth, via the Dutch Disease phenomenon. This determines if primary commodities will be either the engine or the brake on overall economic growth.

Abundant natural resources could promote growth, since resource richness can give a "big push" to the economy through more investment in economic infrastructure and more rapid human capital development. Therefore, any resource-rich country must attain higher growth rates (Iimi 2006).

Ploeg (2011) argues that natural resource abundance can be both a curse and a blessing. The so called Resource Curse is not "cast in stone". Resource rich countries with good institutions, trade openness, and high investments in exploration technology seem to enjoy the fruits of their natural wealth. The wide diversity in experiences of countries with substantial natural resources means that comparative analysis and exchange of experiences could be very fruitful

and that real progress can be made in advancing the plight of poor countries with abundant natural resources.

Sala-i-Martin & Subramanian (2003) proved that some natural resources –oil and minerals in particular- exert a negative and nonlinear impact on growth via their deleterious on institutional quality. By analyzing the Nigerian case, they demonstrate that waste and corruption from oil rather than Dutch Disease has been responsible for its poor long run economic performance.

To explain the diverging experiences regarding economic growth on resources-rich and resources-poor countries, Mehlun et al (2006) investigated “*to what extent growth winners and growth losers differ systematically in their institutional arrangements*”. By dividing the countries samples according to the quality of institutions, the indication of a Resource Curse only appears for countries with inferior institutions, while the indication of a Resource Curse vanishes for countries with better institutions. On this basis they assert that the variance of growth performance among resource rich countries is primarily due to how resource rents are distributed via the institutional arrangement. This finding differs from earlier Resource Curse models, such as the Dutch Disease and Sachs and Warner model (1995); since they show an unconditional negative relationship between resource abundance and growth.

Korhonen (2004) confirms that higher natural resource dependency is associated with lower economic growth. On the other hand, he also established that a higher level of democracy contributes positively to economic growth in the presence of resource dependency.

He concluded that countries with large natural wealth endowments are not necessarily condemned to a sub-par economic growth. He also draws three major conclusions: (a) negative growth effects of certain natural resources types can be counteracted with institutional and political reforms; (b) allowing greater political freedom and moving towards a more democratic political system improves a country's long-term growth potential; and (c) fostering education can partly counteract negative growth effects.

3.4 Policy Options to Counteract the Resource Curse

(a) Stabilization and Savings Funds

As described by Davis et al. (2001), *stabilization funds* are created by the volatility and unpredictability of oil revenues; while *saving funds* address the need to save part of the oil revenues for future generations.

When revenues are high, some part of these would be channeled from the budget to the stabilization fund; when revenues are low, the stabilization fund would finance the shortfall. This would stabilize budgetary revenue and thus budgetary expenditure. However, the unpredictability of prices determines that these funds will face either continuous accumulation or rapid exhaustion of resources. On the other hand, saving funds suffer from the same problem of fungibility. When governments do not reduce their expenditure and borrow to finance the gap left by the revenue diverted to the fund, the savings fund is merely offset by government debt. Both for stabilization and savings funds, the author concludes that these funds mechanisms require fiscal policy decisions for which a fund is no substitute. Although they appear as a possible response to managing revenue volatility; they are “not an

easy –or necessarily appropriate- solution to the fiscal policy problems (Ibid).

In those countries where institutional capacity –to monitor and exercise accountability- is weak, there is a very serious risk that Funds will be “raided”. With weak institutions and corruption, the fund is more likely to exacerbate the problem than address it (Sala-i-Martin & Subramanian 2003).

(b) Sterilization mechanisms and the Role of Real Exchange Rates

Monk (2010) explains that this type of sovereign wealth funds (SWF) facilitate foreign exchange operations that limit the adverse consequences of unearned resource windfalls; in conjunction with the central bank, sterilization limits the negative domestic effect of capital inflows. By setting up this mechanism, governments hope to manage their competitive position in the global economy.

According to Coutinho (2011), appropriate fiscal policy rules will insulate fiscal policy from fluctuations in revenues. Both fiscal and monetary policy in resource-rich countries must address the need for containing both nominal exchange rate appreciation and inflation. With respect to fiscal policy it is important to contain fiscal spending and sterilize some proportion of the revenue windfall. This will contain the increase in domestic absorption, and, to a certain extent, the nominal exchange rate appreciation and inflation. Revenue stabilization funds can help this process of sterilization. Another way to sterilize windfall and take pressure from the real exchange rate is to use supernormal profits to repay public debt. This will strengthen the fiscal position and give the government room for maneuver during

revenue downfalls.

According to Corden and Neary (1982), relative-price changes induce a reallocation of factors of production away from the resource-based sector (the resource-movement effect) and an increase in the demand for non-traded goods (the spending effect), favoring an appreciation of the real exchange rate.

As summarized by Treviño (2011) the development of a resource-based sector, induced from sudden abundance or price increase, occurs at the expense of a non-resource traded goods sector. The most common observed effects of Dutch Disease are the reallocation of factors of production, a sustained appreciation of the real exchange rate and de-industrialization. These observations arise from what has been dubbed as ‘resource-movement’ and ‘spending effects’. This paper provides no conclusive evidence on the existence of a statistical relationship between economic growth and real exchange rate changes.

Literature revision shows a recent tendency to stress the potential role of real exchange rates. Berg and Miao (2010), for example, state that maintaining an undervalued or “competitive” real exchange rate may foster economic growth. In this view, while real exchange rate overvaluations have a negative impact on growth, undervaluation has a positive effect. This contrasts with another position, which argues that any real exchange rate misalignment will hamper economic growth; regardless if it is under or over valuation.

Magud and Sosa (2011) further documented the relationship between real exchange rates and economic growth. They found that real exchange rate misalignment, particularly due to

overvaluation and higher volatility of the real exchange rate, decrease economic growth. In regard of the effect of undervaluation of the exchange rate on economic growth, the evidence is mixed and inconclusive.

Rodrik (2008) found evidence supporting the notion that real exchange rate relationship with growth is more prevalent in developing countries. According to this author, the effect of currency undervaluation tends to decrease with the level of GDP per capita (as a criteria to distinguish between developed and developing countries). As a result, the effect of undervaluation on growth appears to be largest for very poor countries. These results are very sensitive to the criteria chosen to divide the sample between developed and developing countries.

In particular, Rodrik concludes that tradable economic activities are “special” in developing countries. These activities suffer disproportionately from the institutional and market failures that keep countries poor. A sustained real depreciation increases the relative profitability of investing in tradable goods and acts in second-best fashion to alleviate the economic cost of these distortions. It speeds up structural change in the direction that promotes growth. That is why episodes of undervaluation are strongly associated with more rapid economic growth.

Lama and Medina (2012) argue that although one of the arguments in favor of exchange rate intervention is that a real exchange rate appreciation undermines the competitiveness of a country and can have a lasting negative impact on growth and employment creation. In contrast, they present supporting results that the government can achieve a better outcome by allowing the economy to adjust to higher commodity prices through a real exchange rate

appreciation. They conclude that stabilizing the nominal exchange rate with monetary policy would create a misallocation of resources and a reduction in welfare.

(c) Investment on Education

According to Marshal (1920) there is no extravagance more prejudicial to growth of national wealth than that of wasteful negligence which allows gifted individuals, that happen to be born into lowly economic standing, to expend itself in lowly work. No change would conduce so much to a rapid increase of material wealth as an improvement in schools, especially those of middle grades, provided it be combined with an extensive system of scholarships, which will enable the talented offspring to gradually rise from school to school till he has the best theoretical and practical education which the age can bestow upon him.

Aldave and Garcia (2009) developed a model to explain that the impact of natural resources on growth operates through increased corruption and reduced education. However these results were not conclusive and proved the need to further analyze whether corruption and education are both simultaneously affected by resources and to examine whether accounting for these two mechanisms suffices to explain most of the Resource Curse.

On the other hand, Gylfason (2001) identified the “neglect of education” as one of the four main channels of transmission from abundant natural resources to stunted economic development; as well a) the Dutch Disease, b) rent seeking, and c) overconfidence. Public expenditure on education relative to national income, expected years of schooling for girls, and gross secondary-school enrolment are all shown to be inversely related to the share of natural capital in national wealth across countries. Natural capital appears to crowd out

human capital, thereby slowing down the pace of economic development. In summary, nations that believe that natural capital is their most important asset may develop a false sense of security and become negligent about accumulation of human capital. Nations without natural resources have a smaller margin of error, and are thus less likely to make this mistake.

More and better education is a prerequisite for rapid economic development around the world. Education stimulates economic growth and improves people's lives through many channels, by, amongst others, increasing the efficiency of the labor force, fostering democracy, improving overall public health, enhancing equality, and thus creating better conditions for good governance (Ibid).

Philippot (2010) revised Gylfasons's results and concluded that the curse of natural resources for human capital accumulation is not a rule. On the contrary, the significance seems to be very sensitive on the kind of resources. So called "point-resources" (oil, mining products and plantation crops) tend to have a more detrimental effect on human capital accumulation than diffuse ones. Diffuse resources even seem to be associated with higher secondary and tertiary school enrollment rates.

Cabrales and Hauk (2011) probe deeper into the relationship between natural resources and growth by connecting human capital and institutions. The paper shows that the correlation between natural resources and human capital is negative for countries with low levels of institutional quality, but positive for countries with high institutional quality. Here, human capital is measured by the average number of years of schooling of its population. The

indicators of institutional quality are from the World Bank (government effectiveness, control of corruption, and regulatory quality).

According to UNESCO (2013), there is considerable potential for resource-rich countries to close the gap in financing that is preventing them from reaching *Education for All*¹. In a sample of seventeen countries rich in resources or with recently discovered deposits, revenue from natural resources could finance access to primary school for 86% of out-of-school children if their governments maximized the revenue generated and dedicated a significant share to education. About 42% of out-of-school adolescents in these countries could also have access to school.

To transform the natural resources into a blessing, governments must maximize their revenue from extractive activities, manage them transparently and invest the wealth in sectors that will generate higher, equitable benefits for the population. Education is a sector that has delivered such benefits. This positive experience is underpinned by good governance, a competent civil service and political stability.

There is broad agreement that natural resource revenue should be used wisely, either by saving or investing it towards the benefit of future generations. Education is a key ingredient of long-term equitable economic and social development; therefore natural resource revenue should be also used to fund education –whether to build infrastructure or to pay teachers’ salaries.

¹ International initiative first launched in 1990 to bring the benefits of education to “every citizen in every society”. In order to realize this aim, a broad coalition of national governments, civil society groups, and development agencies such as UNESCO and the World Bank committed to achieving six specific education goals. Please refer to Appendix 1.

IV. Methodology and Data

Sachs and Warner (1995) developed a model to prove that economies with a high ratio of natural resource exports to GDP in the base year tend to have low growth rates during subsequent periods. This negative relationship holds true even after controlling for variables found to be important for economic growth, such as initial per capita income, trade policy, government efficiency, investment rates, and other variables.

Dependent variable:

- a. Real per capita growth rate of GDP 1970-89.

Independent variables:

- a. Real purchasing power parity adjusted GDP per capita in 1970
- b. Share of primary exports in GDP in 1971
- c. The fraction of years during 1965-90 in which the country is rated as an open economy (Sachs and Warner)
- d. Ratio of real gross domestic investment to real GDP averages over 1970-89
- e. The bureaucratic efficiency index (Mauro 1995)

The original set of independent variables was replaced and updated using proxies from the World Bank Data, which are detailed as follows:

- a. Real purchasing power parity adjusted GDP per capita in 1970
→Initial GDP per Capita
- b. Share of primary exports in GDP in 1971 (Natural Resource Abundance)

- *Total natural resources rents as percentage of GDP*: are the sum of oil rents, natural gas rents, coal rents (hard and soft), mineral rents, and forest rents.
- c. The fraction of years during 1965-90 in which the country is rated as an open economy (Sachs and Warner)
- *Openness of Economy measured by Trade as percentage of GDP*: the sum of exports and imports of goods and services measured as a share of gross domestic product.
- d. Ratio of real gross domestic investment to real GDP averages over 1970-89
- *Gross capital formation*: formerly known as gross domestic investment; consists of outlays on additions to the fixed assets of the economy plus net changes in the level of inventories.
- e. The bureaucratic efficiency index (Mauro 1995)
- *Control of Corruption* (The Worldwide Governance Indicators project from the World Bank): reflects the perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as “capture” of the state by elites and private interests.²
- f. Additionally, *Inflation* was included as an independent variable to control fluctuations in nominal GDP.

Initially, a regression analysis using panel data collected for 26 Latin American countries over a period between 1996 and 2010 was conducted; in which GDP per Capita growth rate will

²Disclaimer: The Worldwide Governance Indicators (WGI) are a research dataset summarizing the views on the quality of governance provided by a large number of enterprise, citizen and expert survey in industrial and developing countries. These data are gathered from a number of survey institutes, think tanks, non-governmental organizations, international organizations, and private sector firms. The WGI do not reflect the official views of the World Bank, its Executive Directors, or the countries they represent. The WGI are not used by the World Bank to allocate resources.

be the dependant variable and Natural Resource Abundance will be the main independent variable.

To conduct this research, this paper applied the described model for a different selection of countries and a different time set. This paper aims to determine whether there exists evidence of the Resource Curse symptoms in a group of 26 Latin American countries in the period 1996-2010. This sample is composed of: Antigua and Barbuda, Argentina, Belize, Brazil, Chile, Colombia, Costa Rica, Dominica, Dominican Republic, Ecuador, El Salvador, Grenada, Guatemala, Haiti, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, Saint Kits and Nevis, Saint Lucia, Saint Vincent and the Grenadines, Trinidad and Tobago, Uruguay and Venezuela.

The following table summarizes the different arrangements that were set to test the model, concerning samples and periods of time:

Table 1 Summary of all regressions tested for this study.

By Year 2005-2010	Group I Latin America 2005-2010
By Year 1996-2010	Group II Latin America 1996-2010
5 Periods (3 years each) 1996-2010	Group V Latin America 1996-98; 2002-04; 2005-07; 2008-10
3 Periods (5 years each) 1996-2010	Group VII Latin America 1996-00; 2001-05; 2006-10
Before 2003 (2 periods / 3 years each)	Group IX Latin America 1997-99; 2000-02

After 2003 (2 periods / 3 years each)	Group XI Latin America 2003-05; 2006-08
Before 2003 (3 periods / 2 years each)	Group XIII Latin America 1997-98; 1999-00; 2001-02
After 2003 (3 periods / 2 years each)	Group XV Latin America 2003-04; 2005-06; 2007-08

The results obtained from the set of regression are going to be analyzed in light of the relevant existing theory to determine whether they confirm or refute the presence of a Resource Curse phenomenon in the Latin American region.

In short, theory summarizes the key elements that should be analyzed when addressing the Dutch Disease and/or the Resource Curse: the role of the manufacturing sector in the countries' GDP composition, quality of institutions and/or levels of corruption, level of education as determinant of human capital, and the role of the real exchange rate fluctuations, are all analyzed individually to construct a comprehensive explanation from the obtained results.

V. Empirical Analysis

5.1 The Impact of FDI on Economic Growth in Latin America 1996-2010

Reality shows that FDI per se is not always effective promoting development. ECLAC Executive Secretary Alicia Barcena stated that: *"It is urgent to boost policies to direct FDI and take advantage of its potential benefits, including the transference of knowledge and technology"*.

In Central America, FDI grew 36% in 2011; however, we do not necessarily find an identical rise among the region's growth rates. Some aspects of FDI are worth being analyzed, such as which industries receive most of the investments, as well as how technology-intensive and productive those industries are.

There has been a leap in the repatriation of profits to parent companies, from an average of some US\$20 billion between 1998 and 2003 to a high of US\$93 billion in 2008. Situational factors aside, the level of cumulative FDI in the region continues to fuel the outward flow of income associated with these capital flows, showing that FDI is not a one-way flow of resources. This makes it even more pressing to assess qualitative aspects of FDI, such as its ability to spur the development of strategic sectors, transform the production structure, accumulate knowledge and contribute to job creation and job quality.

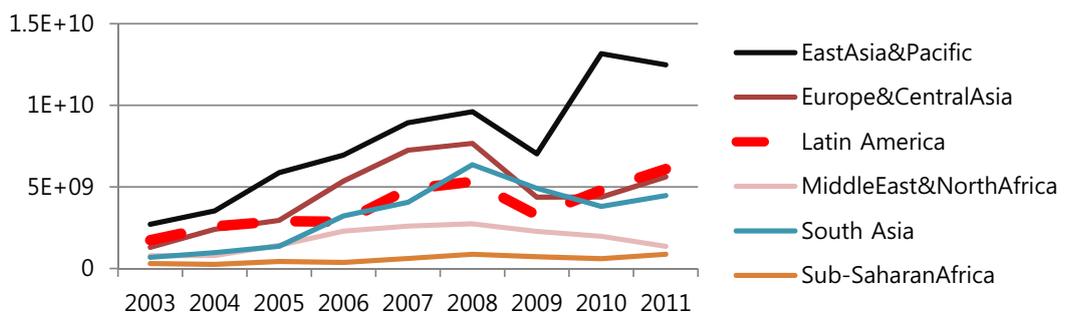
According to ECLAC, more than half of the FDI flows are in the form of reinvested earnings from subsidiaries, so FDI does not yield a net inflow of capital to Latin America and the

Caribbean. This being the case, the developmental impact of FDI for the region will come in the form of potential knowledge transfers, the capacity to develop new industries, and integration in global value chains.

Preliminary analysis of raw data shows that the Latin American region is receiving significantly large inflows of Foreign Direct Investment. Compared to other regions in the world, Latin America stands out as the second region with the largest net inflows of investment.

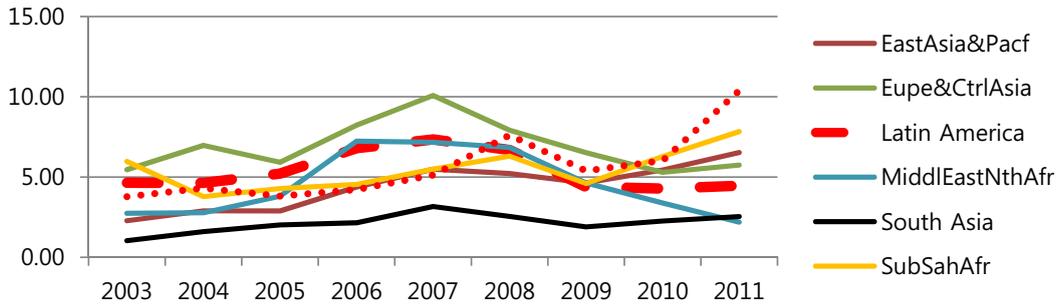
Nevertheless, regional ranking decreases if we analyze such capital inflows as their share of the Gross Domestic Product in host regions; which implies the room for improvement of FDI effectiveness as an agent of development. Nicaragua stands out with exceptionally high FDI as percentage of GDP.

Fig 1 Net FDI Inflows by Region



Excluding OECD and High Income Countries / Source: World Bank Data

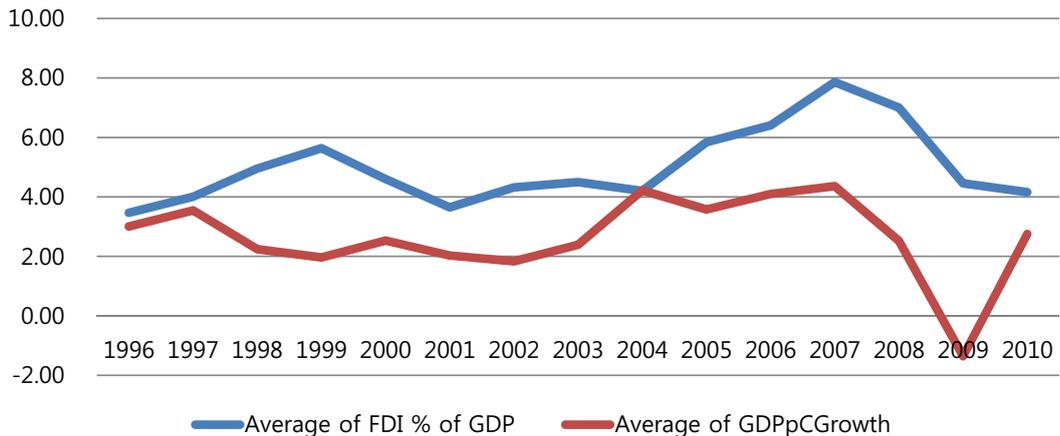
Fig 2 FDI as Percentage of GDP



Excluding OECD and High Income Countries / Source: World Bank Data

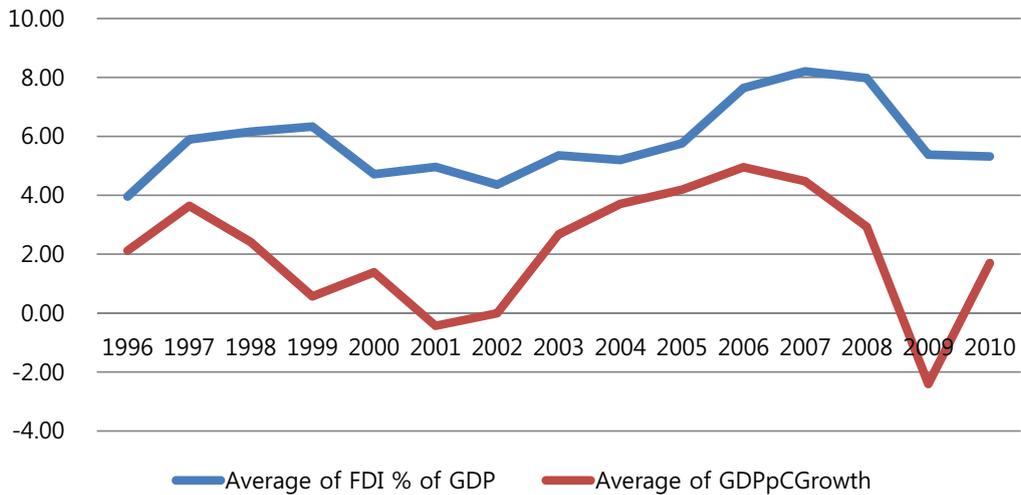
However, by revising the World data regarding annual average FDI inflows as percentage of Total GDP, and annual average GDP per Capita growth rates, there is clear evidence of the positive relation between both variables.

Fig 3 World Average FDI % GDP versus GDP per Capita Growth Rates



Source: World Bank Data

Fig 4 Latin America Average FDI % GDP versus GDP per Capita Growth Rates



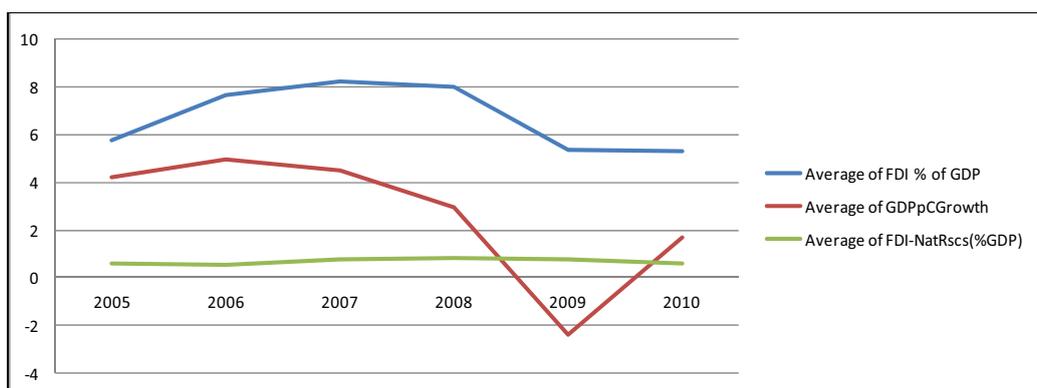
Source: World Bank Data

This paper seeks to provide empirical evidence on the existence of Resource Curse symptoms on the current economic dynamics at the Latin American level. As mentioned before, the large inflows of foreign direct investment targeting Latin American resource-based industries might play a key role on these countries economic development. The existence of a Resource Curse condition will determine whether these capital inflows will positively impact the economic growth of the recipient economies; or will have a negative impact on the economic development efforts that are being undertaken.

On the other hand, both at the Global and Latin American level, we can observe a positive correlation between average GDP per Capita growth rates and average FDI inflows as a percentage of GDP. However, this does not clarify, if FDI promotes economic growth, vice versa or if there is mutual causality between both of them.

Fig. 4 show FDI inflows as percentage of GDP in general, regardless of the specific sectors where such capital inflows are targeted. This paper also revises FDI inflows by sector, specifying those going towards natural resources industries. The following graph compares the interaction between GDP per capita growth rates, total FDI inflows and FDI inflows towards natural resources industries, both as a percentage of GDP.

Fig 5 Relationship between FDI Inflows and Economic Growth in Latin America



Source: World Bank Data

The graph clearly shows that special attention to the impact of FDI towards natural resources industries, since it does not have the same impact on economic growth as FDI in general. Although this paper does not intend to draw conclusions on the country level, such a detailed study is highly relevant for domestic policy formulation.

Since the preliminary analysis of data does not allow any decisive conclusion, this paper will further analyze the impact of FDI flows on economic growth, both at the general and natural sector level.

Table 2 Regressions Results of GDP per Capita Growth Rates and FDI % GDP (BY YEAR).

	Group I Latin America 2005-2010 REG1B	Group II Latin America 1996-2010 REG2B
Constant	3.3161 (2.0025)	1.3772 (1.2643)
GDP per Capita	-0.0004 (-2.4449)	-0.0003 (-2.7138)
Total Natural Rents %GDP	0.1278 (3.3342)	0.1483 (5.6457)
Control of Corruption	0.0213 (0.9137)	0.0287 (2.0601)
Gross Capital Formation	-0.0810 (-1.3256)	0.0035 (0.0860)
Inflation	0.0415 (0.5895)	-0.0917 (-3.8336)
FDI % GDP	0.2199*** (2.5123)	0.1316** (2.2238)
No. of Observations	142	289

Note: t values in parenthesis, significance level *p<0.05, **p<0.01, ***p<0.001

Table 3 Regressions Results of GDP per Capita Growth Rates and FDI % GDP

	Group V Latin America 5 THREE-YEARS PERIODS 1996-98; 2002-04; 2005-07; 2008-10 REG5B	Group VII Latin America 3 FIVE-YEARS PERIODS 1996-00; 2001-05; 2006-10 REG7B
Constant	1.2503 (1.0982)	1.2704 (1.1509)
Total Natural Rents %GDP	1.2593 (4.5182)	0.0979 (3.5453)
Control of Corruption	0.0375 (2.5827)	0.0407 (2.8200)
Gross Capital Formation	0.0006 (0.0139)	0.0143 (0.3194)
Inflation	-0.0808 (-2.3754)	-0.0890 (-2.5465)
Initial GDP per Capita	-0.0004 (-3.9389)	-0.0003 (-2.6281)
FDI % GDP	0.1248** (1.7576)	-0.0023 (-0.0299)
No. of Observations	129	78

Note: t values in parenthesis, significance level *p<0.05, **p<0.01, ***p<0.001

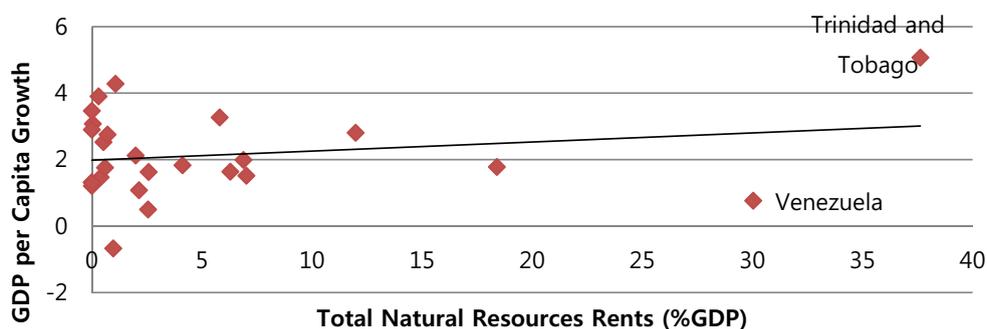
5.2 Evidence on the Resource Curse in Latin America 1996-2010

The empirical evidence gathered in this paper does not confirm such expectations. Both for the World, in general, and Latin America, in particular; I have found a positive relation between the so called Resource Abundance, which in this case was measured using the World Bank Indicator of Total Natural Resources Rent as percentage of GDP, and the Average Growth Rate of GDP per Capita.

Based on the concept of Resource Curse, this paper gathered data to show the relationship between average annual per capita growth rates of GDP from 1996-2010 and the average share of natural resources rents as a percentage of GDP.

The following graphs show the correlation between economic growth and the share of natural resources rents as percentage of GDP. I plot this data for 26 selected Latin American countries for the period 1996-2010. Common knowledge on the Resource Curse suggests that the average share of total natural rents has a negative correlation with average GDP per capita growth rates. This does not seem to be the case for Latin America in the period 1995-2010, since the graph shows a positive tendency. Although this graph has been extensively used in previous literature, this paper proved that such results are highly sensitive to outliers (marked in this case as **Venezuela and Trinidad and Tobago**). Further tests must be conducted to obtain a conclusive result.

Fig 6 Relationship between Natural Resource Abundance and Economic Growth in Latin America



Source: World Bank Data

Table 4 Regressions Results of GDP per Capita Growth Rates and Total Natural Resources Rents (BY YEAR).

	Group I Latin America 2005-2010 REG1A	Group II Latin America 1996-2010 REG2A
Constant	0.9711 (0.5463)	-0.1853
GDP per Capita	-0.0003 (-2.0621)	-0.0002 (-2.3290)
Trade % GDP	0.0154 (1.2328)	0.0158 (2.0865)
Total Natural Rents %GDP	0.1124*** (2.9299)	0.1430*** (5.4904)
Control of Corruption	0.0413 (1.8432)	0.0371 (2.7732)
Gross Capital Formation	-0.0225 (-0.4027)	0.0233 (0.6261)
Inflation	0.0333 (0.4637)	-0.0887 (-3.6823)
No. of Observations	142	289

Note: t values in parenthesis, significance level *p<0.05, **p<0.01, ***p<0.001

Table 5 Regressions Results of GDP per Capita Growth Rates and Total Natural Resources Rents

	Group V Latin America 5 THREE-YEARS PERIODS 1996-98; 2002-04; 2005-07; 2008-10 REG5A	Group VII Latin America 3 FIVE-YEARS PERIODS 1996-00; 2001-05; 2006-10 REG7A
Constant	-0.0715 (-0.0662)	1.0081 (1.0009)
Trade % GDP	0.0127 (1.5942)	0.0075 (1.0142)
Total Natural Rents %GDP	0.1267*** (4.4258)	0.0978*** (3.5747)
Control of Corruption	0.0462 (3.4000)	0.0399 (2.9925)
Gross Capital Formation	0.0218 (0.5553)	-0.0022 (-0.0580)
Inflation	-0.0778 (-2.2508)	-0.0795 (-2.2753)
Initial GDP	-0.0004 (-3.7052)	-0.0003 (-2.6371)
No. of Observations	129	78

Note: t values in parenthesis, significance level *p<0.05, **p<0.01, ***p<0.001

The first set of regressions was tested on a yearly basis, with the sole usage of the results being a method of comparison. However, they neglect the fact that GDP per Capita Growth Rates is a very volatile variable and the model must include some control variables, such as Inflation and Initial GDP per Capita.

The second set of regressions was tested for a group of 26 Latin American countries, in the period from 1996-2010. All the data was averaged into five different periods of three years each. From these results we can derive that the Natural Resources Abundance Variable (measured by the total natural resources rent share of GDP) proved to have a positive and significant relationship with GDP per Capita growth rates; which contradicts what is expected

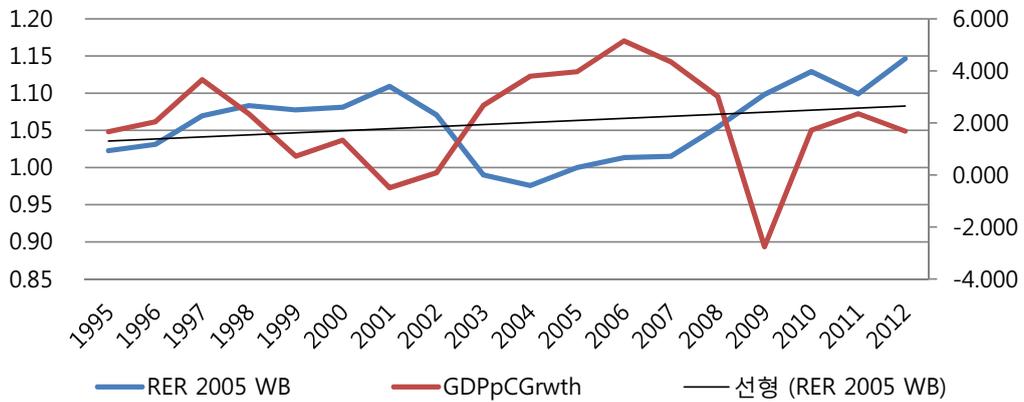
from Resource Curse theory. Moreover, the same regression proved that the Quality of Institutions variable also has a positive relationship with GDP per Capita growth rates; this confirms the results from previous literature.

The third set of regressions was tested to benchmark the previous results with a different period arrangement. In this case, the same data available for 15 years was divided and averaged into three different periods of five years each. In this case, the regression corresponding to the Latin American region (REG7) threw similar results where both resource abundance and quality of institutions proved to have a positive relationship with GDP per capita growth rates.

At this point, special attention should be given to the fact that these results are contradicting traditional knowledge in terms of natural resources abundance, as a determinant for lower GDP per capita growth rates.

5.3 Further Implications

Fig 7 Role of Real Exchange Rates



Source: World Bank Data

As explained by theory, the increased revenue from commodities exports is likely to lead an appreciation in the real exchange rates, unless some measures are undertaken to increase the overall saving rate in the economy. As a result, such an appreciation will shrink the country's competitiveness along with those economic sectors that are not benefiting from the boom. All in all, the abundant revenues flows from commodities don't necessarily have to be harmful if countries learn how to manage them.

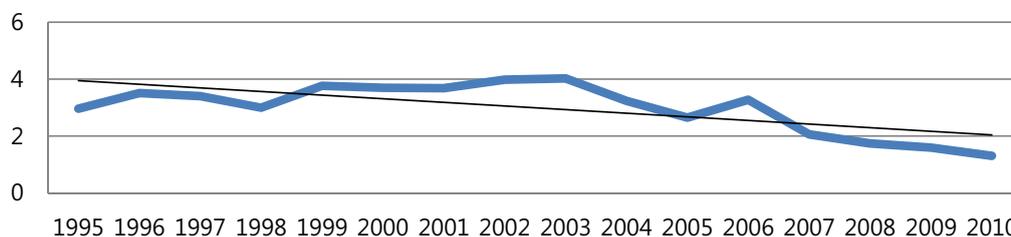
As Figure 7 shows, in the period 1995-2010 Latin America has experienced a steady process of real exchange rate depreciation, meaning that foreign currency becomes increasingly stronger against local currencies.

Nonetheless, the region has also experienced some brief episodes of real exchange rate

appreciation, particularly in the period 2001-2003 and 2010-2011. Theory suggests that such phenomena should have a negative impact in the regions global competitiveness, and hence, hinder the economic performance.

Although this may be true in most cases, Latin America shows positive rates of economic growth, even during those periods of currency appreciation. This accounts, for example, for the reduction of the region's average public debt. As figure 8 shows, the region's Public and Publicly Guaranteed Debt Service³ has progressively reduced during this period 1995-2010. Most scholars indeed conclude that the repayment of public debt is one the smartest ways to use supernormal profits.

Fig 8 Latin America – Public and publicly guaranteed debt service



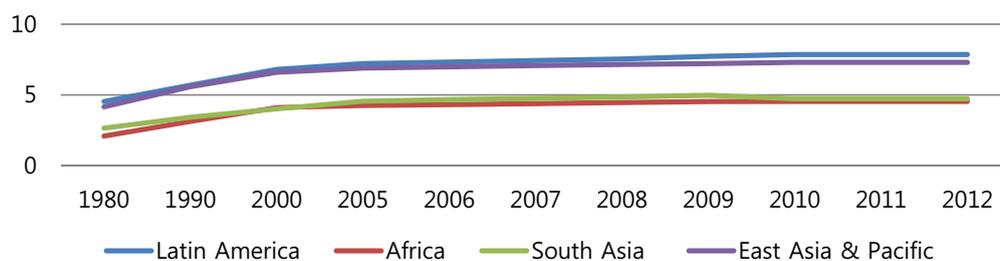
Source: World Bank Data

Gylfason (2011) stressed that education stands out as one of the four main channels of transmission from abundant natural resources to stunted economic development. Furthermore, Cabrales and Haulk (2011) demonstrated that human capital, measured by the average

³ Is the sum of the principal repayments and interest actually paid in foreign currency, goods, or services on long-term obligations of public debtors and long-term private obligations guaranteed by a public entity.

number of years of schooling, plays a decisive role in linking natural resources abundance with poor economic performance. Consequently, the well known resource curse takes place in the presence of low human capital. In short, governmental efforts to improve education services must be embedded in a global endeavor to improve public goods in general, which will come after an effective communication between the public and private sphere.

Fig 9 Mean years of schooling by Region

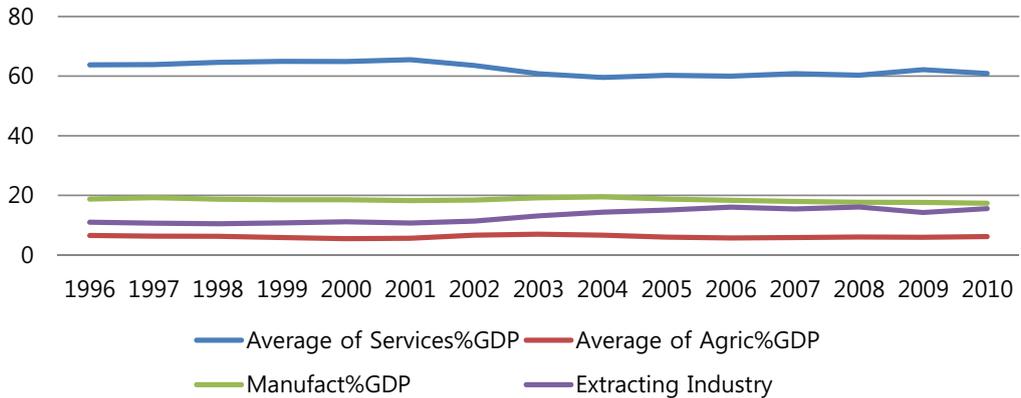


Source: Barro and Lee 2011 from UNESCO Institute for Statistics.

With attention to these theoretical considerations, figure 9 shows that compared to other geographic regions, Latin America has attained significant progress in terms of improving the level of education among its adult population. Such a strategy was praised by Marshal (1920) as an effective path towards rapid increase of material wealth.⁴

⁴ Average number of years of education received by people ages 25 and older, converted from education attainment levels using official durations of each level

Fig 10 GDP omposition in Latin America



Source: World Bank Data

The manufacturing and services sector are usually characterized by dynamic economies of scale and externalities; while the natural resources based industries exhibit what is known as “enclave economies”. Diversification will not be pursued since all the efforts focus on the abundant rent emerging from high commodities prices. Lower levels of diversification eventually lead to less connectivity, less positive externalities between and among the different economic sectors. Generally speaking, the manufacturing sector produces more learning and spillover effects.

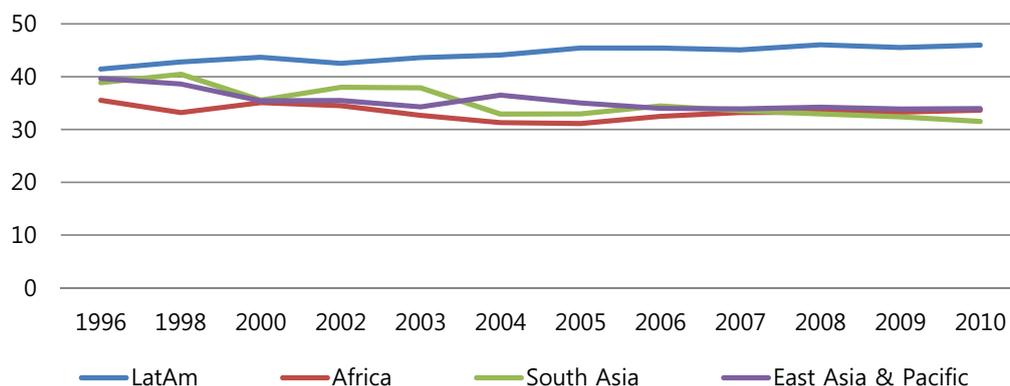
One of the key benefits from having a diversified productive structure is the protection from sudden shocks derived from the volatility of commodities prices. As noted before, this perspective is not limited to a one dimensional strategy to manage the large revenue from natural resources exploitation. On the contrary, this still represents one of the region’s most daunting challenges.

According to Figure 10, Latin America stands out as the only region where the manufacturing has consolidated as the second main GDP component. By contrast, South Asia and Sub-Saharan Africa are respectively relying on agriculture and extracting industries as their second most important sources of production (Please refer to Figures 12 and 13 on the Appendix).

Lastly, as demonstrated by Ploeg (2011), Sala-i-Martin & Subramanian (2003), and Mehlun (2006), institutions play a determinant role for a country’s ability to enjoy the fruits of their natural wealth.

Figure 12 shows us that by 1996, most of the developing world converged on a similar ranking of institutional quality. Nonetheless, whereas other regions ranking have worsened., Latin America stands out as the only region that steadily and significantly improved its position in this ranking.

Fig 11 Quality of Institutions by Geographic Region



Source: World Bank Data

VI. Conclusions

We find that the Foreign Direct Investment flows (measured as their share of the recipient countries' GDP) have a positive and significant relationship with the countries' economic development (measured as the Income per Capita Growth Rates).

This refers to inflows of FDI without specific regard of the destination sector. However it serves as a preliminary symptom on the country's capability to absorb the expected spillovers that arise from the economic exchange. For the most part, diversification still appears as one the region's most daunting challenges. Succeeding in this endeavor will deepen the regional protection from the volatility in prices from commodities exports.

Furthermore, this paper empirically tested the existence of evidence on the Resource Curse for Latin America in the period 1995-2010. Large endowments of natural resources (measured as total natural rents) also proved to have a positive and significant relationship with the economic performance of the countries in question. This result contradicts the broadly accepted knowledge about the generalized prevalence of the Resource Curse theory, according to which, the presence of large endowments of natural resources will have a negative relation with the country's rate of economic growth. Hence, countries with abundant natural resources should display slower economic development.

Moreover, this paper has contributed to prove that the sole presence of natural resources is not enough explanation for the country's economic success or failure. In reality any given outcome depends on the interaction of at least a number of key factors who must be analyzed

in detail in order to determine the country's capability to benefit from its natural wealth.

In addition, this paper provides evidence consistent with relevant theory that stresses the role of institutions, measured in this paper as the corruption control. The empirical evidence showed that the quality of a given country's institutions has a positive and significant relationship with the country's rate of economic growth.

These results were then analyzed in the light of relevant theories. Four main elements were identified as key actors to determine the existence of the Resource Curse: education, quality of institutions, level of diversification measured as the development of the manufacturing sector, and the soundness of monetary policy expressed as the management of real exchange rates.

For the Latin American case, natural resource abundance has not been a curse since the region exhibits positive features in terms of its capacity to exploit and benefit from such resources.

Firstly, although economic diversification remains as one of the region's key challenges, it has attained sustained growth of the manufacturing and services sector; reducing dependence on agriculture and extractive industries. Secondly, this has been accompanied by a sustained improvement on institutional quality, while in other regions the quality of institutions has decayed. Thirdly, reliance on primary exports has not led to an appreciation of the exchange rates that would weaken competitiveness. Some brief episodes of appreciation have occurred but they have not been accompanied by economic stagnation. Lastly, the region has

accomplished great achievements in terms of education of its population, which remains as a serious challenge of other regions.

Given these points, it can be concluded that the Resource Curse is not an inevitable fate for resource abundant countries. In reality, it is a latent risk that can only be avoided through the skillful implementation of various policies that protect the economy from the threat of unmanaged natural revenues. Nonetheless, those necessary policies are not easy to arrange and are set specially at risk by the sole presence of abundant natural endowment.

VII. References

- Aldave, Ivan and Cecilia Garcia-Penalosa. (2009). *Education, Corruption and the natural Resource Curse*. Banco Central de Reserva del Peru Working Paper No. 2009-005 April.
- AUTY, Richard. (1993). *Sustaining development in mineral economies: the Resource Curse thesis*. London: Routledge.
- BERG Andrew and MIAO Yanliang. (2010). *The real exchange rate and growth revisited: the Washington Consensus strikes back?*. International Monetary Fund Working Paper WP/10/58, March.
- CABRALES Antonio and HAUK Esther. (2011). *Political institutions and the curse of natural resources*. Center for Economic Policy Research at VoxEU.org.
- CORDEN Max and NEARY Peter. (1982). *Booming sector and de-industrialization in a small open economy*. The Economic Journal Vol. 92, No. 368, page 825-848, December.
- COUTINHO Leonor. (2011). *The Resource Curse and fiscal policy*. Cyprus Economic Policy Review, Vol. 5, No.1, pp.43-70 (1450-4561).
- DAVIS Jeffrey, OSSOWSKI Rolando, DANIEL James and BARNETT Steven. (2001). *Stabilization and Saving Funds for Nonrenewable Resources – Experience and Fiscal Policy Implications*. International Monetary Fund.
- DE LA TORRE, Augusto. (2011). *Evitando la maldición de los recursos naturales*. Boletín Informativo Techint 336, Septiembre-Diciembre.

- Economic Commission for Latin America and the Caribbean. (2012). *Foreign direct investment in Latin America and the Caribbean 2011*. Santiago de Chile.
- Economic Commission for Latin America and the Caribbean. (2013). *Foreign direct investment in Latin America and the Caribbean 2012 – Briefing paper*.
- GELB Alan. (1988). *Oil windfalls” Blessing or curse*. Oxford University Press.
- GYLFASON Thorvaldur. (2001). *Natural resources, education, and economic development*. European Economic Review 45, p.847-859.
- IIMI, Atushi. (2006). *Did Botswana escape from the Resource Curse?*. International Monetary Fund Working Paper WP/06/138, June.
- KORHONEN Iikka. (2004). *Does democracy cure a Resource Curse?* Discussion Papers No. 18. Bank of Finland – BOFIT Institute for Economies in Transition.
- LAMA Ruy and MEDINA Juan Pablo. (2012). *Is exchange rate stabilization an appropriate cure for Dutch Disease?*. International Monetary Fund, March.
- LEDERMAN Daniel and MALONEY William. (2007). *Natural resources: neither curse nor destiny*. Stanford University Press, 2006.10.30-p.369. Co-publication with the World Bank.
- MAGUD Nicolas and SOSA Sebastian. (2011). *When and why worry about real exchange rate appreciation? The missing link between Dutch Disease and growth*. Center for Economic Policy Research at VoxEU.org, March.
- MARSHALL Alfred. (1920). *Principles of Economics*, 8TH Edition. Macmillan, London.

- MEHLUM Halvor, MOENE Karl and TORVIK Ragnar. (2006). *Institutions and the Resource Curse*. The Economic Journal, 116 (January). Royal Economic Society.
- MONK Ashby. (2010). *Avoiding the Resource Curse – Sovereign wealth fund (SWF) “role models”*. Oxford Analytica.
- MORAN Theodore, GRAHAM Edward and BLOMSTROM Magnus. (2005). *Does foreign direct investment promote development? New methods, outcomes and policy approaches*. Washington D.C., Institute for International Economics.
- MORAN Theodore. (2006). *Harnessing foreign direct investment for development: policies for developed and developing countries*. Washington D.C., Center for Global Development.
- MORAN Theodore. (1986). *Investing in development: new roles for private capital?* Washington D.C., Overseas Development Council.
- Organization for Economic Cooperation and Development. (2008). *OECD Benchmark Definition of Foreign Direct Investment*. Paris, OECD Publishing.
- PHILIPPOT Louis-Marie. (2010). *Are natural resources a curse for human capital accumulation?* Centre d’Etudes et de Recherches sur le Developpement International (CERDI-CNRS)), Pôle de Recherche et d’Enseignement Supérieur de Clermont Université, Université d’Auvergne.
- PLOEG, Frederick van der. (2011). *Natural resources: curse or blessing?*. Journal of Economic Literature 49.2, 366-420.
- RODRIK, Dani. (2008). *The real exchange rate and economic growth*. John F. Kennedy School of Government – Harvard University. Cambridge, MA.

- SACHS Jeffrey and WARNER Andrew. (1995). *Natural resource abundance and economic growth*. Working Paper 5398. National Bureau of Economic Research. Cambridge, MA.
- SACHS Jeffrey and WARNER Andrew. (1999). *The big push, natural resource booms and growth*. Journal of Development Economics, Elsevier, vol. 59(1,) pages 43-76, June.
- SALA-I-MARTIN Xavier and SUBRAMANIAN Arvind. (2003). *Addressing the natural Resource Curse: an illustration from Nigeria*. Columbia University and the International Monetary Fund respectively.
- SAMAD Abdus. (2011). *Does FDI cause economic growth? Evidence from South-East Asia and Latin America*. International Journal of Economics, 5(2).
- SANGLIMSUWAN Karnjana. (2010). *Natural resources: are they really a curse? Evidence from Asia-Pacific countries*. Bangkok University.
- TREVIÑO Juan Pedro. (2011). *Oil-price boom and real exchange rate appreciation: is there Dutch Disease in the CEMAC?*. International Monetary Fund Working Paper WP/11/268, November.
- United Nations Educational, Scientific and Cultural Organization UNESCO. (2013). *Education for All Global Monitoring Report – Policy Paper 08*.
- WENAR Leif. (2008). *Property Rights and the Resource Curse*. *Philosophy and Public Affairs* 36 (1): 2-32.

VIII. Appendix

■ United Nations Educational, Scientific and Cultural Organization UNESCO. (2013). Education for All Global Monitoring Report – Policy Paper 08.

Six internationally agreed education goals aim to meet the learning needs of all children, youth and adults by 2015.

Goal 1: Expanding and improving comprehensive early childhood care and education, especially for the most vulnerable and disadvantaged children.

Goal 2: Ensuring that by 2015 all children, particularly girls, children in difficult circumstances and those belonging to ethnic minorities, have access to, and complete, free and compulsory primary education of good quality.

Goal 3: Ensuring that the learning needs of all young people and adults are met through equitable access to appropriate learning and life-skills programs.

Goal 4: Achieving a 50 per cent improvement in levels of adult literacy by 2015, especially for women, and equitable access to basic and continuing education for all adults.

Goal 5: Eliminating gender disparities in primary and secondary education by 2005, and achieving gender equality in education by 2015, with a focus on ensuring girls' full and equal access to and achievement in basic education of good quality.

Goal 6: Improving all aspects of the quality of education and ensuring excellence of all so that recognized and measurable learning outcomes are achieved by all, especially in literacy, numeracy and essential life skills.

■ 8.2 Regression Results

Y = GDP per Capita Growth Rates

X₁ = Initial GDP per Capita

X₂ = Total Natural Rents

X₃ = Control of Corruption

X₄ = Gross Capital Formation

X₅ = Inflation

X₆ = FDI % GDP

Latin American Countries 2005-2010 (REG1B)

Dependent Variable: GDPPCGROWTH

Method: Panel Least Squares

Date: 07/06/13 Time: 16:15

Sample: 2005 2010

Periods included: 6

Cross-sections included: 25

Total panel (unbalanced) observations: 142

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GDPPC	-0.000356	0.000145	-2.444867	0.0158
NATRSCSRNTS_GDP	0.127815	0.038335	3.334194	0.0011
CONTROLCORRUPT ION	0.021288	0.023298	0.913728	0.3625
GROSSCAPFORM_G DP	-0.081026	0.061126	-1.325556	0.1872
INFLATION	0.041482	0.070370	0.589487	0.5565
FDI_GDP	0.219975	0.087559	2.512309	0.0132
C	3.316142	1.655985	2.002520	0.0472
R-squared	0.112708	Mean dependent var	2.864265	
Adjusted R-squared	0.073273	S.D. dependent var	4.404775	
S.E. of regression	4.240330	Akaike info criterion	5.775198	
Sum squared resid	2427.353	Schwarz criterion	5.920908	
Log likelihood	-403.0391	Hannan-Quinn criter.	5.834409	
F-statistic	2.858067	Durbin-Watson stat	1.494432	
Prob(F-statistic)	0.011857			

Latin American Countries 1996-2010 (REG2B)

Dependent Variable: GDPPCGROWTH

Method: Panel Least Squares

Date: 07/06/13 Time: 16:23

Sample: 1996 2010

Periods included: 12

Cross-sections included: 25

Total panel (unbalanced) observations: 289

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GDPPC	-0.000267	9.84E-05	-2.713845	0.0071
NATRCSRNTS_G DP	0.148326	0.026272	5.645700	0.0000
CONTROLCORRUP TION	0.028742	0.013952	2.060050	0.0403
GROSSCAPFORM_ GDP	0.003482	0.040501	0.085968	0.9316
INFLATION	-0.091748	0.023933	-3.833614	0.0002
FDI_GDP C	0.131584	0.059171	2.223797	0.0270
	1.377165	1.089271	1.264300	0.2072
R-squared	0.139342	Mean dependent var	2.448045	
Adjusted R-squared	0.121030	S.D. dependent var	4.142415	
S.E. of regression	3.883655	Akaike info criterion	5.575354	
Sum squared resid	4253.344	Schwarz criterion	5.664160	
Log likelihood	-798.6387	Hannan-Quinn criter.	5.610938	
F-statistic	7.609357	Durbin-Watson stat	1.556899	
Prob(F-statistic)	0.000000			

Latin American Countries 1996-2010 - Five 3-years periods (REG5B)

Dependent Variable: GDPPCGROWTH

Method: Panel Least Squares

Date: 07/06/13 Time: 16:26

Sample: 1 5

Periods included: 5

Cross-sections included: 26

Total panel (unbalanced) observations: 129

Variable	Coefficient	Std. Error	t-Statistic	Prob.
<hr/>				
NATRSCSRNTS_G				
DP	0.129344	0.028628	4.518181	0.0000
CNTRL_CORRUPT	0.037511	0.014524	2.582735	0.0110
GROSSCPFORM_				
GDP	0.000617	0.044532	0.013850	0.9890
INFLATION	-0.080774	0.034004	-2.375436	0.0191
INITIALGDPPC	-0.000389	9.88E-05	-3.938915	0.0001
FDI_GDP	0.124825	0.071020	1.757611	0.0813
C	1.250309	1.138508	1.098200	0.2743
<hr/>				
R-squared	0.206646	Mean dependent var	2.147285	
Adjusted R-squared	0.167629	S.D. dependent var	2.865459	
S.E. of regression	2.614284	Akaike info criterion	4.812593	
Sum squared resid	833.8066	Schwarz criterion	4.967777	
Log likelihood	-303.4123	Hannan-Quinn criter.	4.875648	
F-statistic	5.296257	Durbin-Watson stat	1.892312	
Prob(F-statistic)	0.000070			

Latin American Countries 1996-2010 - Three 5-years periods (REG7B)

Dependent Variable: GDPPCGROWTH

Method: Panel Least Squares

Date: 07/06/13 Time: 16:27

Sample: 1 3

Periods included: 3

Cross-sections included: 26

Total panel (balanced) observations: 78

Variable	Coefficient	Std. Error	t-Statistic	Prob.
TOTAL_NATURAL_RESOU				
RCES_	0.097872	0.027606	3.545333	0.0007
CONTROLCORRUPTION	0.040665	0.014420	2.820012	0.0062
GROSS_CAPITAL_FORMA				
TION_	0.014300	0.044773	0.319400	0.7504
INFLATION	-0.089014	0.034956	-2.546473	0.0131
INITIALGDPPC	-0.000293	0.000111	-2.628112	0.0105
FDI__OF_GDP	-0.002289	0.076431	-0.029946	0.9762
C	1.270376	1.103783	1.150929	0.2536
R-squared	0.230383	Mean dependent var	2.187661	
Adjusted R-squared	0.165345	S.D. dependent var	2.055325	
S.E. of regression	1.877734	Akaike info criterion	4.183467	
Sum squared resid	250.3379	Schwarz criterion	4.394966	
Log likelihood	-156.1552	Hannan-Quinn criter.	4.268134	
F-statistic	3.542278	Durbin-Watson stat	1.578377	
Prob(F-statistic)	0.003998			

Y = GDP per Capita Growth Rates

X₁ = Initial GDP per Capita

X₂ = Trade % GDP

X₃ = Total Natural Rents

X₄ = Control of Corruption

X₅ = Gross Capital Formation

X₆ = Inflation

Latin American Countries 2005-2010 (REG1A)

Dependent Variable: GDPPCGROWTH

Method: Panel Least Squares

Date: 06/28/13 Time: 21:43

Sample: 2005 2010

Periods included: 6

Cross-sections included: 25

Total panel (unbalanced) observations: 142

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GDPPC	-0.000301	0.000146	-2.062063	0.0411
TRADE_GDP	0.015387	0.012481	1.232821	0.2198
NATRSCSRNTS_G DP	0.112420	0.038370	2.929864	0.0040
CONTROLCORRUP TION	0.041328	0.022421	1.843233	0.0675
GROSSCAPFORM_ GDP	-0.022532	0.055943	-0.402777	0.6877
INFLATION C	0.033284	0.071781	0.463686	0.6436
	0.971143	1.777586	0.546327	0.5857
R-squared	0.081564	Mean dependent var	2.864265	
Adjusted R-squared	0.040745	S.D. dependent var	4.404775	
S.E. of regression	4.314106	Akaike info criterion	5.809696	
Sum squared resid	2512.553	Schwarz criterion	5.955406	
Log likelihood	-405.4884	Hannan-Quinn criter.	5.868907	
F-statistic	1.998181	Durbin-Watson stat	1.483214	
Prob(F-statistic)	0.070138			

Latin American Countries 1996-2010 (REG2A)

Dependent Variable: GDPPCGROWTH

Method: Panel Least Squares

Date: 06/28/13 Time: 22:10

Sample: 1996 2010

Periods included: 12

Cross-sections included: 25

Total panel (unbalanced) observations: 289

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GDPPC	-0.000224	9.63E-05	-2.329001	0.0206
TRADE_GDP	0.015818	0.007581	2.086460	0.0378
NATRCSRNTS_G DP	0.142951	0.026036	5.490416	0.0000
CONTROLCORRUP TION	0.037152	0.013397	2.773202	0.0059
GROSSCAPFORM_ GDP	0.023331	0.037266	0.626077	0.5318
INFLATION C	-0.088655	0.024076	-3.682325	0.0003
	-0.185337	1.075412	-0.172341	0.8633
R-squared	0.137562	Mean dependent var	2.448045	
Adjusted R-squared	0.119213	S.D. dependent var	4.142415	
S.E. of regression	3.887668	Akaike info criterion	5.577419	
Sum squared resid	4262.137	Schwarz criterion	5.666225	
Log likelihood	-798.9371	Hannan-Quinn criter.	5.613003	
F-statistic	7.496700	Durbin-Watson stat	1.560196	
Prob(F-statistic)	0.000000			

Latin American Countries 1996-2010 - Five 3-years periods (REG5A)

Dependent Variable: GDPPCGROWTH

Method: Panel Least Squares

Date: 06/28/13 Time: 23:22

Sample: 1 5

Periods included: 5

Cross-sections included: 26

Total panel (unbalanced) observations: 129

Variable	Coefficient	Std. Error	t-Statistic	Prob.
TRADE_GDP	0.012720	0.007979	1.594249	0.1135
NATRCSRNTS_G				
DP	0.126706	0.028629	4.425835	0.0000
CNTRL_CORRUPT	0.046181	0.013582	3.400042	0.0009
GROSSCPFORM_				
GDP	0.021834	0.039316	0.555351	0.5797
INFLATION	-0.077800	0.034566	-2.250767	0.0262
INITIALGDPPC	-0.000363	9.79E-05	-3.705152	0.0003
C	-0.071477	1.079298	-0.066225	0.9473
R-squared	0.203158	Mean dependent var	2.147285	
Adjusted R-squared	0.163969	S.D. dependent var	2.865459	
S.E. of regression	2.620025	Akaike info criterion	4.816980	
Sum squared resid	837.4726	Schwarz criterion	4.972164	
Log likelihood	-303.6952	Hannan-Quinn criter.	4.880035	
F-statistic	5.184066	Durbin-Watson stat	1.950756	
Prob(F-statistic)	0.000088			

Latin American Countries 1996-2010 - Three 5-years periods (REG7A)

Dependent Variable: GDPPCGROWTH

Method: Panel Least Squares

Date: 06/28/13 Time: 23:43

Sample: 1 3

Periods included: 3

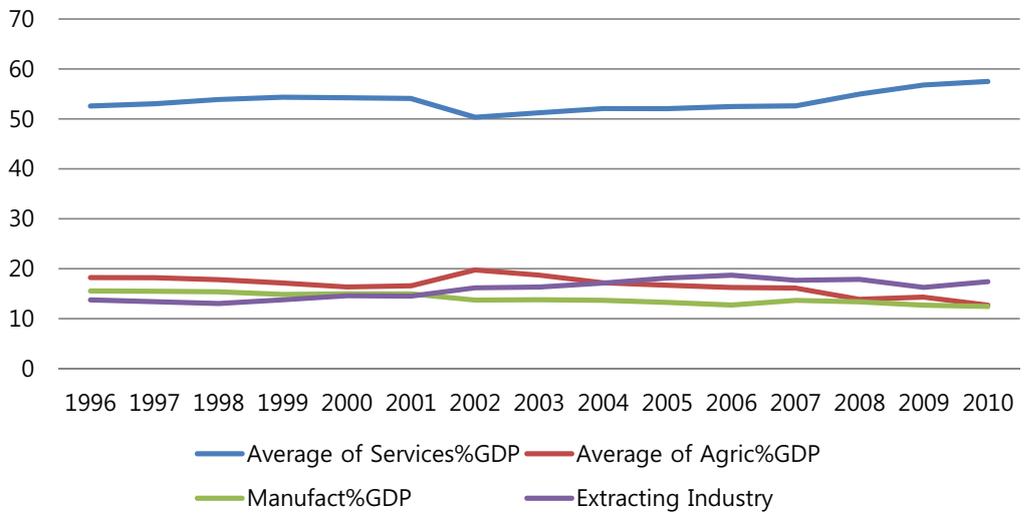
Cross-sections included: 26

Total panel (balanced) observations: 78

Variable	Coefficient	Std. Error	t-Statistic	Prob.
OPENNESS_TRADE__OF _GDP	0.007538	0.007432	1.014168	0.3139
TOTAL_NATURAL_RESOU RCES_	0.097800	0.027359	3.574739	0.0006
CONTROLCORRUPTION	0.039858	0.013319	2.992542	0.0038
GROSS_CAPITAL_FORMA TION_	-0.002176	0.037490	-0.058047	0.9539
INFLATION	-0.079468	0.034927	-2.275287	0.0259
INITIALGDPPC	-0.000287	0.000109	-2.637147	0.0103
C	1.008064	1.007107	1.000950	0.3203
R-squared	0.241363	Mean dependent var	2.187661	
Adjusted R-squared	0.177253	S.D. dependent var	2.055325	
S.E. of regression	1.864291	Akaike info criterion	4.169097	
Sum squared resid	246.7663	Schwarz criterion	4.380597	
Log likelihood	-155.5948	Hannan-Quinn criter.	4.253764	
F-statistic	3.764818	Durbin-Watson stat	1.617039	
Prob(F-statistic)	0.002607			

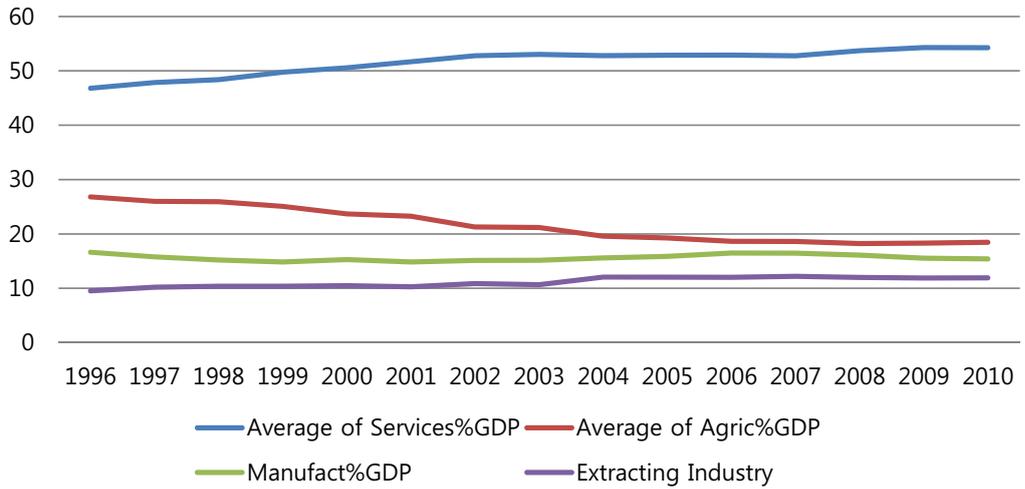
■ 8.3 Comparative graphs for Interpretation of Results (Section 5.3)

Fig 12 Sub-Saharan Africa GDP Composition



Source: World Bank Data

Fig 13 South Asia GDP Composition



Source: World Bank Data

Acknowledgment

First and foremost, I want to thank my thesis advisor, Professor Kim, Chong-Sup for the continuous support during the process of writing this research paper. Without the skills obtained during his course on Research Methods and his patient guidance during my research, I wouldn't have been able to successfully complete this paper.

I would also like to express my gratitude to the GSIS Faculty Community. In particular, the rest of my thesis committee: Professor Eun, Ki-Soo and Professor Ahn, Dukgeun who were crucial to the completion of my research and greatly contributed with insightful comments and words of advice.

Additionally, special thanks to Mrs. Kim, Heeyeon, PhD student from GSIS, for sharing with me her experience, knowledge, and constructive comments that were also determinant for the success of this research. I am deeply thankful for all her support.

My sincere gratitude goes to my classmates from the MIDP 5th Batch for all the endless discussions about our papers. I am deeply grateful to my colleagues for their kind support throughout this process and certainly appreciate their diverse contributions. Particularly, I received generous support from my colleagues Jumanne Said Gomera and David Rodriguez, who shared with me their skills working with raw quantitative data.

Last but not least, I am most grateful to my family for their constant support during this time that I had to devote myself to school work. Without their efforts this paper and Master's Degree would not have been possible.