

Inter-American Development Bank (IDB)

**Trinidad & Tobago:  
Economic Growth in a Dual Economy**

**An IDB Research Project**

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## **Abstract**

Trinidad and Tobago is currently enjoying a period of unprecedented prosperity due to high energy prices - economic growth has averaged 7.7 percent per year since 1994. Trinidad and Tobago has the features of a 'dual economy' and this 'duality' feature raises questions regarding the sustainability of the current growth rate and the possible present and future binding constraints to growth. We apply the Growth Diagnostic Methodology to try to identify the growth constraints and establish a ranking of priority, particularly for the non-energy sector, which is key for the country's diversification efforts. To complement the macro analysis, a survey was administered to 500 local firms to determine the perceived constraints to growth from the business perspective. Our results indicate that while fiscal policy is moving in the right direction, and many of the constraints to growth have already been eliminated, the underdevelopment of the non-energy tradable sector could seriously hamper Trinidad and Tobago's future economic growth. The Open Forest analysis suggests that the export product space is not very well diversified and the prospects for diversification appear grim. The micro data reveals that the main concerns of the business owners include macro risk, low profitability, lack of complementary inputs such as poor infrastructure, and rising crime.

## 1. Introduction

Trinidad & Tobago is a middle income<sup>1</sup>, energy-rich country with relatively strong institutions and political stability. It is the most industrialized economy in the English-speaking Caribbean, with a population of 1.3 million and a territory of 5,128 km<sup>2</sup>. It is part of the Caribbean Community (CARICOM), a regional co-operative Trade and Common Market agreement which became operational in August 1973. Its energy sector accounts for more than 40% of GDP and 80% of exports, but only 5% of employment. It is the most important world provider of ammonia and methanol, as well as the largest supplier of Liquefied Natural Gas to the USA. The country is currently enjoying a period of unprecedented prosperity because of high energy prices: economic growth has averaged 7.7 percent per year since 1994 and socioeconomic indicators are improving.

Trinidad & Tobago has the features of a 'dual economy'. The energy sector is a source of self-financed investment making it independent of national savings and fiscal revenues. However, the benefits of large investments in the sector do not easily spill over to the rest of the economy. Beyond the labor intensive plant construction phase, the booming energy sector is not creating a comparably large number of jobs. This 'duality' results in a wealthy sector, with excellent growth prospects, with the rest of the economy lagging behind.

Many of the economic problems and constraints to growth that the country has faced historically are common to other oil-and-gas-rich countries, problems such as elevated macro volatility and underdevelopment of the non energy private sector. In addition, the country in the past has had a highly pro-cyclical fiscal policy, which exacerbated the macro volatility and underinvestment in infrastructure.

An important puzzle to be solved is why resources from oil and gas sector do not flow to the non-oil tradable sectors. These two sectors are not independent: the abundance of natural resources and the development of the oil and gas sector might be the most important cause for the underdevelopment of other sectors, a phenomenon called 'Dutch Disease'. However, the problem of countries abundant in natural resources is more general than the Dutch Disease problem. For instance, the fact that most of the government revenues comes from oil and gas, and not from general taxes, might affect fiscal responsibility, public expenditure might be more inefficient and institutions might be weaker. We will refer to any growth-related problem associated with natural resource abundance as the 'Natural Resource Curse.'

The country has made some effort to diversify the economy and reduce the macro volatility during the last 12 years. There have been several reforms in an attempt to avoid procyclical fiscal policy and a Stabilization Fund has been created. The current government has actually outlined a program to achieve a 'Vision 2020' goal to become a developed country by 2020. The concern in the attainment of Vision 2020 is sustained and balanced growth, where the benefits from growth spread out to the entire population. What additional steps should Trinidad & Tobago make to achieve sustainable growth? How can the country achieve balanced growth? How can the country benefit the most from the oil and gas revenues? Is it possible that the actual macro prosperity is concealing constraints to growth? What are the risks that Trinidad & Tobago faces in achieving sustained growth? These are the type of questions that this paper addresses, using the Growth Diagnostic Methodology (GDM)

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<sup>1</sup> GDP per capita of US\$10,440 in 2005.

developed by Hausmann, Rodrik and Velasco (2005). According to this methodology, to identify policies that foster economic growth we have to first identify the constraints that limit investment, and then establish a priority order. The most binding constraints are defined as those that, once removed, will have the largest impact on economic growth.

The set of binding constraints is not static, but changes as the economy evolves. After the elimination of one binding constraint, new binding constraints might emerge. It is therefore possible that the numerous reforms Trinidad & Tobago has undergone in the last two decades have modified the set of constraints to growth, and new constraints are now binding, or may become binding in the near future. For this reason it is important to analyze the case of Trinidad & Tobago in a dynamic setting, to further understand the history of the economy and its future. Further, the current high energy prices and strong economic growth might be concealing constraints that might be binding or become binding if the oil price boom ends or oil reserves are depleted.

A shortcoming of the GDM is that it does not provide guidance on how to identify potential binding constraints so as to permit policy design which can curtail the effect of such constraints. Since the constraints are identified using stock and flow variables, only those binding constraints that are reflected in the data today can be identified. Because the growth process results from past and current decisions, which have been taken in different economic environments, the signals being sought in the data contain information about old and new constraints, and some of them might no longer be binding. For these reasons, the signal extraction should be based on decisions made under recent conditions: more than analyzing the actual growth process, we will focus on the most recent decisions of firms and families to identify the current binding constraints. To do this, we will complement the standard GDM analysis with a business survey particularly targeted at the non-energy sector. The justification for making a specific differentiation between the energy and non-energy sectors lies in the fact that these sectors might face different binding constraints. The energy sector is robust enough, with a production technology different enough, to overcome several constraints. If Trinidad & Tobago wants to achieve more balanced economic growth and reduce dependence on energy, it has to identify the constraints facing the non energy sectors. This is the main objective of this paper.

The rest of this work is organized as follows. In the next section we briefly describe the main characteristics of the economy of Trinidad & Tobago. Section 3 briefly summarizes the growth diagnostic framework used in this paper and the prior beliefs regarding Trinidad & Tobago's problems using a growth decision tree. Section 4 analyzes the binding constraints to growth from the business perspective, where we show that most of the business concerns are related to lack of opportunities. Section 5 analyzes the access and cost of financing. Section 6 explores the binding constraints through the analysis of survey data, section 7 examines the issue of social returns, section 8 looks at appropriability, section 9 attempts an open forest analysis of the country's potential for diversification and section 10 looks at the issues of capacity, innovation and learning. Section 11 concludes the paper.

## **2. Trinidad & Tobago: Stylized Facts**

The sugar based economy of the 19th century became an oil-based one in the 20th century, with the discovery of oil in Trinidad. Oil and oil-related exports eventually dominated the economy, which resulted in the transformation of much of the population from a rural to an urban one. Trinidad & Tobago has frequently escaped the wrath of major devastating

hurricanes and the major shocks the economy has suffered have been almost always related to energy price fluctuations.

The economy of Trinidad & Tobago is highly dependent on the oil and gas industry. In 2006, the petroleum industry (including petrochemicals) accounted for approximately 45% of GDP, in current prices and at factor costs (or 41.2%, in real TT\$.) Services are the other important sector, with a GDP share of 48.7% (government services represent 14.6% of total services). Manufacturing and agriculture, together, account for the remaining 6.3% of GDP.

The recent economic history of Trinidad & Tobago shows a period (1950-1973) of relatively high growth with stable international oil prices, a period of high growth with high oil prices (1974-1982), a long period with negative (per capita) real growth (1983-1993), and the recent growth boom.

The share of the petroleum industry in total GDP (on average 34% in the last 40 years) has increased significantly in the current boom, from a relatively low 25% in 1985-1994 to 45% at present, whereas the share of non-petroleum sector has been steadily decreasing. Although the petroleum share has been positively correlated with energy prices, the current situation is more related to “New Discoveries” in gas-related industries (the discovery of new gas reservoirs but also new products such as urea, liquefied natural gas, ammonia and methanol) rather than prices. Since 1991, 90% of the net capital formation has been directed to the petroleum industries and, as a consequence, the dependency on the energy sector has increased.

As a result of the dependence on energy, the Trinidad & Tobago economy has been very volatile, both in nominal and real terms. Per capita real GDP in the last 50 years has been one of the most volatile among a set of comparable economies (only Kuwait and Saudi Arabia, other oil producer countries, are as volatile as Trinidad & Tobago). Economic cycles also have a peculiar shape, with large amplitudes and long recovery periods. The recent development of the gas industry might not be strong enough to isolate the economy from energy price shocks, since prices are highly correlated

While its business platform is sound, Trinidad & Tobago firms lack the necessary strength, and with the exception of the energy sector, no healthy clusters have been developed and few local firms can provide sophisticated services to foreign energy companies (Fairbanks et al. 2006). Energy income has not led to the development of world-class companies and, whereas oil and gas revenues have financed local consumption, they have contributed little to investment in the country’s future productive capacity. The country gains a considerable amount of revenue from the oil and gas related industries, but sophisticated upstream energy industries (such as geological modeling, deep-sea drilling or equipment manufacturing) have developed little, and downstream industries have focused on low-end commodity goods (e.g. PET plastic to create inexpensive patio furniture).

Trinidad & Tobago has been enjoying trade and current account surpluses and large inflows of foreign direct investment. Although the Central Bank has been accumulating reserves (Foreign Assets increased from 1.4 US\$ billions in January 2000 to 8.6 US\$ billions in January 2007), there has been a moderate real exchange rate appreciation mainly through inflation.

The energy and non-energy sectors grew fairly evenly until the late 1990s. The strong

increase in energy prices accelerated growth, but distorted the balance. Since 2000 the energy sector growth rate almost doubled the non-energy sector rate. The average growth rate for the non-petroleum sector in the 2000-2004 period was 3.75% compared to 6% in the period 1994-1999. Some sectors such as Tourism fell from a 4.9% annual growth rate for 1994-1999 to -3.4% in the 2000-2004 period. In fact, in this period the petroleum sector alone accounted for almost 65% of total GDP growth, and, together with the services sector, for 93.5% of real GDP growth.

Is this a break in the balance or just a temporary situation? What particular conditions does the non-energy sector face so that it does not grow at the same rate even when oil prices are sky-rocketing? Is there any relationship between the energy sector fortunes and the deceleration in the non-energy sectors? Is this a sign of Dutch Disease? This interrelationship between the energy and non energy sector, and the particular conditions in the non-energy sector long run growth are the keys to understanding Trinidad & Tobago.

### 3. Growth Diagnostic Methodology

The growth diagnostic methodology (GDM), proposed by Hausmann, Rodrik, and Velasco (2004), decomposes economic growth in the following way:

$$g = \sigma \left\{ \underbrace{(1-\tau)}_{\substack{\text{appropriability} \\ \text{private return to accumulation}}} \underbrace{\rho}_{\text{social returns}} - \underbrace{r}_{\text{cost of financing accumulation}} \right\}$$

In the case of a dual, natural resource abundant economy such as Trinidad & Tobago's, an aggregate view is not enough to understand the growth opportunities and binding constraints: we need to stress the growth opportunities of each sector and their interactions, since the constraints may be different for non-energy and energy activities. The main features of the dual economy and growth are summarized in Chart 1:

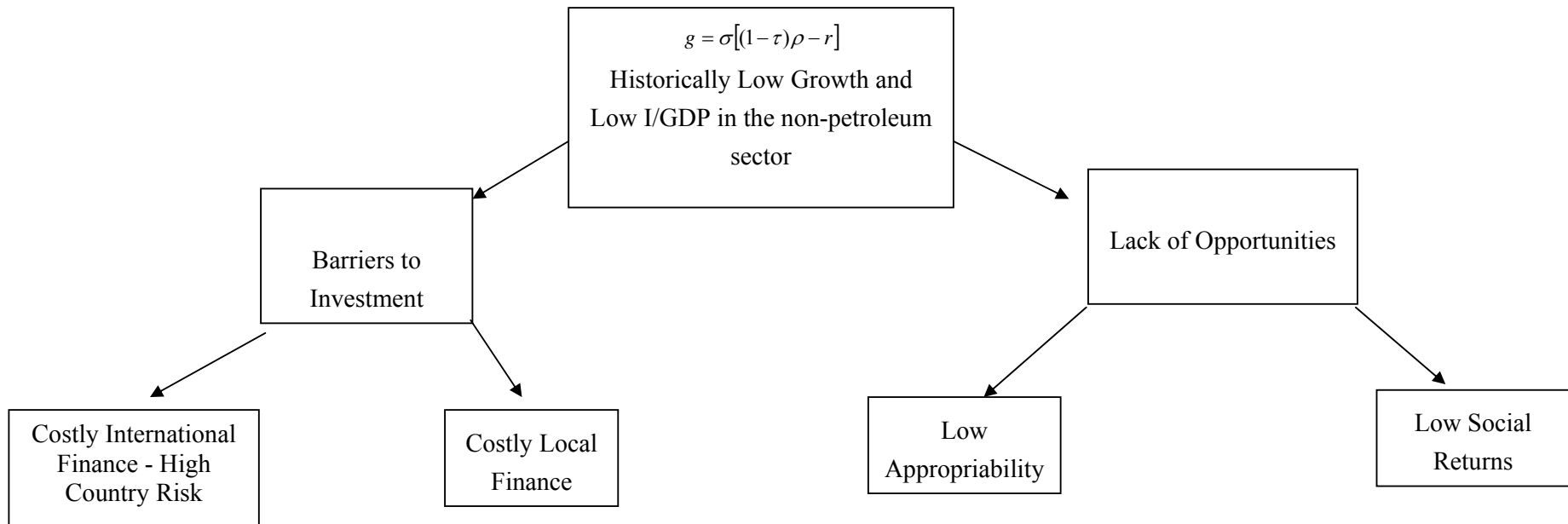
**Chart 1. Duality and Economic Growth in Trinidad & Tobago**

<b>Petroleum Sector</b>	<b>Non-Petroleum Sector</b>
Currently High Growth and High Investment	Currently high growth boosted by the high international prices for oil and gas.
Growth opportunities depend on international price for oil and gas, and proven reserves (currently 12 years).	Growth in this sector is due to services (which explains almost 80% of the accumulated growth in the non-petroleum sector between 2002 and 2006)
Growth possibilities in services related to the petroleum sector and downstream industries.	Lack of growth autonomy (growth has been highly dependent on the petroleum sector)
Vision 2020 Government objective is to develop downstream petrochemical plants that use semi-processed inputs (under the assumption that they could be imported once energy reserves are exhausted).	Tradable sector underdeveloped.

A major concern for Trinidad & Tobago is the diversification of economic activity, and preparing for the time when oil and gas reserves are depleted. The binding constraints to growth in the non-energy sector in Trinidad & Tobago are outlined in the following growth diagnostic tree. The rest of this work will attempt to identify which of these potential constraints to growth are binding.



**Chart 2. Growth Diagnostic Tree for Trinidad & Tobago**



➤ Poor public debt management, particularly in the 70s and 80s. The debt to GDP ratio has now been reduced, but the non-petroleum deficit (about 15% of GDP) is increasingly making debt sustainability more dependent on oil prices.

**Weak Regulation**

Banking system is well capitalized but it remains vulnerable to falls in energy prices.

Legal, regulatory and supervisory framework governing the financial sector should be modernized to make for a solid financial center.

➤ High Micro Risk:

**1. Corruption.** Although lower than the regional average, it has been increasing recently.

➤ High Macro Risk:

- 1. Poor banking regulations (high risk of banking crisis)
- 2. Risk of financial or fiscal crisis
- 3. Foreign exchange risk:** country vulnerable to sharp movements (Dutch Disease)

➤ **Tax pressure is not high, increasing non-petroleum deficit.** Actual spending path would imply a sharp fiscal adjustment once energy resources are depleted. Public spending is around 50% of the non-petroleum GDP, crowding out private investment

➤ **Externalities, spillovers and coordination failure**

➤ **Crime**

➤ **Low supply of complementary inputs:**

- 1. Human capital**
- 2. Poor infrastructure**

➤ **High transport, telecommunications or shipping costs.**

➤ **Low Competitiveness due to:**

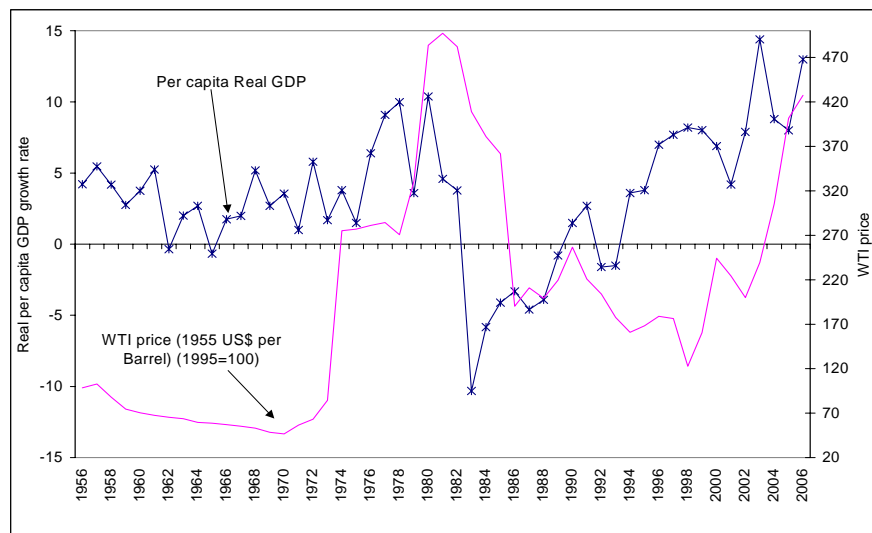
- 1. Appreciated foreign exchange rate**
- 2. Lack of access to international markets for non-petroleum goods**

➤ **Too little self-discovery**

#### 4. Economic Growth and Investment

Trinidad & Tobago's problem does not seem to be its growth rate (8% on average over the past decade), but its capacity to achieve sustained, balanced growth and avoid the effects of energy price shocks. Specialization in the energy sector is not only a reflection of factor abundance, but also a reflection of the country's growth path. If the non-energy, tradable sector grew at the same rate as in other fast growing economies (like Korea), today the petroleum sector would account for no more than 20% of GDP, instead of 50%. The fact that copper-rich Chile, for instance, has at present a relatively well-diversified economy is a reflection of its success in achieving balanced growth and the discovery and development of non-copper activities.

**Figure 1. Percentage change real GDP per capita, in constant US\$ prices, and WTI price (in constant 1955 US\$)**



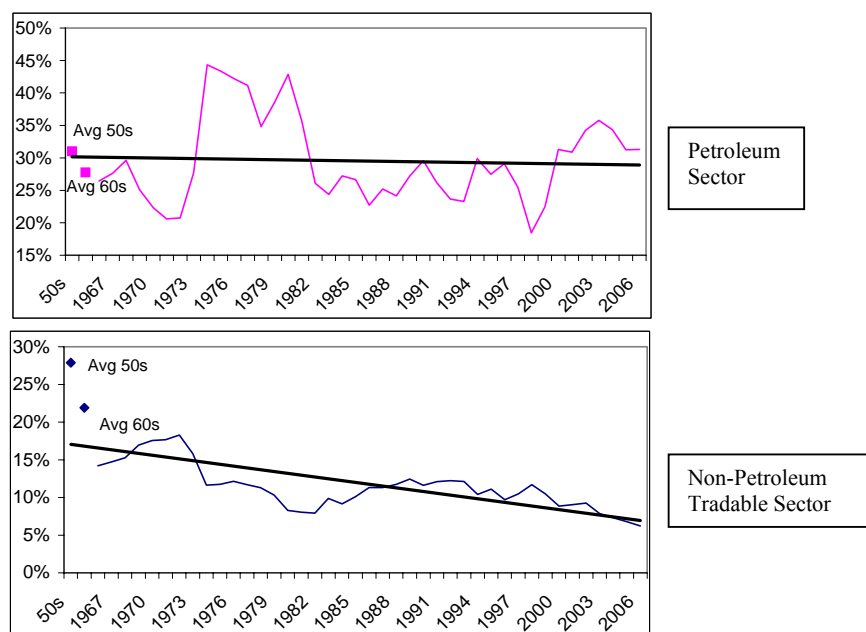
Source: Central Statistical Office for 1965-2006, University of Pennsylvania (Penn World Table Statistics) for period 1950 to 1965.

It is interesting to compare Trinidad & Tobago's growth with that of 8 'benchmark' countries (Elias et al. 2006): the four developed economies of Iceland, Ireland, Norway and Singapore and the four fast growing developing economies of Chile, Costa Rica, Malaysia and Mauritius. Over the extended period, 1970-2006, all of these countries grew faster, except for Norway. It must be noted that the relative performance of Trinidad & Tobago is highly influenced by the current growth acceleration process. From 1970 to 1995 Trinidad & Tobago grew only at 2% annually, compared to the 5.4% or 5.5% for the average benchmark economy. Because Trinidad & Tobago is now growing faster than benchmark countries, it is catching up with developed economies such as the US, but it is still below the maximum relative level reached in the previous oil boom.

Another interesting comparison is between the share of petroleum in total GDP and the corresponding share of non-petroleum tradable goods and services: whereas the petroleum industry has sustained its share over the last 50 years (around 30%), the non-petroleum tradable sector shows a sustained decline, going from almost 20% in the early 70s to 6.2% in 2006. This observed trend is consistent with the predictions of

Hausmann and Rigobon (2002). The volatility of energy prices generates risks in the non-petroleum tradable sector, which impedes its development, but at the same time its shrinking share makes the economy even more vulnerable to energy price shocks.

**Figure 2. Share of Petroleum and non-Petroleum Tradable Sectors of GDP (at factor cost) Trinidad and Tobago, 1952-2006**

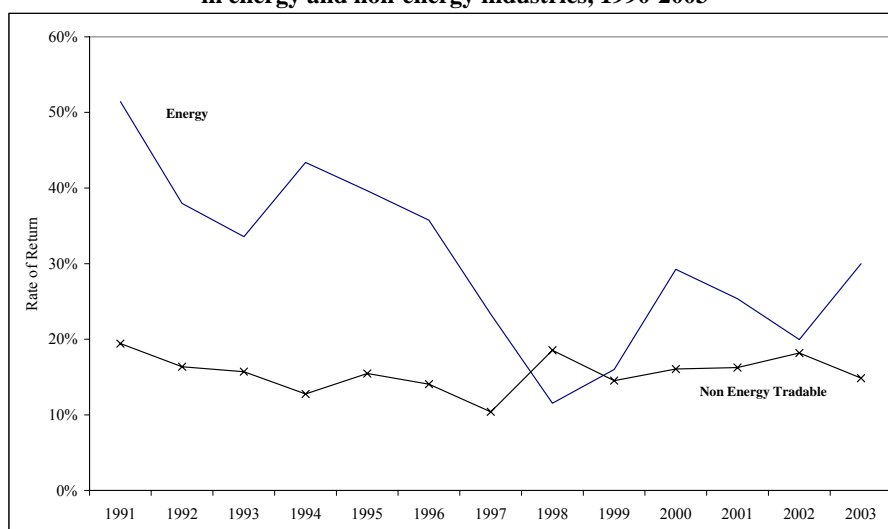


Source: own estimations based on Central Statistic Office public information

Patterns of investment are another story. During the last 15 years, the average ratio of Gross Fixed Capital Formation (GFCF) to GDP in Trinidad & Tobago was 19.5%. For the period 1970-2000, this ratio is similar to Costa Rica's and above Chile's (these two countries have a higher real GDP per capita average growth for the same period). But part of this relatively good performance is the high investment ratios observed in the previous oil boom. When we compare Trinidad & Tobago with the 'benchmark' countries, its capital formation seems low. Chile, for instance, between 1985 and 2004 shows an average ratio of investment to GDP of almost 20% compared to 14.9% for Trinidad & Tobago

Estimates of the Capital Stock, based on a method developed by Watson (1997), show that between 1991 and 2003 the stock increased by 147%. The annualized rate of 7.2% exceeds the GDP growth rate of 5.9% per year, which indicates that the economy is becoming more capital intensive. A striking feature of the recent investment process in Trinidad & Tobago is the large heterogeneity by economic sector: the stock in the petroleum sector increased by 388% (an annual rate of 14.1%) while in the non-petroleum sector it increased by only 22% (or 1.54% annually).

**Figure 3. Evolution of the Capital Stock  
in energy and non-energy industries, 1990-2003**



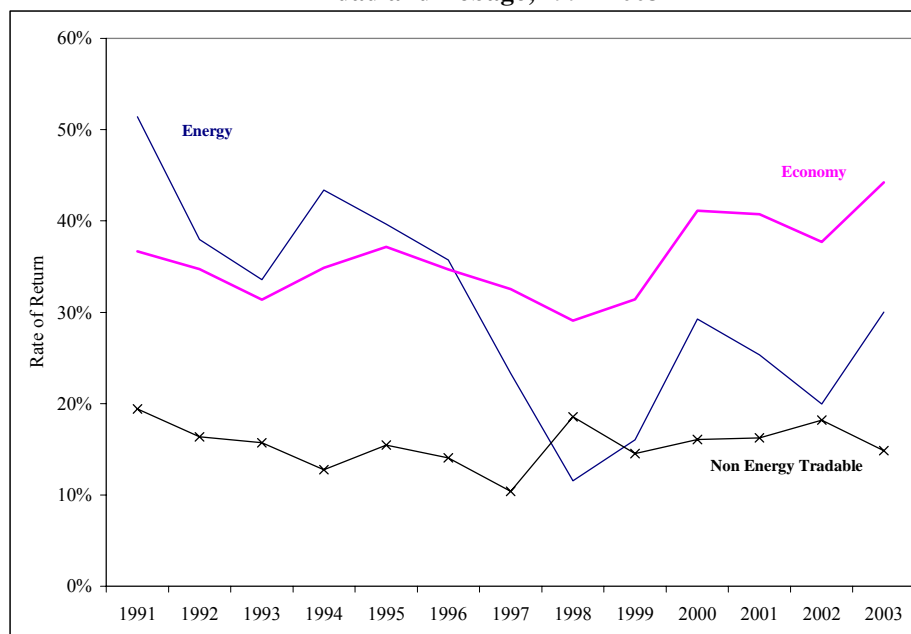
There are some non-energy sectors that show better (net) investment rates, such as Manufacturing, Financial Services and Agriculture (accumulated rates of 90%, 52% and 32% respectively), and some show strong net reductions such as Tourism; Other Services and Infrastructure Services (accumulated rates of -4%, -12% and -49% respectively). But even in the manufacturing sector, the overall high rate is due to high rates in two sub-sectors only: the chemical & non-metallic minerals and assembly type & related industries, the two fastest growing industries in this period. The other sub-sectors show low growth. The rate of capital formation in the non-energy sector stagnated, with a positive but small growth in the period 1994-1999 and a slight decrease in 2000-2003. Overall growth in both the energy and non-energy sectors reflect the growth in investment in the respective sectors: it is booming in the one and sluggish in the other.

The observed pattern of capital formation shows that the economy, rather than diversifying away from, is specializing even more in energy industries. With the low net capital formation in the non-energy industries (with a few exceptions) it is not surprising that this sector is growing more slowly in the last years compared to the mid 90s.

The pattern of returns to capital in the energy and non-energy tradable sectors seems to be more in line with a Dutch-Disease type of problem than a financial constraints problem. We computed the rate of return to capital in the petroleum and non-petroleum tradable sectors. The rate in the petroleum sector is almost double that in the non-petroleum sector. The accumulation of capital stock is therefore following a reasonable pattern: capital is flowing to the most profitable sectors. The returns in the petroleum sector have been more volatile (coefficient of variation of 0.35 as opposed to 0.14 in the non-petroleum tradable sector), and there is a negative correlation between both returns (correlation coefficient -0.11).

**Figure 4. Rates of Return for petroleum and non-petroleum tradable sectors**

### Trinidad and Tobago, 1991-2003



Note: Non energy tradable sector includes agriculture, manufacturing and tourism

We observe high capital formation and decreasing returns in the petroleum sector, and low capital accumulation and flat or slightly increasing returns in the non-petroleum tradable sector. For the entire non energy sector (tradable and non tradable) the return to capital shows a slightly increasing pattern due to a very high increase in the return for services, particularly in the last 5 years.

The return to capital for the energy and non tradable sectors (where our estimation is more reliable) seems high when compared to developed economies. Poterba (1997), for instance, reports an accounting rate of return for business assets in the G-7 countries of approximately 15.1% for the 90s, and 14.3% for the period 1966-1996. The relative high rate of return found here is in line with the findings for other developing economies. Relative risk in G-7 countries, however, as measured by the Sharpe ratio<sup>2</sup>, is almost half that of Trinidad & Tobago's non-energy tradable sector, which means that the relatively high returns of Trinidad & Tobago are not high enough to compensate for the risks.

The fact that, in the non-energy tradable and non-tradable sectors (where investment is low), returns show a different pattern seems to be inconsistent with the aggregate financial constraint hypothesis, since we would expect for both sectors, where there is capital flight, a clear increasing trend in returns.

### 5. Identifying Binding Constraints to Growth using Micro (Survey) Data

The GDM approach is used to identify the binding constraints to growth using macro and micro evidence. Business is one of the key players in the economic growth process

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<sup>2</sup> This is a measure of the risk-adjusted return (ratio of average return to the standard deviation).

and such constraints affect profitability and growth opportunities. In addition, there could be important differences in the binding constraints by economic sector. The GDM analysis is therefore complemented with micro data collected from a survey of 500 (mainly non-energy) firms<sup>3</sup>. The sample was designed to capture the opinions of the non-energy sector, but a small number of energy sector firms (6 companies that provide services in the energy sector) was included.

Firms were asked whether they thought any external factors were limiting their growth. 57% indicated that they face constraints to growth that do not depend on firm management. Interestingly, this result is stronger for energy sector firms and manufacturing. The ratio is higher for exporters than for non exporters<sup>4</sup>, which is consistent with a Dutch-disease type of argument: when the energy sector is booming it imposes more economic stress on other tradable sectors, limiting their growth opportunities. The ratio also increases with firm size and, since firm size is related to the age of the firm, an explanation for this might be the firm growth curve: as a firm matures, it is more likely to be able to deal with internal limitations, and the risks and problems they now face are more related to factors outside the firm.

The most limiting constraint to growth and development that firms face in the economic sector in which they operate is ‘Macro Risks’ (selected by 38% of respondents), followed by ‘Costly Financing’ (30%) and ‘Low Profitability’ (25%). An interesting result is that, although firms complained about the quality of infrastructure and services, only a few identified this as the most limiting factor. This answer may be interpreted as a revealed preference or priority ranking: infrastructure might be a problem but it is not the most important constraint to business growth. The most cited constraints, irrespective of ranking, were ‘Low Profitability’, ‘Costly Financing’, ‘Lack of Human Capital’ and ‘Macro Risks’, in that order.

**Table 1. Main Constraint to Growth by Firms Size  
(as a % of firms answering this question)**

	Option	Bad Regulations	Costly Financing	Lack of Human K	Low Profitability	Poor Access to Foreign Market	Poor Infrastructure	Macro Risks	Poor Management	Other
SMALL	1st	13.9%	31.3%	18.8%	22.9%	13.6%	13.3%	31.0%	18.0%	3.2%
	1st or 2nd	18.0%	37.4%	33.6%	38.3%	19.7%	21.7%	34.2%	24.1%	3.8%
LARGE	1st	8.5%	14.9%	17.0%	36.2%	21.3%	10.6%	59.6%	29.8%	4.3%
	1st or 2nd	17.0%	27.7%	29.8%	53.2%	36.2%	21.3%	66.0%	40.4%	4.3%

Most firms, regardless of size, selected options from the ‘lack of opportunities’ branch of the growth-diagnostic tree and, inside this branch, ‘low returns’ dominate ‘appropriability’. If we restrict the analysis to firms that are individually constrained, the results are similar (with low return losing some weight but still the first option). It may therefore be concluded, from a business perspective, that the problem for the non energy sector is low returns rather than costly financing or low appropriability.

**Table 2. Distribution of Constraint to Growth by factor type  
(as a % of firms reporting a problem)**

	Costly Financing	Lack of Opportunities			
Option	Costly	Appropriability	Poor	Low	Total

<sup>3</sup> The questionnaire was adapted from the Investment Climate Survey of the World Bank.

<sup>4</sup> Domestic market oriented firms.

	Financing	Complementary Inputs	Profitability		
1st	17.6	29.1	39.0	14.3	100.0
1st or 2nd	15.7	25.0	41.8	17.6	100.0

It was also found that the smaller the firm, the more weight they put on ‘Costly Finance’, and the larger the firm the more weight on ‘Appropriability’ and ‘Low Profitability’. In terms of the individual factors, for large firms ‘Macro Risks’ is the most binding constraint, followed by ‘Low Profitability’ and ‘Poor Management’, whereas for small firms the most binding constraint is ‘Costly Financing’, followed by ‘Macro Risks’ and ‘Low Profitability’. Again, since the sample is overrepresented by small firms, we should expect that, for the entire economy, the constraints identified may be more likely those of the large rather than the smaller firms in the sample.

When the analysis is done by economic sector, the Manufacturing sector (tradable) put more weight than the Distribution and Services sector (non tradable, for the most part) on ‘Appropriability’. ‘Lack of Complementary Inputs’ is particularly important for Services (which are more labour than capital intensive), whereas ‘Costly Financing’ is more important in Distribution. ‘Low Returns’ represents around 50% of the most binding constraints for the three sectors and is therefore the most binding constraint regardless of economic sector.

When the sample is disaggregated according to exporters and non-exporters, we find that both select as the most binding constraints factors related to ‘Low Returns’, but Exporters put more weight on ‘macro risks’ and non-exporter firms put more weight on ‘costly finance’.

In summary, from a business perspective, financing constraints are not the most binding constraints for Trinidad & Tobago, but rather the lack of opportunities, regardless of the economic sector and firm type.

## 6. Financial constraints

The saving rate in Trinidad & Tobago is above the average for LAC region and, historically, exceeds the GFCF rate (i.e. it is a net saver country). It has the highest FDI to GDP ratio in LAC (an average of 8.4% over the period 2001-2005 compared to the LAC average of 3%) and a large capital account surplus (for the last 7 years). Its sovereign debt attained investment grade in July 2005 (Standard and Poors)<sup>5</sup>, its financial system is sound and it has never suffered a financial crisis. Its banking system is relatively sophisticated, dynamic and well capitalized, it does not appear vulnerable to the weaknesses in the regional economies and it is evolving as a regional financial center (IMF (2003)).

Using the World Development Indicators (WDI) database for 129 countries, we cluster countries into three groups (low-cost, high cost and extreme-imbalance countries). Trinidad & Tobago belongs to the low-cost group, with lower-than-world average interest rate spread, lower-than-world average real interest rate and higher-than-world

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<sup>5</sup> Only three other countries in the region have this grade: Barbados, Chile and Mexico.

average savings rate. In this group there are 79 countries reporting the most favorable financing conditions, including emerging and developed economies such as: Australia, Canada, Chile, France, Germany, South Africa, Russia, Switzerland and Venezuela, as well as Albania, Argentina, Ethiopia, Honduras, Nigeria, Thailand and Vietnam. For the group: the average interest rate spread is around 6%, the real interest rates is close to 6% percent, and savings-to-GDP ratio is around 25%.

Within the low-cost group Trinidad & Tobago is close to the average, ranking 60<sup>th</sup> out of 129 countries with regards to interest rate spreads, 47<sup>th</sup> with regard to real interest rate and 41<sup>st</sup> with respect to savings to GDP ratio. This suggests that Trinidad & Tobago is not financially constrained, at least from the macro perspective.

Trinidad & Tobago has a relatively mature stock market with high market capitalization but only a few local firms are listed: of the 28,621 businesses operating in Trinidad & Tobago in 2005, only 28, or less than 0.1% of the total, are listed. In the U.K. and Canada the corresponding ratios are 14.3% and 11.8% respectively.

The reluctance of Trinidad & Tobago firms to list is a result of: (1) The legacy of ownership of firms; (2) The structure of the capital markets; (3) The regulatory framework of the respective domestic capital markets and the perceived risks associated with using the local securities markets; (4) The markets are non transparent and controlled by a few major market actors (interlocking directors); (5) The high cost of listing in the local stock exchanges (Sergeant 2006).

Despite the apparently low percentage of publicly-listed firms, market capitalization as a ratio of GDP is relatively high (115%) and similar to the average for high-income countries (113%), but very biased to the finance sector (68% of total market capitalization, whereas Manufacturing and Tourism represent only 9% and 0.5% respectively). This relatively high market capitalization is due to cross-listing with other Caribbean countries and the high increase in firm value since 2000 (at that time, market capitalization was just 53% of GDP).

A Financial Sector Assessment (FSA) carried out in 2006 by the World Bank and the IMF concluded that the increased savings and limited domestic investment were responsible for the upward pressure on asset prices (and balance sheet values of pension funds, mutual funds, and insurance companies). Increases of around TT\$90 billion in market capitalization since 1997 were due mainly to increases in share prices (around 75%). Most of the TT\$31 billions worth of new equities raised in the market were bonus issues and overseas cross-listings, and only 10 percent involved new capital raised by local firms. These cross-listings have given regional companies access to capital in Trinidad & Tobago and provided an important outlet for domestic savings. It seems therefore that there are enough resources to finance local firms through the local stock exchange market, but firms are not using the option.

Using cluster analysis, the 162 countries in the WDI database were classified into three groups: low, medium and high financial depth. Trinidad & Tobago is among the low financial depth countries, together with the majority of developing countries, though it is among the top performers in that group. According to the 2006 FSA, there has been



limited expansion of financial access over the last decade. For instance, Credit Unions have grown rapidly, but a large part of the increase in assets has taken the form of financial investments rather than lending to members. Furthermore, the provision of financial services to Small and Medium enterprises (SME) through other institutional channels has also not grown significantly because of the high costs and risks associated with SME lending as well as profitable investment opportunities available to commercial banks outside of this sector.

The survey showed that bank loans represent the first option for financing business activity. On average, 51.8% of a firm's last investment was financed with bank loans. The most common case is bank loan financing between 50% and 60% of the last investment (64 firms) and 62% of the firms financed at least 30% of new investment with bank loans, which suggests that formal credit is available.

The second most common option is retained earnings, which represent on average 35% of new investments. New equity and informal lenders financed only a small proportion of total investment. For the other source of financing (representing 7.1%), the most common case was financing through loans from related companies, used more by firms in the energy sector.

81% of firms using bank loans were small firms (less than 24 employees), representing 38% of the small firms in our sample. The small firms that did not use bank loans relied mainly on retained earnings, which represent 75% of the last investment for this subgroup. Medium-sized firms used bank loans more, and only a small proportion did not use bank loans at all. A relatively large proportion of large firms did not use bank loans, but 64% of these were using loans from related companies .

Manufacturing firms companies relied the most on bank loans. Energy companies relied more on retained earnings and loans from related companies. New equity represented a small ratio across the board, and informal lending was only relatively important for services sector firms.

80% of all firms were required to provide collateral, amounting to approximately 80% of the total investment, for their most recent loans (2005-2007). They paid an interest rate of 12.5% annually for a 37-month loan and only 10% of the firms took loans denominated in a foreign currency. In terms of differences according to firm size we found: a) there were no differences according to firm size and the proportion of loans requiring collateral, b) the larger the firm the larger the value of the collateral required (as a % of the investment), c) large firms paid an interest rate of almost 100 basis point lower than medium and small firms, with a longer duration but with a higher proportion of the loans denominated in a foreign currency.

Based on the World Bank's Investment Climate Survey (ICS), Trinidad & Tobago firms use bank financing more than their counterparts in benchmark (comparator) economies and less retained earnings and new equity. Bank loans represent for the average firm in Trinidad & Tobago 47% of the financing compared to 30% in Latin America or 36% in East Asia. Informal lending is also very high in Trinidad & Tobago (5%), almost twice the ratio for East Asia (2.5%) which is the region with the highest ratio. On the other hand, retained earnings and new equity in Trinidad & Tobago together represent 48% of total financing, much lower than in East Asia (62%), the region with the highest ratio.

In addition, the average duration of a loan in Trinidad & Tobago (37 months) is above the average for the entire ICS survey (35 months). More noteworthy, the required collateral for Trinidad & Tobago firms (77% of loan value) is well below the ICS survey average (150%) and, in fact, is in the lowest 5% of the distribution at country level.

The macro evidence shows that the credit conditions are good in Trinidad & Tobago: the country has enough resources and financing is relatively cheap. In addition, the micro evidence shows that a high proportion of new investment in the non energy sector is financed through the banking system under reasonable conditions (interest rate and collateral requirement). Therefore credit availability is not a binding constraint to growth. Nevertheless, financial depth and access to finance are somewhat inadequate. The only explanation for this evidence is that the demand for loans is weak, showing that the problem outside the energy sector is the lack of opportunities.

## **7. Social Returns**

In the last 30 years Trinidad & Tobago attempted to universalize secondary education, and its gross enrollment ratio increased from 68.8% at the end of the 1970s to 83.8% in 2004. However, within the Caribbean region, Trinidad & Tobago has educational indicators close to the regional average although its income level is way above the average. Furthermore, it ranks below the regional average in terms of net and gross enrollment rates in both primary and secondary education; the duration of compulsory schooling is just 7 years, whereas the regional average is almost 10; average years of schooling is just below the regional average and the ratio of expenditure in education to GDP is 4.3%, while the regional average is 5.9%.

Another characteristic of Trinidad & Tobago is the low enrollment ratio in higher education. Just 6% of the labor force has higher education, compared to 26% in developed countries. In recent times, Trinidad & Tobago attempted to increase the number of students at the tertiary level by creating a new university, introducing non-traditional courses and eliminating fees at the tertiary level. As a result, Gross Enrollment Ratio at the Tertiary level increased from 6.8% in 1990 to 11.9% in 2004.

Years of schooling in Trinidad & Tobago are well below the expected amount for a country of its income level: it is the second lowest among the upper-middle income (UMI) countries. It is also low compared to LAC and oil-exporting (OIL) countries. In primary education, there has been almost no improvement in the enrollment ratio in the last 20 years (the net enrollment ratio increased from 91.6% in 1985 to 92.2% in 2004). This ratio is above the average for UMI countries (91.9%) but below the average for LAC (95.3%), and below the average for the Caribbean region (94%). In secondary education, the net enrolment ratio of Trinidad & Tobago is similar to the average of the three sets of comparator countries, but it is below the level expected for its income category. Most significant is the very low enrollment ratio in tertiary education: it is the lowest among OIL countries, the second lowest among countries with a similar income level, and it is well below the Latin American average. Finally, public expenditure on education is above the LAC average, and close to the average for UMI countries, but below the average for OIL countries.

Does the relatively low value of the average years of schooling mean that Trinidad & Tobago has a scarcity of human capital? We expand Hausmann and Rodrik's (2005) results to include Trinidad & Tobago and find that returns to finishing primary education are among the lowest in Latin America, and very close to a developed economy such as the U.S. The returns to finishing secondary education are also low, and only the Dominican Republic in the Caribbean has a lower return. The returns to finishing higher education depend on how we classify non-university tertiary education, which has a return very similar to secondary education. If we classify it as 'higher education', the return to higher education is very low, among the lowest in Latin America. If we include non university tertiary education with secondary education, or as an entity in its own right, then the return to higher education is slightly above the Latin American average and well above the returns for a developed country such as the United States. What is significant in Trinidad & Tobago is the difference in returns between University and secondary education. The additional premium for completing university education is among the highest in Latin America no matter how we treat non university tertiary education.

Returns to education at all the levels are higher in the more industrialized island of Trinidad than in Tobago. Since the difference, which is even more striking for those finishing University education, is tantamount to a premium for workers and not for where the individual was born, the difference in wages is likely to be related to the difference in GDP composition (or economic activities). In fact most of the manufacturing and energy companies are located in Trinidad, whereas in Tobago 56.8% of the employees work in the tourism sector and most of the others in the public service.

Between 1998 and 2004 the returns increased for all the educational levels. This happened in a period when there was an increase in years of schooling due to higher enrolment in secondary and higher education. This shows that even when the proportion of workers with tertiary education increased by 16% between 1998 and 2004, the demand for educated labor was strong enough to bring about higher returns in a period of high accumulation of human capital.

The relatively higher returns to higher education seem to be in contradiction with the high migration of educated people (brain-drain). Defoort (2006), for instance, found that Trinidad & Tobago has one of the highest emigration rates for skilled workers in the world, well above the Central American average. To some extent, the brain-drain has been a common problem for the Caribbean. What is interesting is that this evidence of brain-drain contrasts with the high proportion of foreigners working in Trinidad & Tobago, particularly among the most educated individuals. In 1998<sup>6</sup> 13.2% of the workers with university degrees were foreigners, but as the university increases its intake of students in Trinidad & Tobago this ratio has been falling quickly: by 2004 only 8.1% of university educated workers were foreigners.

Part of the explanation for the high returns and high migration of skilled workers might be due to a problem of mismatching, for instance where local universities may not be educating the professional according to local market demand. To test this hypothesis we

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<sup>6</sup> Continuous Sample Survey of Population (1998).

estimated standard Mincer equations for the energy sector and non-energy sector independently and found that returns are similar between both sectors for primary and secondary education, and only slightly higher in the energy sector for university education, which provides very weak evidence of market segmentation.

Another explanation could be the large difference in real wages a highly educated individual could obtain in other countries compared to Trinidad & Tobago. The premium for finishing university in Trinidad & Tobago might be high, but the real wage an employee obtains in Trinidad & Tobago may be lower than the wage a worker can obtain abroad, which may be an incentive to migrate. If migration possibilities were similar at all levels of education, the premium in Trinidad & Tobago should be (by arbitrage) similar to the premium in the developed countries to which they migrate. Therefore, to observe a high premium for a university degree and migration of highly qualified workers simultaneously, it must be the case that migration is more difficult for lower educated workers (a hypothesis we cannot test with the available data). A particular advantage for Trinidad & Tobago migrants is their proficiency in English, which may make them particularly attractive to English-speaking developed economies such as the U.S. or UK. Another advantage is that the country is part of the Commonwealth, which may also facilitate the migration of educated people.

What about quality issues in education? Trinidad & Tobago participates in two international performance evaluation exercises related to the secondary regional examinations of the Caribbean Examination Council (CXC) in English and Mathematics. The results of these tests show that Trinidad & Tobago is above the simple regional average, but countries with a smaller GDP per capita and lower spending per pupil in secondary schools, such as Belize and Dominica, outperform Trinidad & Tobago in both tests.

Quality of education is one of the most important issues among the Caribbean countries and high spending has not been commensurate with educational outcomes (World Bank 2005). One way in which the quality of education in Trinidad & Tobago can be analyzed beyond the Caribbean region is to examine the returns to schooling for immigrants to the US (or another large economy) who have finished their studies in their countries of origin. This is precisely what Bratsberg and Terrell (2002) did. Since Hanushek and Kim (1999) found a strong correlation between the implicit quality index obtained from Mincer equations for immigrants in the US who have studied in their countries of origin, while controlling for measures of school quality (standardized test), we interpret the difference in returns to education as differences in educational quality. According to this definition of quality, Trinidad & Tobago ranked 56 out of 67 countries in 1980 and 51 in 1990, so its quality seems to have improved between both Censuses. Its implicit quality is above other Caribbean countries, but below the simple average for South America and even the World average. The comparison is not favorable with respect to the upper middle income countries included in this study (see Table 1).

**Table 3. Returns to education for Caribbean Migrants in the US**  
*(Average return to one additional year of schooling)*

Country	Rate of Return (%)	
	1980 Census	1990 Census
Dominican Republic	1.22	2.10
Haiti	1.19	2.02
Jamaica	2.46	3.64
Trinidad & Tobago	2.7	3.75
Caribbean (av.)	2.1	2.9
Central America (av.)	2.2	3.0
South America (av.)	3.5	3.9
Europe (av.)	4.7	5.9
World (av.)	3.9	4.8

Source: Based on Bratsberg and Terrell (2002).

Given these results, the pattern of returns observed in 1998 may have been influenced by the low quality of education in primary and secondary school, which reduces the premium for these educational levels, but which also affects the transition to post secondary studies, since the results of the CXC exam determine whether the student can attend the university or not. The scarcity of highly educated workers pushes up the returns for the most educated.

Did expenditure on education contribute to economic growth? Francis and Iyare (2006) found that, for Trinidad & Tobago, causality goes from GDP growth to expenditure on education, and not the other way around. The evidence shows that the investment in education in Trinidad & Tobago has been procyclical and very inefficient: the increase in the average years of schooling from 11.1 in 1990 to 12.3 in 2004 seems to have been at the expense of quality.

How useful are the skills acquired from the schooling system? According to our survey, skilled workers make up 25% of the total labor force. The highest ratio is in the energy sector, followed by the manufacturing sector, and the lowest ratio in distribution. With regard to skilled workers, management staff and professionals, the services sector is the most human-capital intensive. The size of the firm does not matter although smaller firms, which tend to be in the services sector, employ a larger proportion of management staff and professionals and exporting firms tend to have a higher proportion of skilled workers, but a lower ratio of professionals and management staff.

The survey also shows that for, firms in the manufacturing and services sector, smaller firms, and non-exporting firms, it is more difficult to recruit skilled technicians. Firms in the distribution sector, smaller firms and non-exporting firms find it more problematic to fill positions requiring production/service workers. This tends to suggest that less educated workers are harder to find than skilled ones but this does not necessarily mean that the market for less educated workers is over subscribed: it could be that finding this type of worker is not an easy task for local firms, a result that is consistent with the fact that workers may not be well prepared for the available jobs. In Trinidad & Tobago, the time taken to fill a position for a production/service worker is well above the average for Latin America (almost double), while the average time to get a qualified worker is close to the mean.

The main reason for the limitation faced in hiring new workers seems to be ‘poor labour attitude’, which 70% of managers identify as the main problem firms face in hiring new

personnel. Another important reason is 'high labor costs', which is more important for firms in the energy and manufacturing sectors and for larger firms, exporters as well as non-exporters. Poor primary schooling and tertiary level training are relatively binding for manufacturing firms and for large ones.

Skilled workers may also be hired from abroad. In Trinidad & Tobago the average for foreign workers per establishment is close to the Latin America figure, but below the average for other regions. However, the percentage of foreign workers differs greatly among sectors: firms in the energy sector have an average of 10% of foreign skilled workers while, in distribution, the percentage is almost zero. Further, foreign skilled workers are hired more in large, exporting firms.

Hendrik (2000) established that about 96% of the difference between the wage levels in Trinidad & Tobago and the US is due to differences in factor accumulation, both capital and human, in the two countries. In contrast, the corresponding figure for the 67 countries in the Hendrik study was 49%, for Barbados 65%, for Costa Rica 62% and, for Chile, 50%. When disaggregated further, the differences in human capital accumulation in the Trinidad & Tobago case account for 54% of the difference, capital accumulation for 39.9%, and the quality of education 2.4%. The difference explained by human capital accumulation is remarkably high compared to other Latin American and Caribbean countries (13.8% on average) and close to the mean (2%) for the quality of education.

Trinidad & Tobago's problem is in the accumulation of factors, both capital and human, not low total factor productivity (although the high productivity is largely in the energy sector) nor in the quality of education (although this, explains only a very small portion of the wage differential, which is also true for most of the countries).

What role in social capital formation is played by the quality of the infrastructure? According to the Global Competitiveness Index (GCI), Trinidad & Tobago has a level of infrastructure in line with that of Caribbean countries but is poor relative to countries with a similar income level. Most of the basic infrastructure remains public (including telecommunications) but the efficiency of public administration is very different from a typical public company in Latin America. In the case of *Telecommunications*, deregulation began in the wireless market when the new Telecommunications Authority invited two firms to provide competition for the state-owned monopoly incumbent (Telecommunications Services of Trinidad & Tobago, TSTT). Long distance cable and Internet services have not yet been deregulated (the Government has indicated that it will start deregulation with cable TV). Fixed line and Internet services are provided by TSTT. The Trinidad & Tobago External Telecommunications Company Limited (TEXTEL), co-owned by the government and Cable & Wireless Limited, is responsible for international communications.

The penetration of fixed and mobile telephones, although high by Latin American standards, is below the expected level given Trinidad & Tobago's income. A striking feature is the low degree of 'internet connectivity': in 2005, only 12.2% of the population were Internet users, well below the regional average (31.5%). In addition, the number of personal computers per 100 inhabitants was very low: 7.9. This low connectivity contrasts with the relatively high penetration of cellular phones and telephone lines (among the highest in the group of LAC). Since human capital is

augmented by the use of information, this could be considered as indirect evidence of low human capital.

*Electricity* access in urban areas is almost 100%. The transmission and distribution lines are reliable and outages are among the lowest in the Caribbean (7%). Electricity generation is private, whereas transmission and distribution are public. There is no power pool or wholesale market, neither is there bilateral contracting in power. Labor productivity is within the average for the Caribbean region, better than a full public system but worse than full private systems in the region.

Access to improved *water and sanitation* facilities is good in urban areas. The percentage of the population with access to improved water is above the LAC average, although below the CARICOM average and that of high income countries. There is full access to improved sanitation facilities in urban areas. The system is public and does not follow a pricing policy of cost recovery. The country experimented in the mid-90s by awarding a management contract to Severn Trent (a U.K. water company), but the Government decided to remove the company once the contract expired (1999). In rural areas, there are water shortages and inadequate drainage.

In the case of *ports and airports*, the port of Port-of-Spain and both international airports remain public but they follow a non-deficit pricing policy. In 2000 the opening of the Piarco terminal in Trinidad resolved the situation partially, and the government plans to expand the Crown Point Airport in Tobago. The World Bank (2005) compared the productivity at the Port-of-Spain port with other countries in the region. The comparison was not favorable: productivity is very poor as a result of congestion. The port needs significant investments in additional port facilities to serve the growing demand (World Bank 2005).

As far as *transportation* is concerned, there is an extensive network of paved roads. Trinidad & Tobago, however, has no mass transport system and traffic is a worsening problem throughout Trinidad, because the road network is not well suited to the growing volume of vehicles. A multi-year plan for light rail transport has been announced.

The formation of public capital in the last 30 years has been low compared to other countries in the region. For the period 1970-2002 the gross public fixed capital formation as a percentage of GDP was 4.4%, whereas the average for Latin America was 6.3% and for the Caribbean 9.5%. Another characteristic of Trinidad & Tobago is that public capital formation has been procyclical, although not as procyclical as other Latin American and Caribbean countries.

Within recent years the Government has been investing in infrastructure. According to CSO statistics, the net fixed capital formation in the sectors of electricity and water was negative in the 80s and early 90s, changed to positive 1996, and increased rapidly until 2000 after which it stabilized.

The costs for infrastructure services are relatively high. In telecommunications, there are cross-subsidies from international calls to local calls, and the cost per minute for an international call is above other that of countries in the region such as Jamaica, Guyana

and St. Kitts & Nevis, and countries with a similar income level. The cost to local consumers is significantly higher than comparable services for U.S. consumers (including for fixed-line, wireless and broadband services). Airport charges in Trinidad & Tobago are among the highest in the region for both international airports, and water tariffs are set below operating costs.

The survey results indicate that 70% of the business establishments view the existing infrastructure services as ‘not very appropriate’ or ‘highly inappropriate.’ The perception of ‘inappropriate infrastructure’ is stronger for smaller firms: 72% of the smaller firms find the infrastructure inappropriate, compared to 66% of the larger firms. This perception is slightly stronger for non-exporting firms and for non-energy firms.

The most limiting infrastructure seems to be road infrastructure and transportation, followed by electricity, port facilities, telecommunications and water. The most common problem (during the last year) was power outages or surges from the public grid (61% of the firms) followed by insufficient water supply (42% of the firms) and unavailable internet services (38%). Most of the ‘Other’ difficulties experienced by firms concern port shut-downs and the Customs and Excise Department. Trinidad & Tobago performs worse than the average for the Latin America except for power outages, where only Ecuador has a better performance. Insufficient water supply seems to be a major problem.

Only 31% of the firms surveyed used the world-wide web in interacting with clients and/or suppliers, although 66% regularly use e-mail. The most common reasons advanced for this were that workers ‘do not know how to manage e-mails and websites’ and ‘customers do not use these services’. Only 31% of the firms find there is no limitation.

As for *government services*, 53% of the firms rated them as either ‘somewhat inefficient’, ‘inefficient’ or ‘very inefficient’. The proportion is substantially higher for energy sector (79%) compared to non-energy (52%) firms. Firms in the Distribution sector have a more negative opinion (63%) than those in Manufacturing or Services (49% and 45% respectively) and the proportion is higher for exporters (56% vs. 53%). Trinidad & Tobago appears to be lagging behind fast growing countries such as China and India in terms of efficiency, but it has a level similar to Mauritius, and is well above the average for Latin America.

Sixty percent (60%) of the establishments were in agreement that corruption was a factor hindering them and their business opportunities, with 23% of them finding it a major and severe problem. Energy sector firms have a less negative perception about the effect of corruption on their business opportunities.

The Global Competitiveness Index (GCI) of 2006 indicates that, among 125 countries, Trinidad & Tobago fell from 66th place in 2005 to 67<sup>th</sup>. Within the Caribbean region, Trinidad & Tobago ranks third after Barbados (31st) and Jamaica (60th), and is above the median for the Latin American and Caribbean Region. Nevertheless, when compared to the entire sample of countries analyzed, its ranking is lower than expected given its level of development. Among the benchmark countries, Malaysia, Chile and Costa Rica have a ranking well above the expected level, and Mauritius is quite close to



that. Trinidad & Tobago is one of the countries with the poorest performance given its income level. Looking at the components that make up the GCI, Trinidad & Tobago's poorest performance is in Institutions and Infrastructure and its best in macroeconomic strength. Most disturbingly, Trinidad & Tobago ranks lower than the average in Health and Primary Education (both related to human capital) and is generally lower than countries with similar GDP per capita in almost all of the components.

## **8. Appropriability**

Following Kaufman et al (2005), five indicators of the quality of governance are considered: 1) voice and accountability; 2) political stability and absence of violence; 3) government effectiveness; 4) rule of law and 5) control of corruption. The indicators show that Trinidad & Tobago, when compared to the LAC region, ranks relatively well and is above the simple average in all the components except for Political Stability. But Trinidad & Tobago under-performs compared to countries with similar GDP per capita in every component except for 'Voice and Accountability' and 'Regulatory Quality'. Trinidad & Tobago has experienced a steady deterioration between 1996 and 2005, particularly in the components of Political Stability, Control of Corruption and the Rule of Law.

Since 1992, almost all investment barriers in Trinidad & Tobago have been eliminated and the overall investment climate is favourable. According to the World Bank's 'Doing Business' Survey, Trinidad & Tobago ranks relatively well (59<sup>th</sup> out of 175 countries) and is above the world average on starting a business, employing workers, protecting investors and trading across borders.

Trinidad & Tobago ranks in 'protecting investors' among the best in the region and is even above the average for OECD countries. This is particularly notable in the case of 'liability for self-dealing' in which it gets almost full points. Shareholders' ability to sue officers and directors for misconduct (Ease of Shareholder Suits Index) and the strength of investor protection are also comparative advantages. Only in the case of transparency (Transactions Disclosure Index) does Trinidad & Tobago show a relatively weak position.

Other beneficial aspects of doing business in Trinidad & Tobago are the low cost and few procedures for transactions across borders and labor regulations (flexible regulations and low hiring costs): in general Trinidad & Tobago ranks even better than the OECD countries. Firing cost is the only weak aspect, since it is higher than the regional average and that of OECD countries.

The indicators related to taxes show that this is not an important issue in doing business: the effective tax rate is lower than in the region, as well as the time spent on legal procedures.

In 'getting credit' Trinidad & Tobago also ranks relatively well in terms of legal rights, but there are problems in other areas. For instance, there is no reliable register of debtors and only a very small fraction of the population has access to credit.

The most negative aspects are: registering a property, enforcing contracts and closing

business. In enforcing commercial contracts, Trinidad & Tobago is ranked 156<sup>th</sup> out of 157 countries. The average time to get a payment, from the moment a plaintiff files the lawsuit, is almost 4 years. This is a very long period even when compared to Latin America and Caribbean countries. For registering a property, Trinidad & Tobago ranks 154<sup>th</sup>, the average time necessary to fulfill the process again being the cause of this bad performance. According to the World Bank, closing a business in Trinidad & Tobago by following the Bankruptcy Law is a difficult task: the associated costs are high enough to reduce the recovery rate of the insolvent firm. In the case of licenses, the necessary time in Trinidad & Tobago is again longer than in other countries with similar levels of GDP per capita.

The evidence suggests that Trinidad & Tobago does not have, in general, problems in terms of rule of law and micro risks, and that the only potential constraints to investment is the excessive bureaucracy which leads to an extreme amount of time and resources to resolving conflicts and registering business. But use of 'average results' may mask some industry-specific shortcomings. For instance, in the Caribbean region there is strong tax-exemption competition which favors the location of new hotels, and Trinidad & Tobago is the country which least concedes exemptions. In addition, the procedure involved in obtaining a permit for a new hotel seems to be the most bureaucratic and costly in the region.

There is some concern in Trinidad & Tobago about the high and increasing levels of crime. According to the Global Competitiveness Report of the World Economic Forum, Trinidad & Tobago ranked 87<sup>th</sup> out of 104 countries in terms of the costs of crime and violence for business (it has a score of 2.8 compared to the worldwide average of 4.4). It ranks 89<sup>th</sup> (a score of 3.4 against a worldwide average of 4.8) in organized crime.

From the business perspective crime is an increasing problem in Trinidad & Tobago. Around 75% of the firms surveyed believe that crime is affecting business and business opportunities. This increases to 88% for the distribution sector, where firms may be more exposed to criminal activity and is reflected in the security costs for establishments, which represent on average 3.7% of sales, a very high figure by international standards. Protection costs as a percentage of sales are on average negligible (0.06%) and even low by international standards, but for large firms this cost is significantly higher (0.46%). The proportion of criminal incidents reported to the police is relatively high, and perhaps for this reason the proportion of incidents solved is much lower by international standards. Again, the distribution of reporting and incidents solved varies a lot by firm size. Small firms tend to report more to the police than large firms, and they also spend more on protection, but the share of incidents solved is significantly higher for large firms (17% compared to the 4% for small firms).

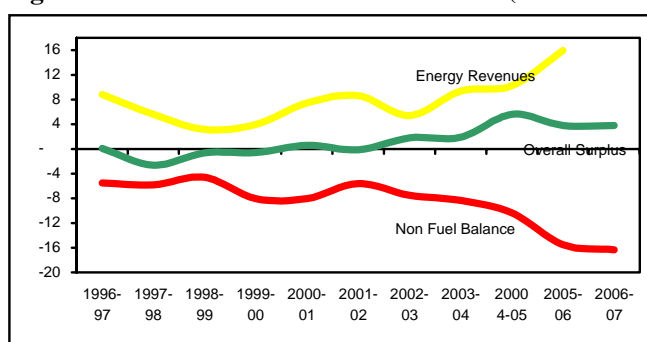
In a country such as Trinidad & Tobago, the extra resources generated by the boom presents a policy dilemma: whereas it is clear that the country must save part of this windfall, the dilemma is how much to save. It is an intergenerational issue: if the government spends more today, the economy grows faster and the present population benefits, but since this spending is in non-tradable goods, the pressure for a real exchange rate appreciation is more powerful and the non-energy tradable sector becomes less competitive, which limits its growth and makes the economy more vulnerable to energy prices shocks. At the same time, the economy is less prepared for

the time when resources are exhausted, both because it will not have a tradable structure to replace the energy sector and because there would be less resources to spend on future generations.

The current inflationary pressure is a reflection of this problem and it is eroding the external competitiveness of the tradeable sector. The inflation resulting from the fortunes of the energy sector, has been fuelled by government's massive construction expenditure and its expansionary monetary policy, thus reducing the competitiveness of the economy. According to the latest Corporate Confidence Index (CCI), local business confidence is falling, due to concerns about inflation, a shortage of skilled labor, lower investment returns and government's failure to moderate spending.

Recent estimates by the IMF (2007) indicate that the sustainable non-energy deficit in Trinidad & Tobago should be between 4.4% and 10.8% of GDP. This figure is significantly lower than the projected non energy deficit of 15-16% of GDP for the fiscal year 2005/06 and 2006/2007. The increase in the non-oil deficit has been generated both by the increase of public expenditure and a reduction of tax pressure on non-energy activities.

**Figure 5. Central Government Fiscal Balance (as % of GDP)**



Source: own elaboration based on IMF's Staff Reports

Between the fiscal year 1997/1998 and the fiscal year 2005/06, energy revenues increased from 7.4% to 19.4% of GDP while non energy revenues fell from 19.9% to 11.8% of GDP or from 33.8% to 20.7% of the non-oil GDP. As a result, the government reduced the tax burden on the non-oil private sector. Expenditure, on the other hand, grew from a low of 24.3% of GDP (in 2003-2005) to 28% in fiscal year 2006/07. Due to the outstanding growth in energy revenues, the overall balance remains positive with a surplus of 3.8%, but the balance for the non-petroleum sector represents a deficit around 16% of GDP. What these results suggest is that the Government is spending part of the windfall on the current generation. But there is a very important difference between the present boom and the 70's boom. In the 70's fiscal policy was highly procyclical, and the windfall was inefficiently spent; subsidies eased private investment in declining industries, and abundant capital inflows were spent. Public enterprise losses in 1979 were equivalent to 55% of oil revenues (Artana et al 2006).

In the current boom fiscal policy has been more conservative through the saving of part of the windfall in a Stabilization Fund, although the IMF (2007) figures suggest the fiscal surplus should be higher than what is being observed. The government has in fact

created a Heritage and Stabilization Fund, to be financed from excess income from oil and gas. Whenever these revenues exceed the quarterly projected budget by more than 10 percent, 60% of this difference is added to in the fund. In the same way, when revenues are below projections, government may withdraw using the same arrangement. Higher than budgeted oil prices have allowed for a build-up in the value of the Fund which totaled US \$1.2 billion by the end of the fiscal year 2005/6.

The Fund combines features of both ‘heritage’ and ‘stabilization’. This has been the cause of considerable debate and controversy. For the moment, legislation has not been enacted to establish how it is going to be operationalised. Details about the design of the fund are still under discussion and the objectives are still not clear (is it a mechanism for intergenerational smoothing or for putting planning on a predictable base?).<sup>7</sup> Furthermore, whereas it seems reasonable to save for the future when public debt is at sustainable levels but not otherwise, Trinidad & Tobago has a ratio of gross debt to GDP of 50% (higher than recommended for an emerging economy with narrow capital markets) and in this sense it may be worthwhile to reduce debt as was done by Russia during the early 2000s, instead of immediately contributing to the fund.

Several weaknesses persist besides the level of the public debt, including high interest rates and low tax revenues (as a share of GDP). Public expenditure has grown to a relatively high level (it represents almost 50% of non-petroleum GDP). The composition, however, is different when compared to the 70s, since now it is more directed to reduce poverty and improve health and education, instead of, as in the 1970s, spending the windfall in inefficient capital outlays. Transparency is also an issue since there are sizeable off-budget expenditure items which distort the fiscal statistics.

In any case, unless the economy is able to accumulate a large enough amount of resources in the Stabilization Fund, the actual relative high non-energy deficit implies that the government would have to make a drastic fiscal adjustment when the reserves are near exhaustion, but improper fiscal management will affect the economy today, by increasing risks. On the other hand, spending part of the windfall today might exacerbate the Dutch disease type of problems, affecting the welfare of future generations directly, because the Fund is lower, and indirectly, through distortions in the productive structure and an excessive specialization in energy products.

Regarding the use of funds in Trinidad & Tobago, there seems to be a policy conflict as to whether the oil wealth should be invested in human capital and infrastructure or saved for future generations. To achieve Vision 2020 goal the country will have to make investments, and the goal is to develop a knowledge-based society. However, as was argued by Artana et al. (2006), the strategy of spending more today carries some risks. First, spending on current or capital outlays contributes to an appreciation of the real exchange rate and might worsen the Dutch disease problem. Second, it is assumed that the social rate of return of government expenditure is higher than any other feasible alternative. Third, investing part of the fund today would not automatically diversify the economy and reduce the risks associated with oil price fluctuations. The evidence for Trinidad & Tobago, on the contrary, shows that recent export developments moved in

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<sup>7</sup> Artana et al (2006) suggest that an efficient stabilization fund be designed to improve the existent RSF. This fund should be built not only to enable conservative management of fiscal resources, saving during the booms and using the resources during the downturns, but also to avoid the Dutch disease.

the same direction as previous exports, developing and exporting oil and gas-related products like petrochemical goods and LNG, therefore diversification into petrochemicals and other products has not reduced the country's exposure to fluctuations in the price of petroleum and natural gas products.

Policy makers in Trinidad & Tobago have to understand that at this time fiscal policy has a very important function, and spending or not spending part of the windfall is a policy decision with trade-offs and risks.

What about tourism, which is one of the largest and fastest growing sectors in the world and a major driver of growth for Caribbean countries? Trinidad & Tobago seems to be one of the least developed countries of the region in this area. It ranks 8<sup>th</sup> in terms of tourist preferences in the English speaking Caribbean nations. In 2004, Trinidad & Tobago had 439.6 thousand international arrivals, but only 52% were tourist, representing tourism revenues of US\$249 million. In that same year the Dominican Republic received 3.5 million in international tourist and tourism revenues were US\$ 3.4 billion.

In terms of international tourists per square kilometer, Trinidad & Tobago has the lowest ratio in the English-speaking Caribbean, with 86.2 tourist per square km. The second lowest ratio is 221 (Dominica) and the regional average is 933. What is constraining tourism development in Trinidad & Tobago? Does the country have any comparative advantage in this sphere?

The tourism industry involves many sectors of the economy and requires a fair amount of coordination to develop, particularly international tourism, since externalities are large and the economies of scales in some related sectors are also high (particularly in transportation). The underdevelopment of tourism seems to be associated with the natural resource curse. The private sector has not been able to resolve the coordination problems to fully develop the sector, exchange rate volatility increases the risks and profit volatility. In addition, the government has historically not paid attention to tourism as a development driver, nor as a source of revenue, which has not aided private sector development. Tourism has not been seen as a source of growth, but as a low value-added sector which pays low salaries. Tourism has made some strides in Tobago (as opposed to Trinidad), but not at the same rate as in other neighboring countries.

To further the diversification effort, and even perhaps as a result of the experience of neighboring countries, the government has taken some initiatives to develop this sector. Some of the measures include: establishment of a Ministry of Tourism in 1994, developing and implementing tourism-related projects, building awareness of the tourism industry and facilitating tourism investment and development of the industry.

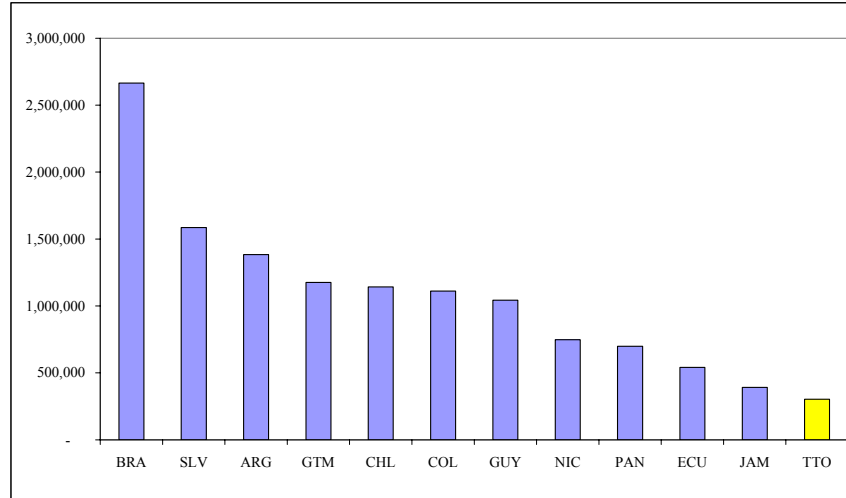
The Vision 2020 Tourism Strategic Development Plan (Government of Trinidad & Tobago, 2004) identifies tourism as a growth driver and a source of diversification away from energy.

## **9. Open Forest and the 'Natural resource curse'**

The 'open forest' measure is a measure of how easily is for a country to diversify its

exports (Hausmann and Klinger 2006). Trinidad & Tobago has the poorest ‘open forest’ in Latin America and the Caribbean with only 12% of the opportunities available to Brazil for producing new goods. This results from its specialization in oil-related products.<sup>8</sup>

**Figure 6. Open Forest Measure**



Source: Hausmann and Klinger (2006)

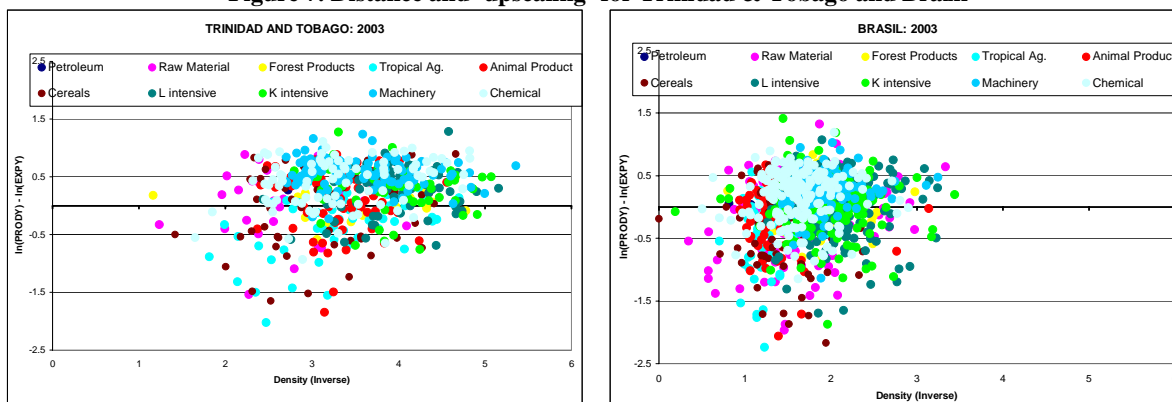
The following charts plot products using Leamer’s classification for crossing distances and the difference between productivity of the good and export basket productivity for Trinidad & Tobago and Brazil, two extreme cases (goods over the zero line are denominated upscale goods and those below downscale goods ). Not only are Trinidad & Tobago exports far from almost all kinds of products: they are also located at the same distance from the groups of low and high productivity (downscale and upscale goods respectively).

Trinidad & Tobago is far away from the densest part of the forest which is in a sparse area, and it has a greater distance (the inverse of density) among products, which means that export products are further away from each other in comparison to what obtains regionally. It is important to point out that even products in the petroleum sector are further from each other than in other benchmark countries. The closest groups are raw material and tropical agriculture.

These findings imply that the degree of sophistication of Trinidad & Tobago exports will hardly improve, unless economic policies are implemented to overcome the high and growing level of specialization.

<sup>8</sup> Hausmann, Hwang and Rodrik (2005) find this characteristic common to most oil-exporting countries.

**Figure 7. Distance and ‘upscaling’ for Trinidad & Tobago and Brazil**



Hausmann and Klinger (2006) found that a one standard deviation increase in open forest size results in an increase of half percentage in the average productivity growth rate for the basket, suggesting that the current pattern of specialization in Trinidad & Tobago is not only costly in terms of increasing the risk to shocks in oil prices, but also in achieving long run balanced growth. As in the case of most oil exporting countries, Trinidad & Tobago produces and exports a good with a very specific endowment not easily changeable to other kinds of goods. Additionally, if one takes into account the sudden appreciations in the real exchange rate, which usually occur in economies such as those with fluctuating oil prices, the development of other non-resource tradable sectors could turn into an uneasy task.

This indicates that Trinidad & Tobago’s problem is not only related to a cyclical phenomenon of real exchange rate appreciation during oil price booms, but that the problem is more permanent. In fact, exports of oil and related products represented between 70%-60% historically (in constant US dollars). As a consequence, the degree of export diversification (measured in real terms) did not change substantially in the last years despite the cyclical behavior of the WTI price.

## 10. Capacity, Innovation and Learning

The survey data show that firms in Trinidad & Tobago produce fewer products per establishment than in other regions, but this could just be due to economies of scope and local market sophistication. Related to this, they also have a lower amount of new products introduced per establishment than the benchmark economies.

The percentage of firms using technology licensed by foreign-owned companies is similar to that of Latin American countries but lower than that of East Asia. For the sectors exposed to international competition, the penetration of foreign-owned technology is widespread among firms in the energy sector and, to lesser extent, in the manufacturing sector. This finding is confirmed by the results obtained when the firms are disaggregated into exporting and non-exporting firms (32% to 10%). The rate of introduction of new products is higher in services than in manufacturing and energy and there are signs of greater innovation in larger and exporting firms.

However, Trinidad & Tobago underperforms when the quality of processes and products is evaluated. In fact, the percentage of firms receiving ISO Certification is half the average for Latin American countries (6.7% against 13.3%) and it is much lower than in East Asia. 23% of the firms in Trinidad & Tobago acquired technological innovations in the last 3 years, a much lower ratio than in other regions. Companies from the energy sector and the larger and exporting firms show a higher percentage of ISO Certification and introduction of new technological innovations.

The reasons for the limited acquisition of technological innovations are: the lack of property rights (41% of firms), macro instability (36%) and inadequate infrastructure (31%). In the energy sector, where the introduction of technological innovations is most important, the most limiting reason was 'the costly training of workers'; in manufacturing it was 'macroeconomic instability' and, for the remaining sectors, 'the lack of property rights.

When size is the demarcating factor, there are no important differences in the main causes. On the contrary, for exporting firms the financial cost is the most binding constraint to innovation while it was property rights for the non-exporting companies.

## **11. Conclusions**

In this work we have used the GDM approach to try to identify the growth constraints in Trinidad & Tobago and establish a ranking of priority, particularly for the non-energy sector, which is key for the country's diversification efforts. Trinidad & Tobago's growth is very unbalanced, led by the energy sector. In the non-energy sector the economic growth is much lower. The petroleum sector accounts for 29 points out of the 51 of the accumulated growth rate between 2002 and 2006, private sector services for 19 and the rest of the economy for just 3 points. What is even more striking is the low investment in the non-energy sector: since 1991 capital stock has increased by 7% per year but this was due almost entirely to the energy sector since; in the non-energy sector, the capital stock grew by a modest 1.5%.

New investment has been directed mainly to the gas industry, after the discovery of new reservoirs. But the new gas products are not really providing a strong source of diversification for the economy, since the prices of gas-related products are highly correlated with the oil-related products. In addition, in the last 50 years the non-energy tradable sector has been constantly shrinking as a share of GDP, which makes the economy energy-dependent, increasing the risks for the entire economy to energy prices shocks. The energy sector currently represents 45% of GDP, but this share almost doubled in the last 15 years, and the pattern of investment for the last years 10 years shows that the actual levels would hold and probably increase even more. This is contrary to the Vision 2020 plan, whose aim is to have Trinidad & Tobago become a developed country by 2020. This plan looks for a diversification of the economy away from the petroleum industries. The puzzle to be solved in Trinidad & Tobago is why resources are not flowing to the non-energy sector, particularly the tradable one.

Far from diversifying, the economy is becoming more concentrated in the energy sector, and this happens even though the government has implemented several reforms in the



right direction. Because many constraints to growth have already been eliminated, the case of Trinidad & Tobago is one of 'fine tuning', making the identification of constraints more difficult. It may be that most of the conditions for the development of the non-energy tradable sector are already present, but the economy needs more time to show significant changes. Or it could be that the removal of these constraints is not enough to boost growth in an economy that has already specialized in the energy sector. Viewed from this angle, the high exposure to energy price shocks might force the non-energy tradable sector to be even more competitive than in other countries where that risk does not exist.

The historical correlation between the international oil price and Trinidad & Tobago's real GDP, which is close to 80%, is a fact that business managers understand quite well. They know that growth opportunities could be very path-dependent, and current growth is limited by previous conditions. Not having a developed non-energy tradable sector can limit future growth due to lack of externalities in production, lack of forward and backward linkages, lack of learning-by-doing and lack of local entrepreneurship. In this sense, the 'curse' might be the past rather than the present conditions, and the current success of the energy sector might be in itself a constraint for the development of the non-energy tradable sector. Although the government has already created a stabilization and heritage fund, the problem might be credibility. In this economy more than in others, a very prudent fiscal policy, as well as clear and credible rules, is necessary to isolate the non-energy sector from the risks of the energy sector.

Fiscal policy in Trinidad & Tobago has always been very procyclical, exacerbating the Dutch disease problem. Little progress has been made recently in the area of prudent fiscal management and IMF estimates indicate that the non-energy deficit is not sustainable. There is also evidence that the current growth path of Trinidad & Tobago shows the symptoms of Hausmann and Rigobon's predictions, particularly a shrinking non-energy sector.

In addition to the macro risk, which business managers find as one of the most important factors limiting their growth opportunities, we have found that the quality of education is relatively poor (poorer than expected); that educational indicators are poorer than expected for Trinidad & Tobago's income level and below those of fast growing countries; that infrastructure is inadequate and indeed poorer than expected for the income level, particularly in terms of quality; that the country has failed to coordinate and develop sectors outside the energy sector, even in areas with clear potential, such as tourism; that crime is a growing concern; that the export product space is not very well diversified, and there are not many opportunities to diversify it and, finally, there is a lack of innovation and discovery outside the energy sector.

All these factors, affecting mainly the non-energy sector, lie on the 'lack of opportunities' branch of the growth-diagnostic tree. Indeed, for almost all the indicators analyzed (education, infrastructure and social indicators), Trinidad & Tobago underperforms when compared to countries of similar income level, and is more similar to other Caribbean countries rather than fast growing and diversified economies. In other words, Trinidad & Tobago has many constraints causing reductions in social returns (poor management, low profitability, lack of human capital, poor access to foreign markets and poor infrastructure) and one very important factor from the

appropriability side, Macro Risks, which shows the growth constraint for non-energy industries is low risk-adjusted returns rather than costly finance. This evidence is based both on macro and micro data and is in accordance with managers' opinions.

Prioritizing binding constraints is a very ambitious goal, and it might not even be prudent as (Rodriguez 2006). First, changing one policy at a time will generally be a very inefficient way of reaching the optimum: it may not only take longer to reach an optimum, thus generating welfare losses during the transition, but may also increase the probability of not converging to the optimum. Second, using this sequential approach we may get stuck at a local rather than at a global maximum.

The most critical element in Trinidad & Tobago is, and has been, the fiscal management of the natural resource revenues. When the Government spends the resources in non-tradable goods and services, it exacerbates volatility and aggravates the underdevelopment of the non-energy sector, forcing this sector to have even larger productivity gains to overcome the stress of the lack of competitiveness. The complementary inputs the Government provides (such as education and infrastructure) may not be enough to overcome the lack of competitiveness, making the effort meaningless.

The challenge Trinidad & Tobago faces is to overcome a natural tendency to suffer from the natural resource curse, developing strong anticyclical fiscal policies (first priority), but bearing in mind the long-run growth drivers and overcoming the limitations found in this study (in order to increase the private returns to investment in the non-energy tradable sector). Trinidad & Tobago might need to invest more in several areas (such as core infrastructure and education) to increase productivity in the non-energy sector, but it has to do so in a balanced way. The Vision 2020 goal has identified several potential policies, many of which seem to be well-oriented and in line with the findings of this study. Nonetheless, timing might be almost as important as the investment itself in a country facing the risk of energy price shocks.

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