

Diversification in Trinidad and Tobago

Waiting for Godot?

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Country Department Caribbean
Group

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Abstract

Economic diversification is an incessant theme threading policy discussion in Trinidad and Tobago, although with an ebb and flow over time. This topic is once again at the forefront of policy discussions following the recent oil price decline and subsequent to the new administration that took office in September 2015. This policy brief discusses the potential role that the exchange rate plays in diversification, fiscal adjustment and economic growth. In doing so we use a new estimation of the real effective exchange rate that better captures competitiveness of the country's non-oil exports. The evidence assembled in this policy brief suggests that the exchange rate could have an important role in fiscal adjustment, economic growth, and diversification. We find that a major change in the exchange rate would reduce the size of the fiscal adjustment in the short term. It would boost diversification of non-energy export products and their markets over the medium term, hence spur economic growth and employment. Presumably, there are perceived short-term downsides. These include (i) an inflationary effect which implies reduced household real income and hence a possible increase in poverty, and (ii), increased cost of imported material used as inputs in production, which compounded by microeconomic level balance sheet effects that arise in the presence of liability dollarisation that also leads to negative impacts of real exchange rate devaluations on firms' performance.

JEL Codes: E600, F170

Keywords: Economic diversification, real effective exchange rate, trade, non-energy sector, Dutch disease, economic growth, fiscal adjustment

An incessant theme threading policy discussion in Trinidad and Tobago (TT), although with an ebb and flow over time, is the diversification of the economy away from oil and gas towards non-oil tradables. This topic is once again in the forefront of policy discussions following the recent oil price decline and subsequent to new administration that took office in September 2015.¹ Facing the new administration is the task of dealing with low oil prices in the context of high public expenditure and continued expectations of direct public provision of jobs and income transfers, either directly or through tax expenditures to consumers and businesses. Whether oil prices remain low or not in the near future, the task is not only macroeconomic stabilisation–fiscal adjustment-but to boost economic growth hence employment over the medium term. Diversification needs to play a critical role in that endeavour. Further, so should the exchange rate for not only easing the required short-term fiscal adjustment but also towards the medium-term objectives of increasing diversification and real non-oil GDP growth hence employment.

In this policy brief we discuss the potential role that the exchange rate plays in diversification, fiscal adjustment and economic growth. In doing so we use a new estimation of the real effective exchange rate that better captures competitiveness of the country's non-oil exports.² A caveat is needed. We concentrate on the role of the exchange rate at the exclusion of other policy measures critical for a successful diversification strategy. These other policy recommendations regarding the objective of diversification all -to a greater or lesser extent- derive from the assertion that the problem of insufficient diversification faced by Trinidad and Tobago stems from market not government failures: “...we argue that the standard policy advice -implementing structural reforms, improving institutions and the business environment, creating infrastructure and reducing regulations – though necessary, will not be sufficient, because of fundamental market failure stemming from Dutch disease” (Cherif and Hasanov, 2016, p. 4). For a comprehensive statement of these policy recommendations see Cherif and Hasanov, 2016, for the Trinidad and Tobago case see Artana, Auguste, Moya, Sookram, and Watson, 2007, and Longmore, Jaupart and Cazorla (2014) and Elías, C., F. Jaramillo, and L. Rojas-Suárez. 2006.

Diversification has been a policy imperative going back to the country's first Five Year Plan and in subsequent ones (see Toney 1995). From these the following can be discerned:

¹ International oil prices fell from US\$115 per barrel in June 2015 to US\$35 per barrel in January 2016.

² See “Measuring Competitiveness in the Caribbean: A New Measure of the Real Effective Exchange Rate” by J. Khadan and C. Schimanski. IDB, not processed.

- (i) Oil & gas will run out.³ At current rates of resource extraction, it is estimated that by 2025-2030 Trinidad and Tobago's gas and oil fields will be fully depleted.
- (ii) Generate more employment meanwhile. Energy accounts for 44 percent of gross domestic product (GDP) but it only employed 3.1 percent of the labour force over the last decade.
- (iii) Reduce vulnerability to the vagaries of international prices of oil and gas.
- (iv) To increase overall economic growth as countries with a high percentage of natural resource – point source- exports grew systematically slower than do those with few resources (see Sachs and Warner 1995).

Over time, reflecting the current dominant common wisdom of policy of that moment, three phases can be determined (see Hilaire 1995): The first two phases were dominated by “industrialisation by invitation” (1) import-substitution industrialisation, (1950-1973) and (2) resource-based industrialisation, (1974-1982). Following the collapse of international oil prices in 1986 that lasted for almost two decades, and needing balance of payments support, the government of Trinidad and Tobago entered into two successive Standby Arrangements with the International Monetary Fund that led to the third phase of export-led industrialisation (1983-present).

An interesting parallel at that time but very pertinent to Trinidad and Tobago today is the case of Indonesia. As told by Cherif and Hasanov (2016), Indonesia is one of three oil exporters (the others being Malaysia and Mexico) that have successfully diversified their economies. The collapse of oil prices in the eighties led Indonesia to a shift in policies towards export promotion through attracting Direct Foreign Investment (DFI) in export industries, creation of free trade zones, and tax incentives while reducing tariff and non- tariff barriers. A similar change in policy thrust as Trinidad and Tobago, but Indonesia also had the largest exchange rate devaluation amongst developing countries. Further, these policies were in the context of declining oil production; it became a net importer by 2003. Successful diversification in oil exporters, like Indonesia, took place as their oil revenues were declining, the same decline currently facing Trinidad and Tobago whose reserves will run out within a short horizon.

However, diversification away from the energy sector towards non-oil and gas tradable in Trinidad and Tobago has largely failed. A summary measure of diversification is the Herfindahl-Hirschman index (HHI) to measure diversity in exports in terms of goods or markets. A country with a perfectly diversified export portfolio will have an index close to zero, whereas a country

³ BP Statistical Review 2013 data workbook, Energy Information Administration

that exports only one product or to one country will have a value of 1 (least diversified). As can be seen, there is diversification only within the energy sector that has been continuously diversifying since the late seventies both in terms of products (Figure 1) as well as in export markets (Figure 2). Vertical diversification within the energy sector occurred as oil production declined and has been replaced by natural gas. Natural gas and petrochemicals exports are now about 1.6 times the magnitude of oil exports. Growth in production of petrochemicals has mirrored the growth in the production of natural gas. The country has become the world's leading exporter of ammonia and methanol that together with urea make up today the main petrochemical products produced in the country. However, regarding non-oil and non-petrochemical (denoted as "non-Energy" in Figures 1 and 2), tradable diversification has remained low and almost constant but since the early 2000s has steadily decreased both in terms of commodities and markets.⁴

Figure 1. Diversification: Energy and Non-Energy Products

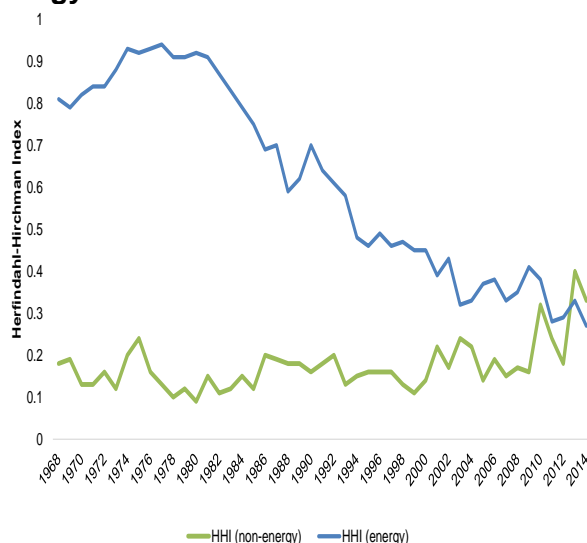
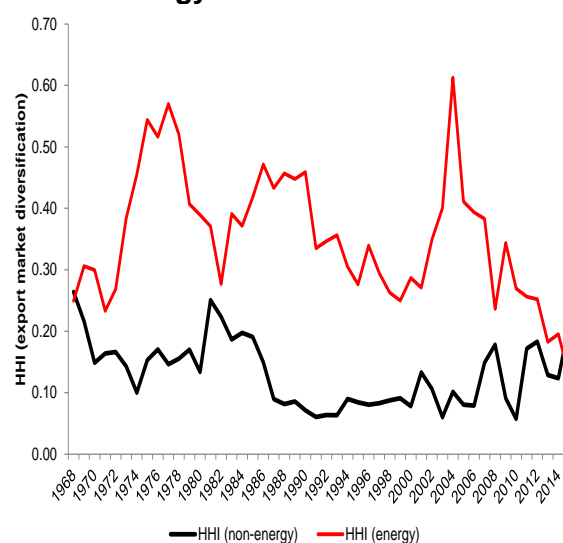


Figure 2. Diversification of Export markets for Non Energy Products



Source: Authors estimates from World Integrated Trade Solution database and Central Statistical Office, Trinidad and Tobago
Note: The HHI was calculated using Standard International Trade Classification (SITC) 2 digit data.

But why is the economy less diversified than desired, i.e., why have past and current policies failed? It is because the country is suffering the Dutch Disease. This disease occurs when a country has a chronic exchange rate overvaluation caused by the exploitation of oil and gas whose production and export is consistent with a more appreciated exchange rate than the exchange rate that would make internationally competitive non-oil and gas tradable. At the same time, producers for the domestic market face competition from cheap imports. Thus, in the

⁴ See the Annex for details of non-oil and gas exports and their markets.

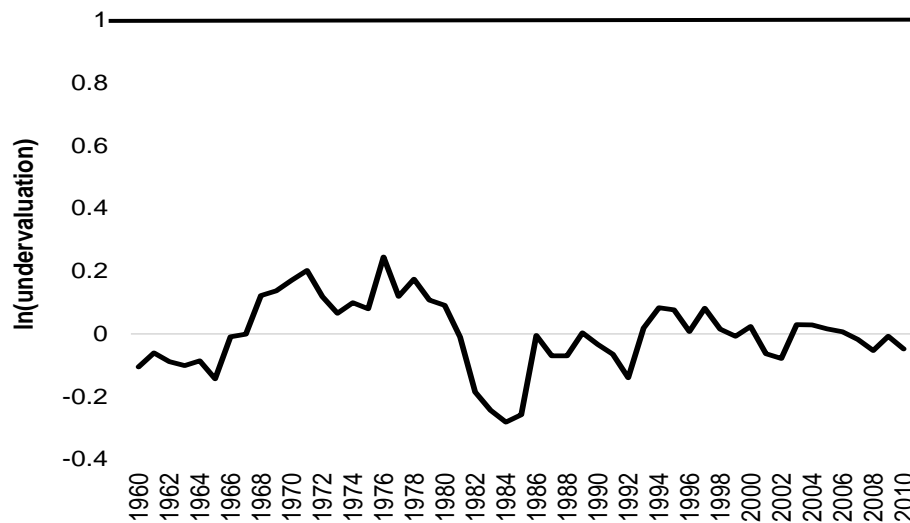
presence of the Dutch Disease, even those goods that are produced at the frontier of technology are not economically viable in a competitive market. If a new business enterprise utilising modern technology is established in a country affected by this disease, with all the other competitiveness factors being equal, it will only be economically viable if its productivity is greater than the productivity achieved by business enterprises in rival countries to a higher or equal degree of the appreciation of the exchange rate caused by the Disease.⁵ The severity of the crowding out of non-oil tradable depends both on the size of oil revenues and the initial technological gap (see Cherif and Hasnov 2016). In this case forces were stacked against past success in Trinidad and Tobago's diversification endeavour as the Dutch Disease hit hard given a large oil revenue and a high technological gap.

However, there is no single measure by which we can say absolutely that a country's currency is overvalued or undervalued, but there are ways to make some relative estimates. One of the simplest is to compare a country's per capita GDP, measured in U.S. dollars at market exchange rates, with its per capita GDP at an exchange rate that is adjusted for differences in the relative cost of living. Countries that have a lower GDP per capita adjusted purchasing power parity (PPP) than their nominal GDP per capita are said to have an overvalued exchange rate. In the same vein is Rodrick's (2005) overvaluation index (ROI). In this case the domestic price level is adjusted for the Balassa-Samuelson effect⁶. This index is estimated by the following steps: First, we use nominal exchange rates and purchasing power parity conversion factors (PPP) from the Penn World Tables to calculate a "real" exchange rate (RER). Second, we regress the RER on GDP per capita, which gives an estimate of the relation between real GDP and RER of -0.27 (Rodrick found a value of -0.24). So there is a strong Balassa-Samuelson effect: when incomes rise by 10 percent, the real exchange rate falls by around -2.7 percent. An index of undervaluation is obtained as the difference between the actual real exchange rate and the Balassa- Samuelson-adjusted rate. If the index is greater (smaller) than unity then there is an undervaluation (overvaluation). The overvaluation index is drawn in Figure 3; the Trinidad and Tobago dollar has been consistently and substantially overvalued.

⁵ Of course there is another effect of the Dutch Disease, not discussed in this policy brief namely large oil rents lead to an economic and political system dominated by unproductive rent seeking.

⁶ The Balassa-Samuelson effect suggests that an increase in wages in the tradable goods sector of an emerging economy will also lead to higher wages in the non-tradable (service) sector of the economy.

Figure 3. Relative Overvaluation Index (ROI)



Source: Authors estimates from Penn World Tables 7.1.

Typically, however, policy discussions focus on a real effective exchange rate. These indexes are usually built to measure a country's overall international competitiveness compared with that of its trading partners. Real effective exchange rate indexes are constructed using a weighted average of a country's nominal and real bilateral exchange rates against a set of countries. However, there is no universally agreed-upon method for calculating effective exchange rate indexes. Therefore, weighting methodologies, the types of trade included and the frequency with which weights are updated vary significantly across countries, making it less well suited to address current competitiveness issues. The choice of weights boils down to two options: trade weighting where the weights are based on direct export shares, import shares or both; and competition weighting where weights reflect the fact that a country's exports face competition from both domestic producers in the destination country and exports from other countries, referred to as third-market competition. The frequency at which trade weights are updated across countries typically falls into one of three time frames: annually, every 3 years, or approximately every 10 years. The most often real effective exchange rate (REER) used is one published by the International Monetary Fund (IMF). The IMF's REER uses competition weights, covers manufacturing goods, primary products and services (excluding oil) and services (travel only) and adjusts the weights approximately every ten years.

To address these deficiencies, we use a new Trinidad and Tobago adjusted real effective exchange rate (AREER) index using a methodology based on current international best practices. Country coverage should be broadened to i) better reflect Trinidad and

Tobago's trading patterns; ii) Trade weights assigned to a given country should reflect both direct bilateral trade with a country and the competition Trinidad and Tobago faces from that country in third markets; iii) Trade weights should be updated on a regular basis, preferably annually, to ensure that they reflect Trinidad and Tobago's trade patterns over time. The coverage in the REER is limited and weights are changed too infrequently.

The new index includes a broader set of countries and uses annually updated competition-based weights. These weights are constructed using bilateral trade data from the United Nations (UN) Comtrade database and account for both Trinidad's bilateral trade with another country and the competition Trinidad and Tobago faces from that country on a product-by-product basis in third markets. Trade in energy products is important for Trinidad and Tobago; these products have been excluded for the purposes of calculating the weights. Energy is excluded since prices are determined in global energy markets, and exchange rate movements are not expected to affect a country's relative competitiveness in such primary commodities. Discounting energy products also has the benefit of minimizing swings in trade weights that could occur due to large swings in crude oil prices. The index is based on third-market competition thus can be used to assess how exchange rate movements might affect Trinidad and Tobago's export market shares in key export markets.

The AREER fluctuates much more than the IMF's REER and shows a higher degree of appreciation (see Figure 4). It better captures competitiveness as despite nominal devaluations from 1988 until 1999, the AREER appreciated up to 1993 and thereafter depreciated, reflecting the pattern of currency changes of competitors in TT's export markets. Both AREER and REER indicate an appreciation since 2000. The pattern of appreciation and depreciation is more consistent with lags, the ups and downs of non-oil export, and market diversification (see Figure 5 and 6).⁷ Note that in both these figures, total non-oil exports have been filtered by the criterion that the product has a revealed comparative advantage greater than unity. The revealed comparative advantage of a country is measured by the relative weight of a percentage of total export of each commodity of a country over the percentage of world export in that commodity. When $RCA > 1$, it means that country has a revealed comparative advantage on given commodity. When $RCA < 1$, it means that country has a revealed comparative disadvantage on given commodity. In both figures it is also shown with the filter that a given commodity export is at a minimum 0.5 percent of exports.

⁷ A more granular pattern can be discerned by looking at key non-oil and gas exports and their markets. In the Annex is shown for three points in time key export products and markets.

Figure 4. Different Real Effective Exchange Rate Measures

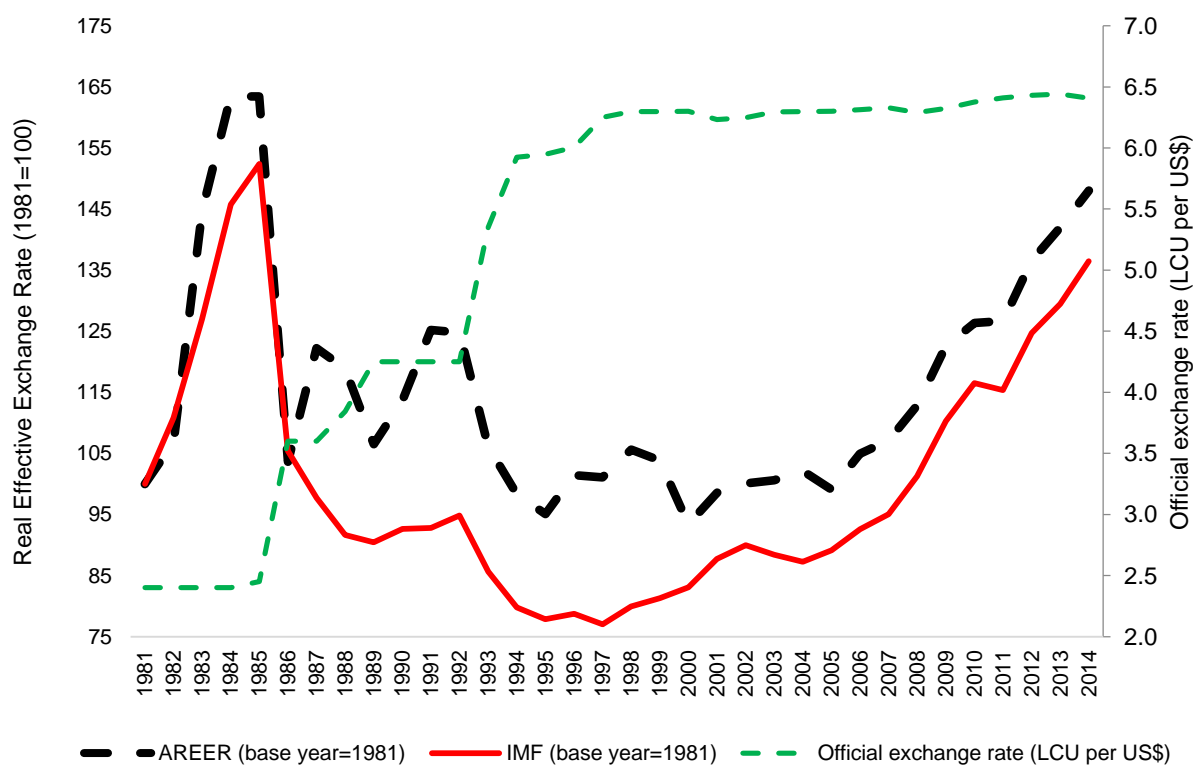


Figure 5. Number of Non-oil Export Products

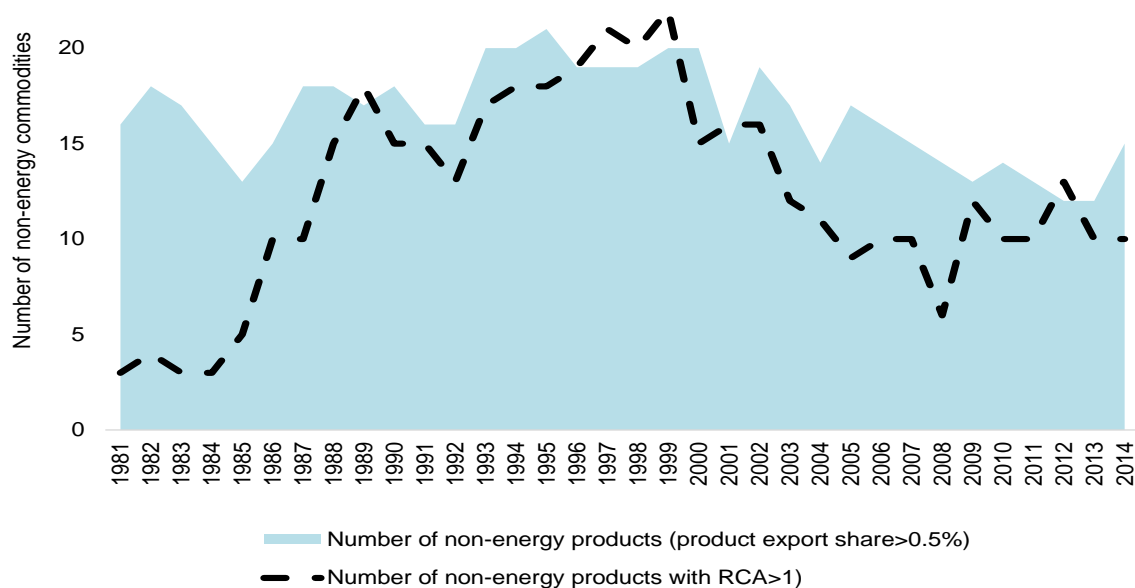
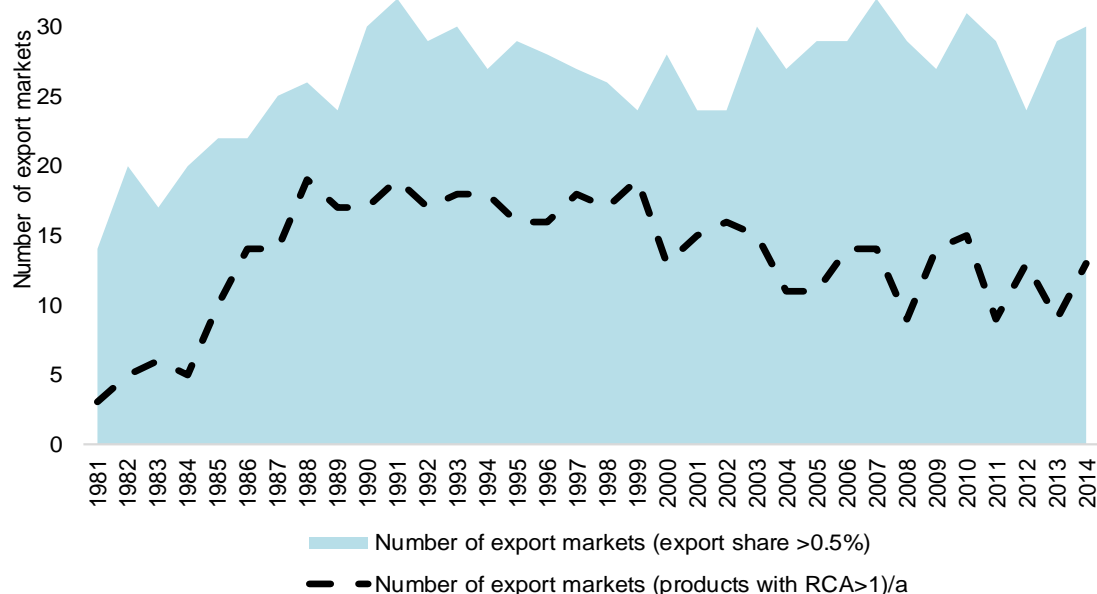


Figure 6. Number of Non-oil Export Markets

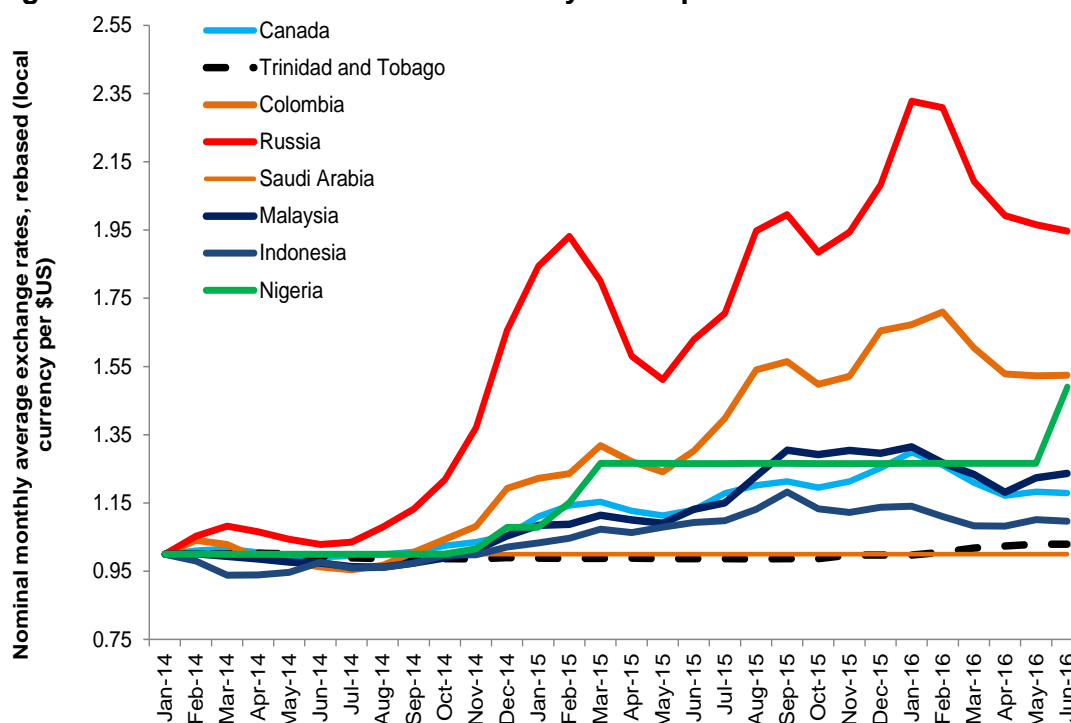


Source: Authors estimates from World Integrated Trade Solution database, Central Statistical Office, Trinidad and Tobago and World Development Indicators.

Since the recent oil price decline, TT is an outlier. There has been a rush of nominal devaluations of oil exporters (except the Saudi riyal (see Figure 7)⁸. Oil exporters have devalued (January 2014 to May 2016) over a range of 95 percent to 10 percent, more or less in line with the importance that oil represents in their export and fiscal revenue. TT, like Saudi Arabia, has not devalued (strictly speaking it has by 3 percent between January 2014 and July 2016).

⁸ Nigeria's Nira peg was initially maintained by limits on imports, restricted use of credit cards abroad, lowered ATM withdrawal limits and by reducing foreign reserves but to no avail and was eventually devalued.

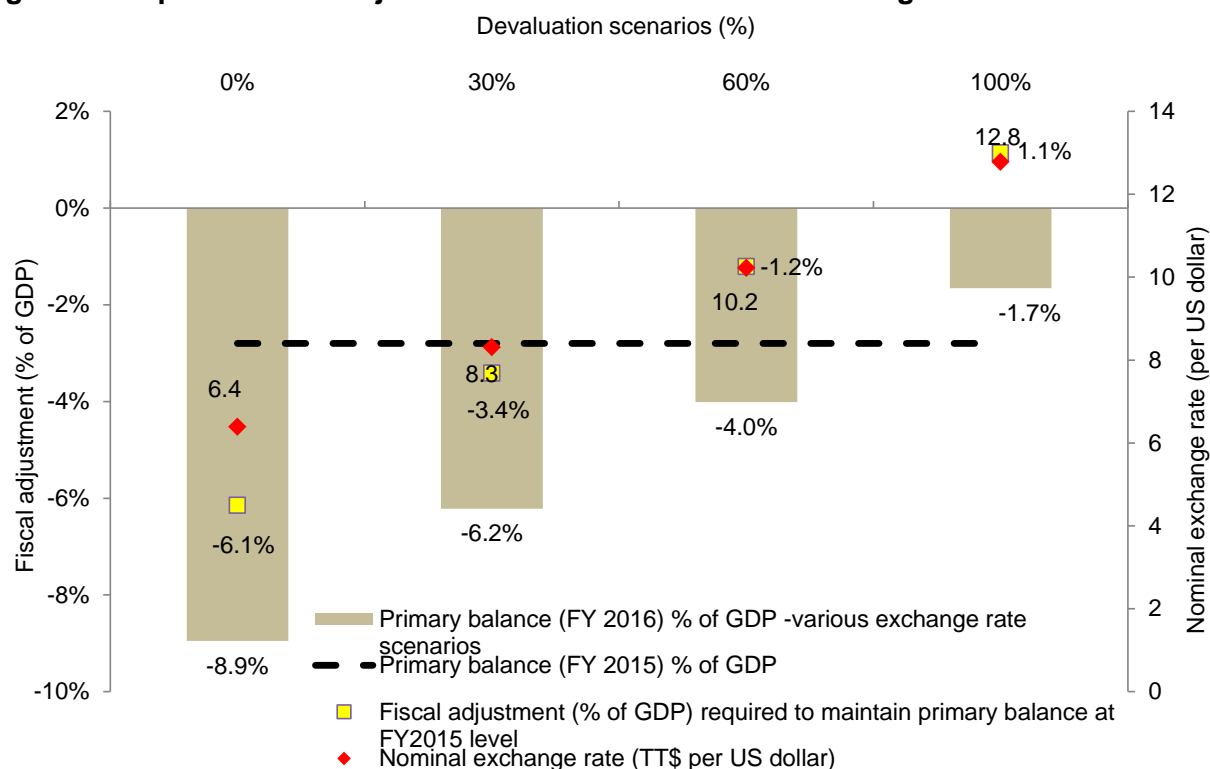
Figure 7. Recent Nominal Devaluations by Oil Exporters



Source: Authors estimates from International Financial Statistics, International Monetary Fund.

One of the reasons oil exporters have devalued is to increase oil revenues in local currency hence reduce their required fiscal adjustments. Figure 8 shows back-of-the-envelope - i.e. not considering secondary effects- estimations of how, for Trinidad and Tobago, a nominal devaluation would reduce the required fiscal adjustment for different levels of exchange rate devaluation to maintain the primary fiscal balance at the level of 2015, i.e. -2.3 percent of GDP. If the exchange rate is maintained at 6.4 TT per US\$ then oil and gas revenue loss requires a fiscal adjustment of 6.1 percent of GDP. If the exchange rate is 8.3 TT per US\$, a 30 percent devaluation, the required fiscal adjustment is less, 3.4 percent of GDP. If the nominal exchange rate is 10.2 TT per US\$, i.e. 60 percent devaluation, the required adjustment falls to 1.2 percent of GDP.

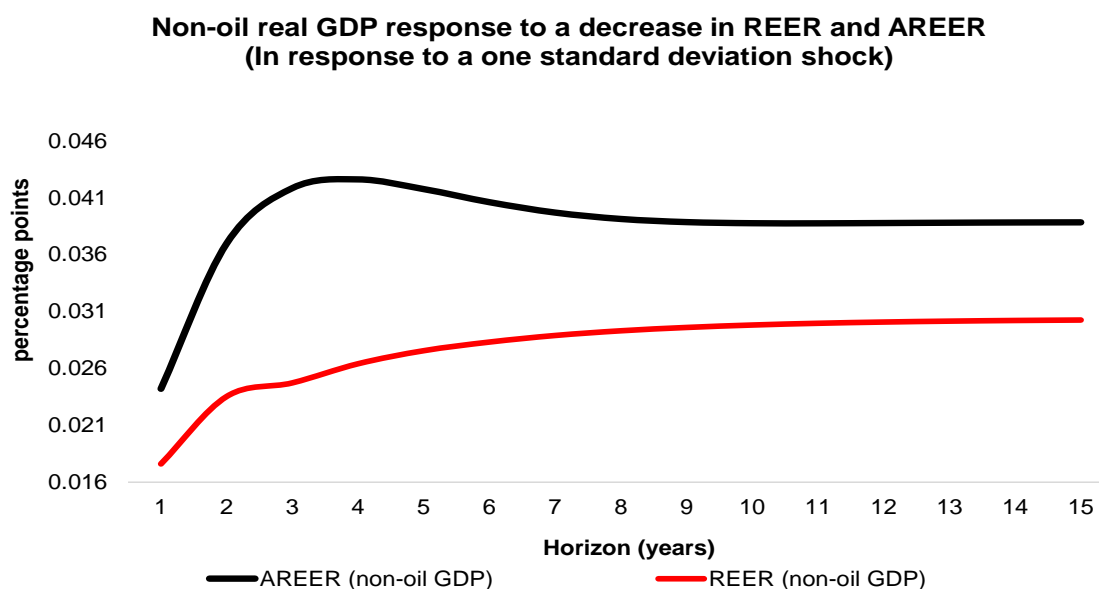
Figure 8. Required Fiscal Adjustment at Different Nominal Exchange Rates



Source: Authors estimates from IMF (2016)

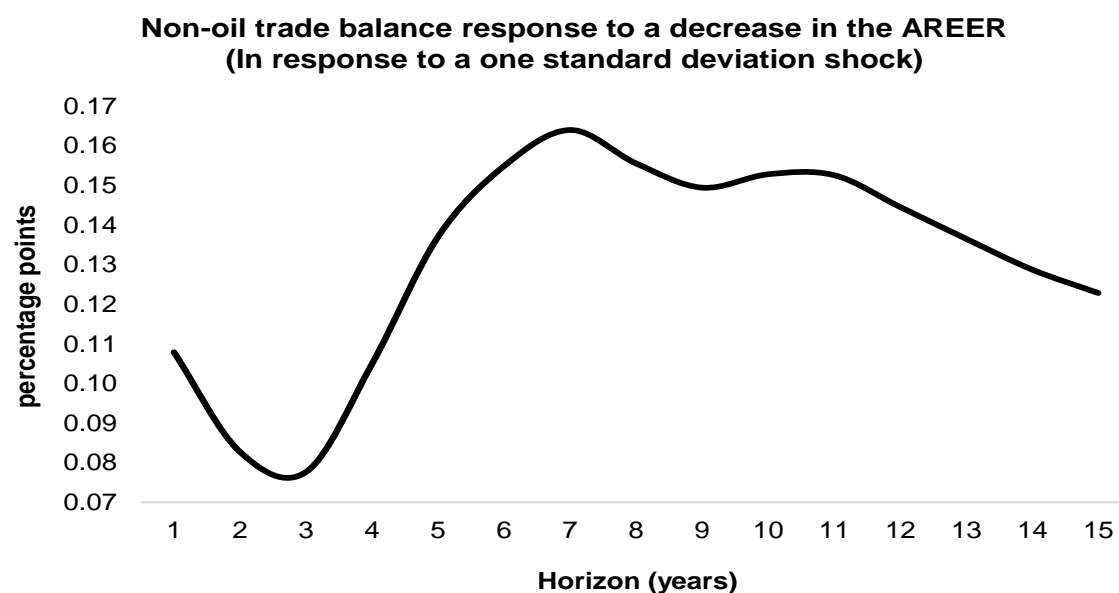
A real devaluation would also boost economic growth of the non-oil sector. Figure 9 shows the response function of non-oil GDP to a one standard deviation in the real exchange rate. The non-oil GDP shows a greater sensitivity to the adjusted real effective exchange rate than to the typical real effective exchange rate. This evidence is consistent with the previous findings where Rodrick (2008) shows that an undervaluation of a country's currency stimulates economic growth. The main channel through which the positive stimulus occurs is the tradable sector. The non-oil trade balance would also improve from a real devaluation. The simulation in Figure 10 shows the impulse response function of the non-oil merchandise trade balance to a one standard deviation shock in the adjusted real exchange rate. The non-oil trade balance initially worsens (not shown in Figure 10) but then improves consistently over the long run.

Figure 9. Real Effective Exchange Rate Change's Effect on Non-oil GDP Growth



Source. Simulation based on a Vector Error Correction model with Model 1: REER, Non-oil GDP, 2 lags and rank=1, and model 2: AREER, Non-oil GDP, 3 lags and rank =1. Authors estimates from World Integrated Trade Solution, World Development Indicators and Central Bank of Trinidad and Tobago

Figure 10. Changes in the Non-Oil Trade Balance and Adjusted Real Effective Exchange Rate Change



Source. Simulation based on a Vector Error Correction model with AREER, Non-oil trade balance, 4 lags and rank=1.: Authors estimates from World Integrated Trade Solution, World Development Indicators and Central Bank of Trinidad and Tobago.

The evidence assembled in this policy brief suggests that the exchange rate could have an important role in fiscal adjustment, economic growth, and diversification. A major change of the exchange rate would reduce the size of the fiscal adjustment in the short term. It would boost diversification of non-energy export products and their markets over the medium term, so it would lead to an improvement in the non-oil trade balance of the balance of payments. It would increase economic growth of the non-oil sector, hence employment. Presumably, there are perceived short-term downsides. These include (i) an inflationary effect which implies reduced household real income and hence a possible increase in poverty, and (ii), increased cost of imported material used as inputs in production, which compounded by microeconomic level balance sheet effects that arise in the presence of liability dollarisation, also leads to negative impacts of real exchange rate devaluations on firms' performance. Potential downsides that have apparently resulted in a policy donnybrook. Or just like Vladimir and Estragon, (see Ackerley and Gontarski 2006), policymakers are waiting for Godot; in this case the recovery of oil and gas prices. Either way, the diversification agenda is subsumed to short-term concerns with the corollary of a lost opportunity as a diversification policy can take a couple of decades or so to show results; the same time horizon when oil and gas run out.

Today, the warning by Ramsaran (1995), writing about the eighties, may be prescient: *"In the early phase of the oil boom foreign earnings were hived off into 'Special Funds', reflecting a conscious decision to conserve this resource. Once oil prices began to fall, however, there was a reluctance to put the brake on spending, and these reserves were quickly used up. With the buffer gone, and with the major foreign exchange sector in difficulty, the need for quick and strong corrective action became inevitable."* If so, perhaps Santayan's caution that *"those who cannot learn from history are doomed to repeat it"* is also relevant today.

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Annex

Table A1. Non-Energy Products with Export Share in Total Exports Greater than 0.5 %

1968		1999		2014	
Product description	% of total exports	Product description	% of total exports	Product description	% of total exports
Sugar and honey	39.7%	Iron and steel bars, rods, angles,	21.9%	Pig iron etc ferro alloy	34.3%
Aircraft	7.8%	Articles of paper, pulp, paperboard	7.0%	Ships/boats/etc	13.1%
Cocoa	6.6%	Pig iron, spiegeleisen, sponge iron	5.5%	Iron/steel bars/rods/etc	7.7%
Clothing except fur clothing	4.7%	Non alcoholic beverages, n.e.s.	5.3%	Lime/cement/constr matl	3.9%
Coffee	4.5%	Machinery and appliances non electr	4.5%	Beverage non-alcohol nes	3.3%
Fruit, preserved and fruit preparat	3.9%	Sugar and honey	4.5%	Primary/prods iron/steel	3.3%
Lime, cement & fabr. bldg.mat. Ex g	2.7%	Alcoholic beverages	3.8%	Cereal etc flour/starch	2.7%
Other crude minerals	2.6%	Cereal preps & preps of flour of fr	3.7%	Alcoholic beverages	2.4%
Manufactured articles, n.e.s.	2.0%	Lime, cement & fabr. bldg.mat. Ex g	2.9%	Measure/control app nes	2.1%
Alcoholic beverages	2.0%	Ships and boats	2.6%	Civil engineering plant	1.9%
Food preparations, n.e.s.	1.9%	Articles of artificial plastic mate	2.4%	Tobacco, manufactured	1.8%
Fish, fresh & simply preserved	1.5%	Machines for special industries	2.4%	Cut paper/board/articles	1.8%
Feed. Stuff for animals excl. unmil	0.9%	Food preparations, n.e.s.	2.2%	Ferrous waste/scrap	1.6%
Articles of paper, pulp, paperboard	0.9%	Fruit, preserved and fruit preparat	2.0%	Iron ore/concentrates	1.6%
Glassware	0.9%	Fish, fresh & simply preserved	1.6%	Aircraft/spacecraft/etc	1.5%
Manufactures of metal, n.e.s.	0.8%	Clothing except fur clothing	1.6%	Engines non-electric nes	1.4%
Telecommunications apparatus	0.8%	Printed matter	1.4%	Articles nes of plastics	0.9%
Power generating machinery, other t	0.8%	Wood manufactures, n.e.s.	1.4%	Edible products n.e.s.	0.8%
Metal containers for storage and tr	0.7%	Glassware	1.3%	Base metal ore/conc nes	0.8%
Scientific, medical, optical, meas.	0.7%	Tobacco manufactures	1.2%	Glassware	0.7%
Fruit, fresh, and nuts excl. Oil n	0.7%	Furniture	1.1%	Paper/paperboard	0.6%
Non ferrous metal scrap	0.7%	Road motor vehicles	1.0%	Fruit presvd/fruit preps	0.5%
Furniture	0.6%	Finished structural parts and struc	1.0%	Printed matter	0.5%
Machines for special industries	0.5%	Sugar confectionery, sugar preps. E	0.9%	Electrical distrib equip	0.5%
		Aircraft	0.9%		
		Text fabrics woven ex narrow, spec,	0.9%		
		Other electrical machinery and appa	0.7%		
		Equipment for distributing electric	0.7%		
		Scientific, medical, optical, meas.	0.7%		
		Milk and cream	0.6%		
		Fixed vegetable oils, soft	0.6%		
		Copper	0.6%		
		Feed. Stuff for animals excl. unmil	0.6%		
		Chocolate & other food prepts. con	0.5%		
		Vegetables, roots & tubers, fresh o	0.5%		
Total	88.9%		90.4%		89.6%

Source: Authors estimates from World Integrated Trade Solution database and Central Statistical Office, Trinidad and Tobago

Table A2. Number of Export Markets for Non-Energy Products¹

	1968	1999	2014
	Total number of export markets (13)	Total number of export markets (38)	Total number of export markets (30)
Antigua and Barbuda		Antigua and Barbuda	Antigua and Barbuda
Argentina			Argentina
Bahamas, The	Bahamas, The	Bahamas, The	
Barbados	Barbados	Barbados	Barbados
Brazil		Brazil	Brazil
Canada	Canada	Canada	Canada
China			China
Colombia		Colombia	Colombia
Costa Rica			Costa Rica
Dominica		Dominica	Dominican Republic
Dominican Republic		Dominican Republic	
Egypt, Arab Rep.			Egypt, Arab Rep.
France		France	
Germany	Germany		Germany
Grenada		Grenada	Grenada
Guadeloupe	Guadeloupe		
Guatemala			Guatemala
Guyana	Guyana	Guyana	Guyana
Haiti		Haiti	Haiti
Hong Kong, China			Hong Kong, China
Jamaica	Jamaica	Jamaica	Jamaica
Korea, Rep.			Korea, Rep.
Mauritius			Mauritius
Mexico		Mexico	
Netherlands	Netherlands	Netherlands	Netherlands
Netherlands Antilles	Netherlands Antilles	Netherlands Antilles	
Norway			Norway
Peru			Peru
Portugal		Portugal	
Spain			Spain
St. Kitts and Nevis		St. Kitts and Nevis	
St. Lucia		St. Lucia	St. Lucia
St. Vincent and the Grenadines		St. Vincent and the Grenadines	St. Vincent and the Grenadines
Suriname	Suriname	Suriname	Suriname
Tunisia			Tunisia
United Kingdom	United Kingdom	United Kingdom	United Kingdom
United States	United States	United States	United States
Venezuela	Venezuela	Venezuela	Venezuela
% of total export	97%	96%	94%

Source: Authors estimates from World Integrated Trade Solution database and Central Statistical Office, Trinidad and Tobago

Note: Markets selected if they accounted for more than 0.5 % of Trinidad and Tobago's total exports.

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