CENTRAL BANK OF
TRINIDAD & TOBAGO

# The Twin Deficits Hypothesis: A Theoretical Phantasm Or Realistic Construct?

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November 2021

**ABSTRACT**

This paper evaluates the relationship between the current account balance and the fiscal balance in Trinidad and Tobago, in the context of the Twin Deficits Hypothesis, using time-series data for the period 1988 to 2019. The Twin Deficits Hypothesis purports that there is a positive causal relationship between the fiscal balance and the current account balance, where for example, a fiscal deficit can result in a current account deficit. Through the employment of cointegration analysis- vector error correction modelling, granger causality, impulse response and variance decomposition techniques, the validity of this economic theory is examined. The empirical results suggest the existence of the Twin Deficits Hypothesis for the economy of Trinidad and Tobago, with evidence of causation running from the fiscal balance to the current account balance and vice versa (bi-directional). Given the link between the fiscal and current account balances, policies should be geared toward strengthening the country's performance on the fiscal and external fronts. In terms of the fiscal accounts, the adoption of a medium-term fiscal framework which carefully balances revenue-enhancing and expenditure-reducing measures is recommended. Meanwhile, policies targeted at managing the level and composition of imports as well as boosting production and exports from the non-energy sector could improve the current account balance. Another option is to allow more flexibility in the exchange rate, which could help to mitigate the impact of external shocks on the domestic economy, improve competitiveness and safeguard gross official reserves.

# 1  Introduction

Consistent with small open commodity-based economies, the fiscal and current accounts of Trinidad and Tobago follow a similar trend to global energy prices and domestic energy production. For instance, through an observation of the data, with the onset of the 2007/08 Global Financial Crisis, there was a precipitous decline in international commodity prices, which affected Trinidad and Tobago's energy revenues and energy export earnings. As a result, over the last eight years (2012-2019) the Government has consistently run deficits while the current account balance recorded smaller surpluses in comparison to a record surplus registered in 2008. The fiscal deficits were financed through a combination of domestic and external borrowings and withdrawals from the Heritage and Stabilisation Fund (HSF). In 2020, the emergence of the novel coronavirus (COVID-19) and associated containment measures resulted in a slump in global energy prices, which affected the fiscal accounts. Despite the low commodity price environment and production levels, the current account seldom went into a deficit but registered smaller surpluses. The divergence in the overall positions of these accounts is peculiar as both share similarities in composition. Therefore, an examination of a possible causal relationship between the fiscal and current account deficits can highlight if a historical relationship exists between these balances. This nexus can be captured in the tenets of the Twin Deficits Hypothesis (TDefH). Further, testing the validity of the Twin Deficits Hypothesis for Trinidad and Tobago can provide insights into the underlying channels through which the fiscal balance impacts the current account balance or vice versa and thus guide the design of fiscal and monetary policies geared toward improving the performances of these accounts.

Theoretically, four main propositions are used to explain the pattern of relationship between the fiscal and the current accounts deficits. The Keynesian absorption theory explains that the increase in the budget deficit leads to higher aggregate demand and hence an expansion of imports, which worsens the current account deficit. Secondly, in the opposite situation, unidirectional causality exists from the current account deficit to the budget deficit (Avci 2012). In the description of this outcome, which has been referred to as reverse causality, a deterioration in the current account position leads to a slowdown in economic growth which results in a budget deficit. This is evident in commodity exporters when a decline in commodity exports reduces government revenue and results in an overall budget deficit. The third hypothesis references a bidirectional causality between the two deficits. Simply put, a budget deficit causes a current account deficit, and a current account deficit causes a budget deficit (Avci 2012). This was said to occur on instances where savings and investment are highly correlated, thus demonstrating a high level of capital mobility (Handoyo et al. 2020). The fourth proposition, named after its founder David Ricardo, is the Ricardian Equivalence Hypothesis (REH) which posits that any shift in government financing, either through taxes or debt, does not impact the interest rate, quantity of investment or the current account balance (Baharumshah et al. 2006).

Furthermore, within the domestic context, the relationship between the fiscal and current account balances can be broadly described through varying channels. Importantly, the Government is a large demander of goods and services, whereby a notable percentage of spending on the Government's capital programmes (bridges, highways, hospitals, and other public infrastructural projects) is directed at purchases of foreign produced material, machinery and equipment. In this regard, expansionary fiscal policy can induce a fair amount of expenditure on imports, making the Government an influencer of import demand patterns. Additionally, the Government indirectly impacts import demand as it is the single largest employer within the economy. In Trinidad and Tobago, the public service is responsible for employment of a significant percentage of the working age population and payment of salaries, therefore providing the means for consumers to purchase imported goods and services. On the side of exports, the Government has instituted several initiatives aimed at strengthening the export capacity of the non-energy sector. Some of these factors include, the establishment of exporTT, the Export Booster Initiative and the introduction of foreign exchange lending by the EXIMBANK to local manufacturers. Additionally, the Government is responsible for the negotiation and implementation of bi-lateral trade agreements between Trinidad and Tobago and the international community. The culmination of these factors highlights the direct influence of the Government, through certain fiscal initiatives, in directing the movement of the current account balance. Given these domestic circumstances and observations, it initiates the current research undertaking to empirically examine the historical and current relationships between the fiscal and current account balances. Based on the literature, this nexus can be succinctly captured in the tenets of the Twin Deficits Hypothesis (TDefH).

This paper examines whether this relationship holds in Trinidad and Tobago. Answering this question will expound on whether one of three related conditionalities in this area of examination exists for the case of Trinidad and Tobago, the first option being the existence of the TDefH as initially discussed, secondly, if there is Ricardian Equivalence (RE) - an increase in the fiscal deficit has no effect on the current account deficit, or thirdly, if the Twin Divergence Hypothesis holds - an increase in the fiscal deficit improves the current account deficit.

This topic has been widely examined in the international literature, with few representations of it within the region. While some Caribbean authors have included Trinidad and Tobago in a panel of countries, there are no investigations that focus solely on the individual economy. This paper adds to the existing literature by focusing on the relationship between the fiscal and current account balances for the economy of Trinidad and Tobago. This narrowed study will provide a direct and detailed account of the TDefH while giving insight into appropriate policy recommendations within the domestic context. The paper finds that there is a causal link between the fiscal balance and the current account balance. Causality runs from the fiscal balance to the current account balance and vice versa. Factors such as the Government's demand for tradeable goods, the level and composition of

imports, limited exchange rate flexibility, and degree of openness are responsible for the relationship. Given the link between the fiscal and current account balances, policies should be geared towards strengthening both accounts. In terms of the fiscal accounts, the overall balance could be improved by implementing measures to boost revenues and further streamline expenditure. These measures should form part of a wider medium-term fiscal framework. With respect to the current account, policies targeted at managing imports would lead to an improvement in the current account balance. Additionally, further support is needed to boost production and exports from the non-energy sector. Another option is to design and implement a more flexible exchange rate regime which would help to mitigate the impact of external shocks on the domestic economy, improve competitiveness and safeguard gross official reserves.

The structure of the paper is as follows; Section 2.0 provides a review of the international and regional literature on the TDefH, and this is followed by Section 3.0 which presents a description of pertinent macroeconomic variables for the domestic economy. Section 4.0 lays out the data and methodology used and the empirical tests while Section 5.0 presents the results and analysis of the model. This study concludes in Section 6.0 which summarises the findings of the paper and puts forward relevant policy recommendations.

## 2  Literature Review

During the 1980s and 1990s, investigations into the causal relationship between an economy's government budget deficit and current account deficit became commonplace largely because at that time the United States (US) was experiencing deficits in both accounts. This circumstance gave birth to the identity called, the 'twin deficits hypothesis'. The groundwork for the twin deficits hypothesis was cemented by the Mundell-Fleming model which was introduced in the early 1960s. The Mundell-Fleming model set forth the framework for understanding an open economy by examining the relationships among an economy's nominal exchange rate, interest rate and output, therefore, building on the closed economy model.  The twin deficits hypothesis provides a much more laser focused approach placing attention on two key variables, the budget deficit and the current account deficit. Persistent fiscal and trade related imbalances have garnered the attention of policy makers and economists, leading to a number of country-specific studies examining this topic.

In order to appreciate the practical applicability of this macroeconomic concept, a theoretical understanding is necessary. By definition, the twin deficits hypothesis purports that there is a causal relationship between the fiscal deficit and the current account deficit (Bird, Pentecost and Yang, 2019). It derived its basis from the national income identity (NII), which is obtained from the Keynesian spending equation, and penned on the Mundell-Fleming model:

$$CA= (Spr - Ipr) + (Sg - Ig) \tag{1}$$

Where CA is the current account, Spr and Ipr are private savings and investment, respectively; and Sg and Ig are government savings and investment. Sg – Ig is equivalent to the fiscal balance.

 There are several propositions that can arise from examining the twin deficit hypothesis (Baharumshah et al. 2006). The first proposition speaks to a positive relationship between the budget and current account deficits, where an increase in the budget deficit would place upward pressure on interest rates leading to capital inflows and an appreciation of the exchange rate. The appreciation of the domestic currency increases the quantity of imports and makes exports less attractive, resulting in a trade deficit and subsequently, a current account deficit (Baharumshah et al. 2006).

On the contrary, some studies have highlighted evidence of a negative relationship between the deficits of both accounts which is referred to as the Twin Divergence Hypothesis. The occurrence of a twin divergence was demonstrated by Kim and Roubini (2008) for the US economy, where an increase in the budget deficit leads to a decline in the current account balance. This negative relationship occurs in instances where an economy is experiencing a recession, brought on by declining production and budget deficits, resulting in a decrease in investment which outweighs the falloff in national savings (Handoyo et al. 2020).

Thirdly, unidirectional causality exists from the current account deficit to the budget deficit (Avci 2012). In the description of this outcome, which has been referred to as a reverse causality, a deterioration in the current account position leads to a slowdown in economic growth which results in a budget deficit. The underlying characteristics of the domestic current account balance, which defines the savings versus investment relationship, helps to determine the impact on the fiscal balance. A current account deficit indicates that a country is spending more than it is saving which alludes to higher import expenditure when compared to export earnings. In the absence of foreign income, Government spending will be required to address this imbalance which can invariably lead to an accumulation of debt, reduced exporting capacity, further current account deficits and increased fiscal deficits. Evidence of this relationship has been primarily found in small, open, developing economies, which has been illustrated among Latin American, and to some extent, East Asian economies (Reisen 1998).

The fourth hypothesis references a bidirectional causality between the two deficits. Simply put, a budget deficit causes a current account deficit, and a current account deficit causes a budget deficit (Avci 2012). This was said to occur on instances where savings and investment are highly correlated, thus demonstrating a high level of capital mobility (Handoyo et al. 2020). Also, Arize and Malindretos (2008) investigation of the twin deficit hypothesis for several African countries indicated bidirectional long-run causality between the budget deficit and the trade deficit receives strong empirical support in the majority of cases. The authors concluded that based on the nature of the relationship between the trade deficit and the budget deficit in these developing countries, balancing the budget cannot be expected to reduce the trade deficit; however, what is needed are both fiscal and monetary policies.

The final proposition, named after its founder David Ricardo, is the Ricardian Equivalence Hypothesis (REH) which posits that any shift in government financing, either through taxes or debt, does not impact the interest rate, quantity of investment or the current account balance (Baharumshah et al. 2006). Based on this assumption, the REH rejects the interpretation of any causal relationship between both deficits as postulated by the Keynesian approach, therefore the current account and budget deficits act independently. Theoretically, in the absence of any changes to government spending, the REH states that a reduction in current tax rates would not contribute to increased consumption, but rather rational consumers will engage in increased savings to offset any anticipated future hikes in taxation rates (Avci 2012). Ultimately, in REH theory, no relationship exists between budget deficits, which ensue from a cut in tax revenues, and current account deficits (Avci 2012). To sum up, a number of studies have been undertaken to study the relationship between the current account and budget deficits which incorporate one of the four propositions highlighted previously, however a near-consensus has not been reached in the literature which point to a specific causal relationship. Results have varied greatly based on the structure and types of economies examined which range from developed to emerging market and developing.

Early studies examining this twin occurrence began in the US and have since expanded to other developed economies. Investigations at the time indicated that budget deficits grew at an unsustainable level which contributed to expanding current account deficits, through the transmitting effects of exchange rate appreciation and higher interest rates. This occurrence was in line with the Keynesian expectation, with evidence of a unidirectional causal relationship between the budget deficit and the current account deficit. Policy recommendations focused on trade policies, which included the imposition of trade barriers such as quotas and tariffs with the aim of curbing import volumes, and legislation to encourage domestic content ratios for imports. Monetary measures were also exercised, such as expansionary monetary policies geared towards reducing real interest rates.

Within recent times, the methodological approaches have become more econometrically sophisticated, but this has not changed the conclusions drawn which continue to validate those of previous authors. For example, in 2013, Tang proposed an alternative framework for testing the twin deficits hypothesis in the US by considering the behavioural implications of the income-expenditure equilibrium as opposed to the simple accounting relationship based on causality, where shocks to the budget balance shifted the current account position in the same direction. The paper considered the role of goods and services and market clearing conditions which incorporated behavioural determinations of private saving and domestic investment, given that the savings and investment channels are important variables in determining the US current account deficit (Tang 2013). The findings of the research paper support the existence of the twin deficits hypothesis in the US.

Similar studies have also been carried out in other advanced economies. In 2013, Forte and Magazzino examined the validity of the twin deficits hypothesis in 33 European nations[1] using panel generalized least squares and method of moments methodologies. Analysis of the relationship between both deficits reveals that the twin deficits hypothesis was present in high deficit economies, where a chronic and robust budget deficit generates a trade deficit. More specifically, a 1.0 per cent increase in the government budget surplus/GDP ratio is associated with a 0.15 percentage point improvement in the current account balance. According to the authors, the evidence validates the notion that public debt creates an unsustainable burden to an economy and that fiscal constitutional constraints to a balanced budget may be appropriate (Forte and Magazzino 2013).

The twin deficits hypothesis has also been applied to developing and emerging market economies. Some of which share similar economic characteristics to Trinidad and Tobago (Behar and Fouejieu 2016). Investigations also encompassed comparisons between oil and non-oil producing countries. For example, Belguith (2016) tested the relationship between current account and budget deficits for eight Middle Eastern/North African (MENA)

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[1] The European nations included in the study are: Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, and the United Kingdom.

countries[2] which are defined as either oil exporters or oil importers. The empirical work involved autoregressive distributed lag analysis, cointegration analysis, error correction modelling and Granger causality testing. The study revealed mixed results among the eight countries; current account deficit causes budget deficit in Egypt, Kuwait and Saudi Arabia (oil-exporters), budget deficit causes current account deficit in Saudi Arabia highlighting the existence of the twin deficits hypothesis, while the REH was evidenced for the remaining economies. Based on these findings, it is suggested that the current account balance should be used to supervise developments in the fiscal balance for oil exporting countries.

A recent study by Samotu and Orisadare (2020) examined the occurrence of a twin deficits hypothesis in Nigeria, using similar testing methodologies as Belguith (2016). The paper added to the discussion by analysing the impact of structural breaks on the validity of the twin deficit hypothesis. Results highlight that the budget deficit exerts a positive effect on the current account deficit over both the short- and long-runs, therefore confirming the presence of the twin deficits hypothesis. However, incorporation of structural breaks in the testing techniques did not yield statistically significant changes in model estimates. Policy implications have suggested that the authorities should concentrate on promoting exports, namely non-oil exports, while reducing dependence on imports.

Among the body of literature on the twin deficits hypothesis in developing economies, is an extensive statistical investigation carried out by the International Monetary Fund (IMF 2018). The study executed by Furceri and Zdzienicka examined the existence and magnitude of the twin deficits in 114 developing economies. In order to overcome the limitations faced by incomplete data for some developing countries, the authors adopted the local projections method to estimate the short- and medium-term responses of the varying current account imbalances to particular shocks. This methodology employs the use of a regression formula, but is not barred by the dynamic restrictions embedded in vector autoregression specifications. In line with other reports on the topic, the paper finds a positive relationship between both balances, in which an increase of 1.0 per cent of GDP in the budget balance improves the current account balance on average by a 0.8 percentage point of GDP (Furceri and Zdzienicka 2018). Furthermore, the effect is more significant among economies that are experiencing a recession, are more-open, classified as having flexible exchange rate regimes or possess lower initial public debt-to-GDP ratios.

Regionally, Jamaica is one of the pioneers in advancing this topic among the Caribbean economies. In 2015, Nicholson introduced a multivariate vector autoregressive framework for analysing the validity of the twin deficits hypothesis in Jamaica. It should be noted that the multivariate approach extends on the bivariate models utilised in most studies, by considering any possibility of omitted variable bias (Nicholson 2015). Empirical evidence points

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[2] The eight MENA countries are: Tunisia, Morocco, Egypt, Iran, Jordan, Oman, Saudi Arabia and Kuwait.

to reverse causality stemming from the current account balance to the fiscal balance. An explanation presented for results inconsistent with the Keynesian approach states that, persistent current account deficits in Jamaica have led to balance of payments problems, requiring IMF loan arrangements for financing, and consequently compounding the developing economy's debt burden. Policy recommendations to address this problem are centred around improving the balance of payments position, which requires prudent fiscal management to create a suitable macroeconomic investment environment for encouraging export promotion (Nicholson 2015).

On a wider scope, Alleyne et al. (2011) of the Economic Commission for Latin America and the Caribbean (ECLAC) attempted to answer the question of whether the fiscal balance impacts on the current account balance or vice versa for 10 Caribbean territories[3]. The authors applied Granger causality testing and vector autoregressive modelling to panel data over the period 1980 to 2010. The findings revealed mixed results for the countries, bi-directional causality was found for Grenada, Guyana and Jamaica meaning that both variables influenced each other through feedback effects, for Barbados and Belize the current account caused the fiscal balance and not vice versa, and in Saint Vincent and the Grenadines, causation ran from the fiscal balance to the current account balance. Meanwhile, for Antigua and Barbuda, Saint Lucia and Trinidad and Tobago, no statistical significance was found of causation between the two variables. The findings of bidirectional causation and causation running from the current account balance to the fiscal balance - similar to the results presented by Nicholson (2015) for the case of Jamaica - highlight that the answer to addressing this imbalance not only requires an expenditure adjustment, but a solution to the current account deficits. For the region, the paper notes a decline in domestic investments, and a weakened trade and services balance which accounted for the deteriorating current account balance. Proposals put forward for improving this outlook involve, the implementation of strategically tailored fiscal consolidation programmes that recovers the budget balance while also maintaining the welfare of the vulnerable in society, additionally on the external sector side, diversification of the export base and source markets through private and public sector partnerships is also encouraged.

The survey of the literature revealed the existence of a twin deficits hypothesis for some countries, while in other cases reverse causality and Ricardian equivalence have been established for some countries. One specific study in the Caribbean included Trinidad and Tobago as part of a panel of countries. This research aims to add to the existing literature by narrowing the focus to look solely at the economy of Trinidad and Tobago and by using a larger dataset.

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[3] The Caribbean countries examined are: Antigua and Barbuda, Barbados, Belize, Grenada, Guyana, Jamaica, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines and Trinidad and Tobago.

# 3   Stylized Facts

Consistent with energy exporters, Trinidad and Tobago's economic performance moves in line with commodity price cycles, that is, improving during upswings and deteriorating during downswings. For instance, during the commodity super-cycle from 1999 to 2008, the domestic economy experienced robust growth underpinned by the energy sector which accounted for 37.6 per cent of GDP **(Figure 1).** The buoyancy of the energy sector also spilled over to the non-energy sector, particularly in the services sectors—finance, distribution, transport and the Central Government.   However, the domestic economy remains susceptible to the volatility in global energy markets and with the onset of the 2007/08 Global Financial Crisis (GFC), the domestic economy suffered a terms-of-trade shock. The pace of domestic economic activity slowed considerably in both the energy and non-energy sectors.
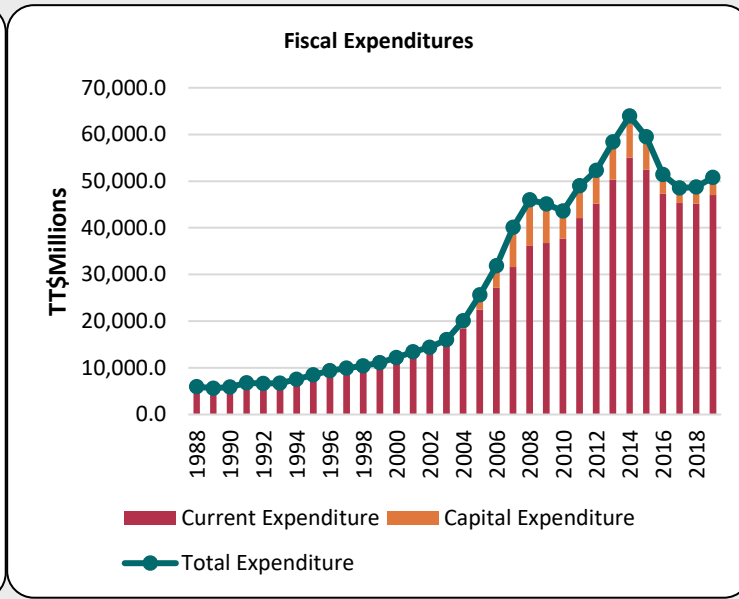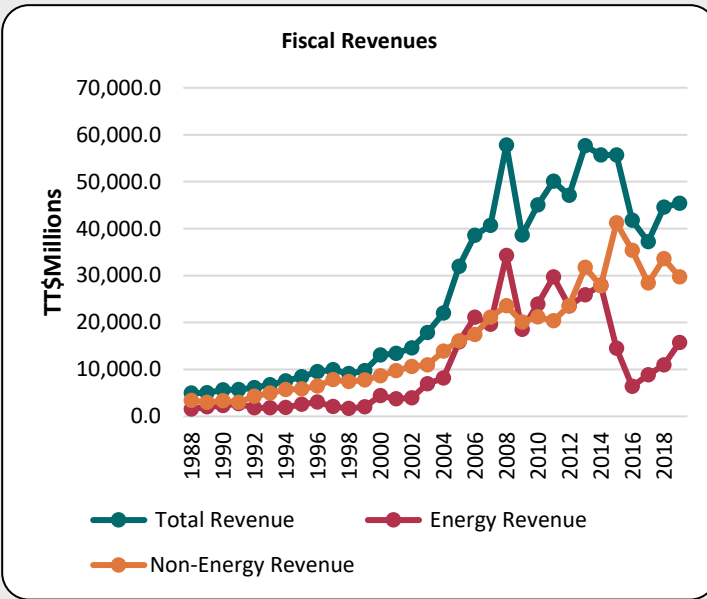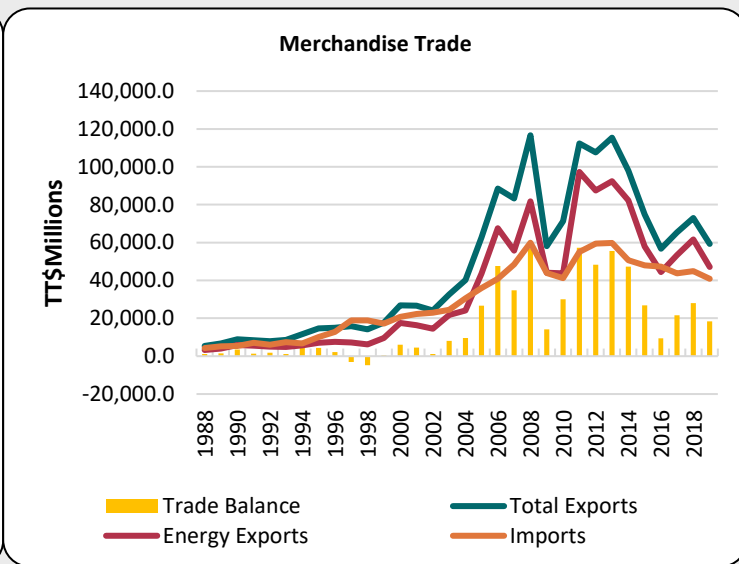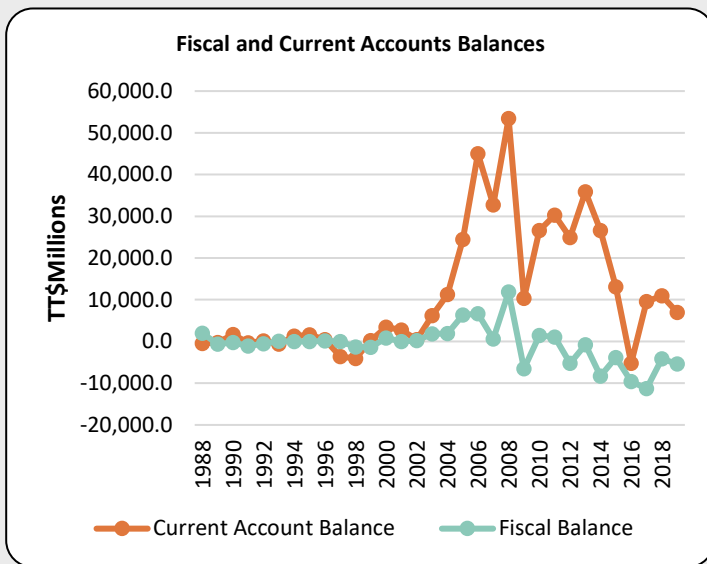
**Figure 1: Gross Domestic Output from 1988-2019**
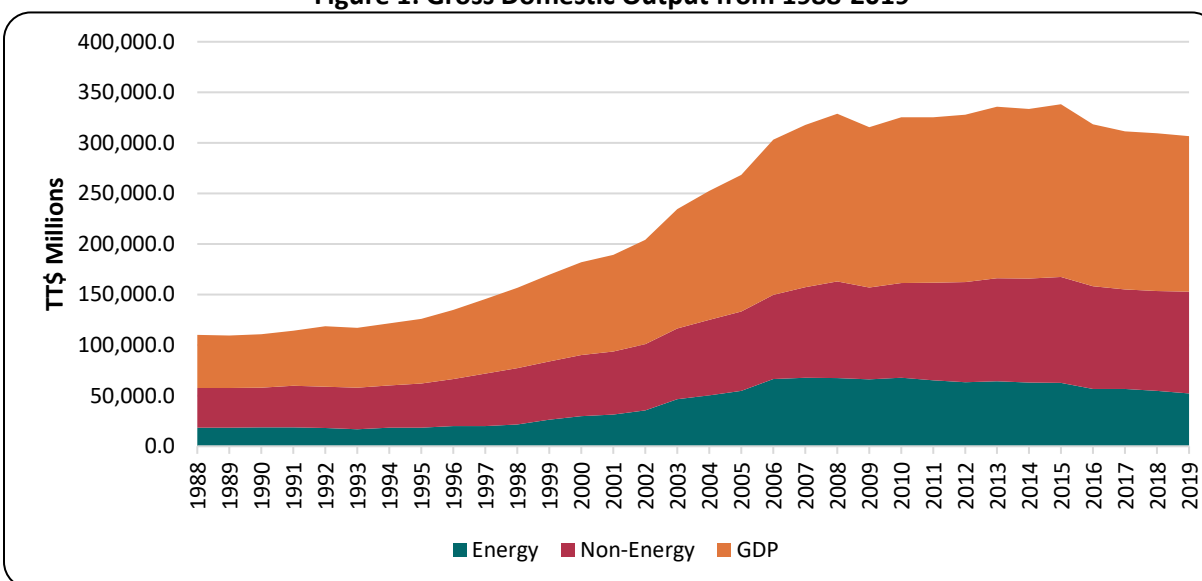


Source: Central Statistical Office

The current and fiscal accounts also followed the trend of global energy prices **(Chart 1).** Notably, during the period of the commodity super-cycle from 1999 to 2008, the current and fiscal balances generally recorded surpluses. More so, the current account surplus soared to $53,451.1 million in 2008 driven by the exports of oil, Liquefied Natural Gas (LNG), ammonia, methanol and urea. Similarly, the fiscal account surplus widened to $11,846.6 million in 2008 with energy revenue climbing to $34,282.1 million or 59.3 per cent of total revenue. At the same time, the increase in revenues also drove Central Government spending, particularly transfers and subsidies, and capital spending. However, the precipitous fall in commodity prices following the GFC resulted in the current account recording a deficit of $5,200.4 million in 2016, the first deficit after seventeen consecutive years of current account surpluses.

**CHART 1: FISCAL AND CURRENT ACCOUNT BALANCES**

### Fiscal and Current Accounts Balances



Legend: Current Account Balance, Fiscal Balance

### Merchandise Trade



Legend: Trade Balance, Total Exports, Energy Exports, Imports

### Fiscal Revenues



Legend: Total Revenue, Energy Revenue, Non-Energy Revenue

### Fiscal Expenditures



Legend: Current Expenditure, Capital Expenditure, Total Expenditure

**SOURCES: CENTRAL STATISTICAL OFFICE, MINISTRY OF FINANCE AND CENTRAL BANK OF TRINIDAD AND TOBAGO.**

The current account balance returned to surplus in 2017 and has recorded surpluses since then, albeit substantially lower than the surpluses recorded during the commodity price super-cycle. The GFC also resulted in a sharp deterioration in the fiscal accounts with the Central Government recording a deficit of $6,529.8 million in 2009, the first in approximately eight years. The decline in the fiscal accounts was attributable to lower energy revenues as well as the slowdown in domestic economic activity. Since the GFC, the fiscal accounts have generally recorded deficits as the Government aimed to support domestic economic activity through fiscal stimulus measures. Revenue collections on the one hand remained subdued, reflecting lower energy prices, while expenditure was streamlined and geared towards returning to a balanced budget over the medium-term.

A correlation matrix[4] was used to assess the association between the current account and fiscal balances. The results of the correlation matrix are analysed on the theoretical and empirical underpinning of the government trade multiplier, which captures the change in the trade balance following a change in government spending. The government trade multiplier, which is derived from the national income identity equation, shows that the impact of government spending on the trade balance is negative, and the impact is greater for larger values of exports or imports (Behar and Fouejieu 2016).  Also, the government trade multiplier is bigger if the marginal propensity to import is large (as is expected in less diversified economies) and if the impact of government on export is large. Based on the government trade multiplier, a positive correlation is expected between the fiscal and the current account or the trade balance. Government spending is expected to be negatively correlated with the current account or the trade balance but positively correlated with imports. The results from the correlation matrix for Trinidad and Tobago indicate that the current account balance has a moderate and positive relationship with the fiscal account balance with a correlation coefficient of 42.0 per cent **(Table 1).** Additionally, government spending and imports are highly and positively correlated with a correlation coefficient of 81.0 per cent. However, the result also suggests that there is a moderate and positive relationship between government spending and the current account balance.  This may be due to fact that exports do not vary negatively with government spending, which is assumed in the derivation of this multiplier. It is posited that the government discourages exports as public spending can skew incentives away from export-oriented industries because of the domestic demand it generates in the non-tradable sectors (Behar and Fouejieu 2016). However, in Trinidad and Tobago, the Government has introduced several incentives including the establishment of the Export Import Bank of Trinidad and Tobago Limited (EXIMBANK) to boost production and exports particularly for the manufacturing sector. Consequently, this may have resulted in a positive correlation between government spending and the current account balance.

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[4] Correlation coefficients provide information on the intensity of the relationship and the direction.

**Table 1: Correlation Matrix for the Current and Fiscal Accounts**

|  | Current Account | Fiscal Balance | Government Spending | Imports |
|---|---|---|---|---|
| **Current Account** | 1 | 0.422395867 | 0.540762683 | 0.640162512 |
| **Fiscal Balance** | 0.422395867 | 1 | -0.40275159 | -0.105562875 |
| **Government Spending** | 0.540762683 | -0.40275159 | 1 | 0.810176239 |
| **Imports** | 0.640162512 | -0.105562875 | 0.810176239 | 1 |

Source: Author's Calculations

The Central Bank of Trinidad and Tobago employs a fixed-weighted Consumer Price Index (CPI) based Real Effective Exchange Rate (REER) to measure international competitiveness of locally produced goods. The movements in the REER can be decomposed into two effects, *an exchange rate effect* and *an inflation effect* which is determined by the differentials of the domestic economy exchange rate and inflation rate relative to its trading partners respectively. An appreciation of the REER suggests that exports become more expensive and imports become cheaper, thus indicating a loss in competitiveness; the converse is true. Notably, the appreciation in the REER from 1988 to 1990 was primarily due to the domestic economy recording higher inflation relative to its major trading partners **(Figure 2).** However, from 1991 to 1994, the REER depreciated owing to lower domestic inflation relative to the country's major trading partners as well as the floatation of Trinidad and Tobago's dollar in April 1993. The upward trend in the REER from 1997 to 2015 was largely due to the inflation effect, in particular higher food prices. Of note, food inflation soared to 25.6 per cent in 2008, pushing headline inflation to 12.0 per cent **(Figure 3).** However, core inflation—which excludes the volatile food component—exhibited a more stable trend over the reference period. The downward trend in the REER from 2016 is largely due to the depreciation in the domestic currency which outweighed the increase in domestic prices when compared to Trinidad and Tobago's major trading partners.

**Figure 2: REER from 1988-2019**
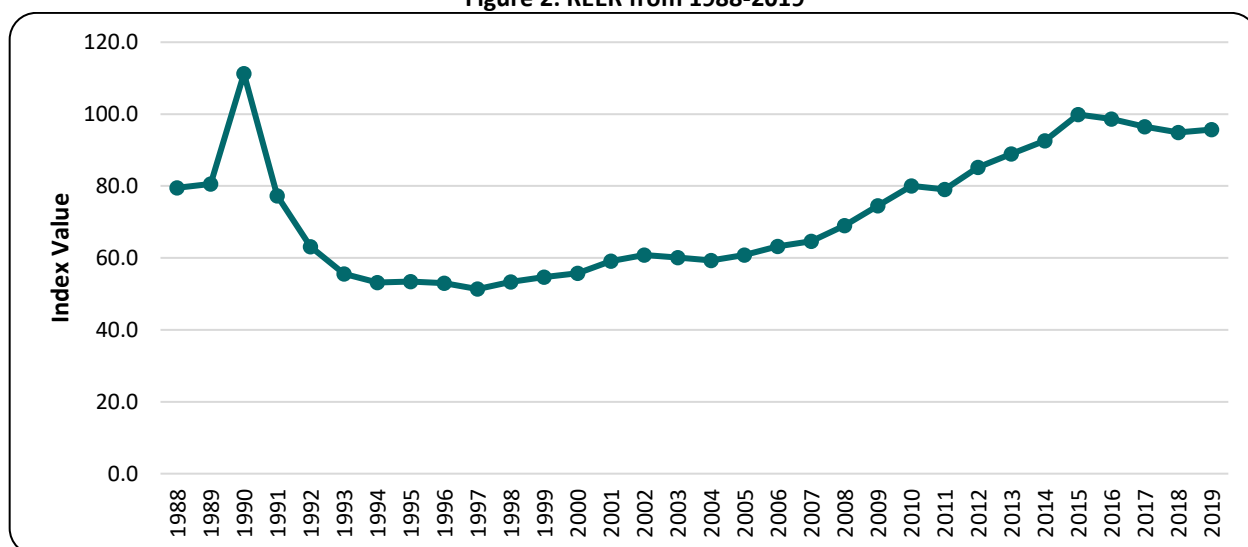


Source: Central Bank of Trinidad and Tobago

**Figure 3: Inflation from 1988-2019**
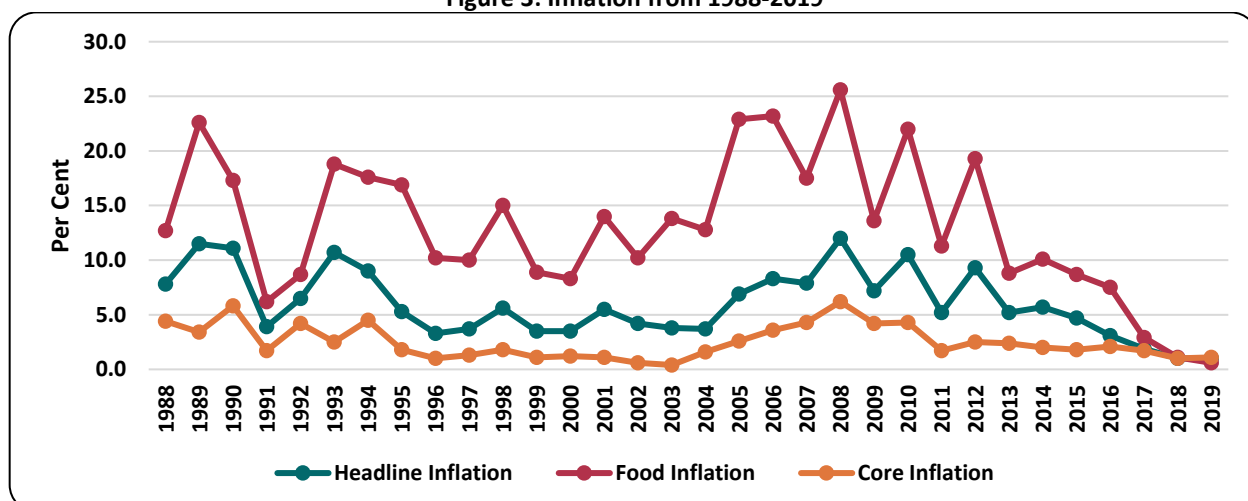


Source: Central Statistical Office

The 3-month Treasury Bill Rate has generally trended upwards from 1988 to 1997, primarily reflective of high inflation and interest rates in the domestic economy **(Figure 4).** Since then, the 3-month Treasury Bill has trended downwards as a result of excess liquidity[5] within the financial system. The financial system is characterized by structural excess liquidity stemming mainly from the government's net domestic fiscal injections.

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[5] Excess liquidity is defined as the level of reserves deposited with the Central Bank by the commercial banks over and above that which they must hold to meet their statutory requirement and other obligations such as for settlement purposes.

**Figure 4: 3-Month Treasury Bill Rate – Debt Management from 1988-2019**
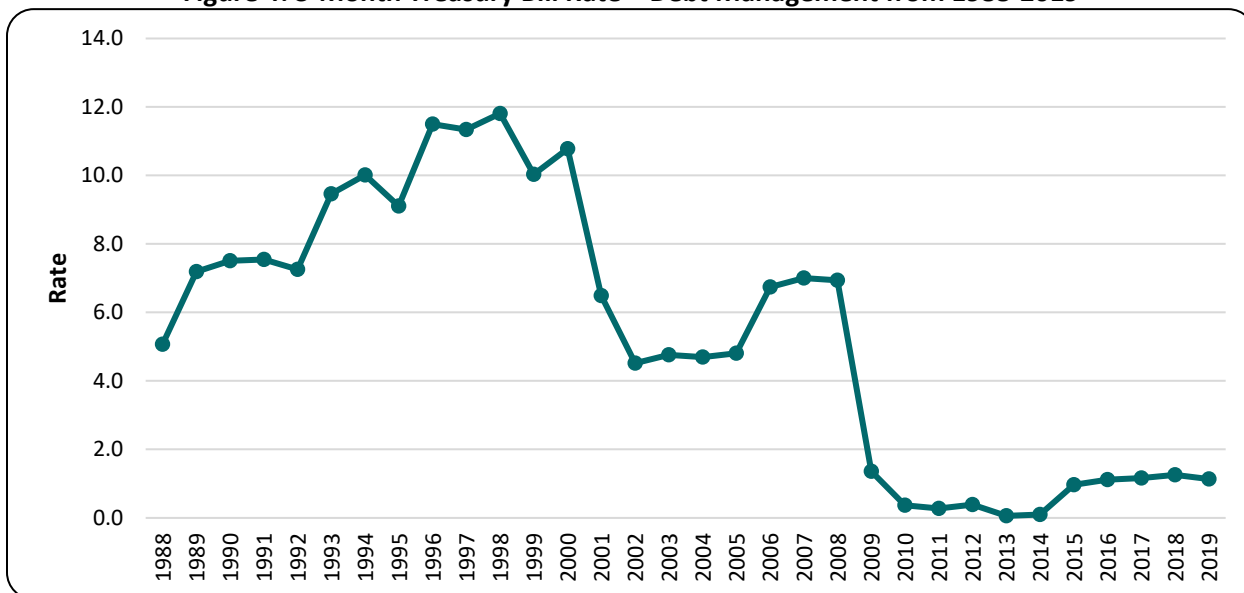


Source: Central Bank of Trinidad and Tobago

# 4 Data and Methodology

To analyse the causal relationship between the fiscal and current account deficits for the economy of Trinidad and Tobago, the theoretical framework obtained from the Keynesian spending equation is utilised and empirically tested using Vector Error Correction Modelling (VECM). Similar to Nicholson (2015) a multivariate approach is undertaken using time series data for the period 1988 to 2019 which has the advantage of controlling for any omitted variable bias that occurs under the bivariate form. VECM is a restricted Vector Autoregression (VAR) designed for use with nonstationary series that are known to be cointegrated. Hamilton (1994) describes an (nx1) vector time series yt as being cointegrated if each of the series are I(1), that is non stationary with an order of integration of one, while some linear combination of the series a'yt is stationary or I(0) for some nonzero (nx1) vector a. The VECM has cointegration relations built into the specification so that it restricts the long-run behaviour of the endogenous variables to converge to their cointegrating relationships while allowing for short-run adjustment dynamics. The cointegration term is known as the error correction term since the deviation from long-run equilibrium is corrected gradually through a series of partial short-run adjustments. In particular, the VECM model specified is of the form:

$$\Delta y_t = \Sigma_{t=1}^{k-1} \Gamma_i \Delta y_{t-i} + \Pi y_{t-k} + \varepsilon_t, \hspace{3cm} \textbf{(Equation 1)}$$

Where $y_t$ is a nx1 vector of endogenous variables, $\varepsilon_t$ is a nx1 vector of stochastic disturbances and $\Pi$ a matrix whose rank r gives the statistical properties of the Vector Autoregression (VAR) Π=αβ^t - where α is a nx1 matrix of speed of adjustment parameters and β is a nxr matrix of parameters which determines the cointegrating relationship. The vector of endogenous variables $y_t$ represents the set of determinants of the fiscal and current account balances. These variables adjust the model for fluctuations which could lead to divergence of the deficits. The vector $Y_t$ includes: the current account balance ($CA_t$), the overall fiscal balance ($FB_t$) real gross domestic product (GDP) ($Y_t$) , the inflation rate ($INF_t$), the interest rate ($IR_t$) and the real effective exchange rate ($REER_t$). The inclusions of one or more variables are supported by Alleyne et al. (2011) and Nicholson (2015) among others[6]. Changes in real GDP, inflation and the exchange rate adjust the model for cyclicality capturing the impact of the business cycle on the current account and fiscal balances[7].  The data on the current account balance, the interest rate and the REER were sourced from the Central Bank of Trinidad and Tobago, while the data on inflation and

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[6] Savings and investments (as a per cent of GDP) were considered ideal for specification in the model, however due to the unavailability of data after 2008, real GDP was instead included in the model. Additionally, the unemployment rate and private sector credit were also specified in the model to capture employment and liquidity conditions in the economy. Similarly, due to data challenges and model requirements, they were excluded from the model.

[7] The inclusion of both the exchange rate and inflation rate is supported by Ibrahim and Kumah (1996) who found that the exchange rate plays an important role in the channel through which the fiscal balance influences the current account balance and the inflation rate is added because of the theoretical substitution effects of increased (or decreased) price levels towards greater (or lesser) imports.

GDP were obtained from the Central Statistical Office. The overall fiscal balance data was sourced from the Ministry of Finance. Intuitively, before estimating the VECM a series of tests including the Augmented Dickey-Fuller Test (ADF), the VAR and the Johansen Test for Cointegration must be employed. Pairwise Granger Causality Test, VEC Granger Causality/Block Exogeneity (Wald) Test, Impulse Response Function (IRF) and Variance Decomposition are also utilised to determine causation and the percentage composition of explanation **(See Appendix I)**.

# 5 Results and Analysis

The results of the ADF tests confirm that the maximum order of integration for each of the variables in the system is one I(1). Hence, all variables are non-stationary about their mean **(Table 2)**. Given the requirement of the VECM, which requires that all variables be integrated of the same order, all variables were included in the model estimation.

**Table 2: Results of Unit Root Tests**

| Variables | Stationary | Non-Stationary | Order of Integration |
|---|---|---|---|
| $INF_t$ | | √ | 1 |
| $CA_t$ | | √ | 1 |
| $FB_t$ | | √ | 1 |
| $Y_t$ | | √ | 1 |
| $REER_t$ | | √ | 1 |
| $IR_t$ | | √ | 1 |

Source: Author's Construction

The VAR lag order selection criteria revealed the optimal lag length is three according to the Akaike Information Criterion (AIC) and Schwarz Criterion (SC). The VAR model also meets the stability condition as all roots fall within the unit circle[8]. The results of the Johansen cointegration test confirms that at most there are three cointegrating equations. The presence of a cointegrating equation implies that a long-run relationship exists among the variables. The estimated VECM gives evidence in support of a positive long-run relationship between the deficits, validating a TDefH for the economy of Trinidad and Tobago. The error correction term is negative and statistically significant. This implies that there is a statistically significant causal relationship between the FB and the CA, with both a short-run dynamic and long-run equilibrium impact[9] **(Table 3)**.

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[8] The model was also evaluated for structural breaks. Structural breaks in cointegration estimation can result in unreliable test statistics. Chow Test for structural beaks using all regression variables revealed that there were no structural breaks at the specified breakpoints (2009). A probability value of 0.09 is large enough to accept the null hypothesis of no structural breakpoints at the 1.0 per cent and 5.0 per cent level of significance. Other breakpoints were specified such as 1990, 1993, and 2014. However, the dataset is too small to estimate regression equations for both before and after these breakpoints.

[9] A battery of diagnostic tests was performed on the VEC, including test for serial correlation, VEC stability test and test for normality. Ordinary Least Squares (OLS) estimation was also undertaken to support the results. The test confirmed a positive and statistically significant relationship between the fiscal balance and the current account balance. A coefficient of 1.44 and a probability value of 0.0001.

**Table 3: The Vector Error Correction Model (VECM) Equation**

| Equation 1 | | | |
|---|---|---|---|
| Variable | Coefficient | T-Statistic | $R^2$ |
| Error Correction Term | -2.2734 | -4.4919* | 0.8314 |

*Denotes rejection of the null hypothesis at all levels (1%, 5%, 10%) of significance.

The results of the VEC granger causality/block exogeneity (Wald) test support the TDefH with evidence of causation running from the fiscal balance to the current account balance and vice versa (bidirectional). The results of the pairwise granger causality test support the TDefH with evidence of causation running from the fiscal balance to the current account balance. There was no causation running from the current account balance to the fiscal balance (reverse causality). The results are consistent with small open exporting economies. Given the important role of the government, its reliance on exported oil for revenue, and the high share of imports in domestic expenditure, a close relationship exists between the current account balance and the fiscal balance in oil exporters (Behar and Fouejieu 2016). In the first instance, causality running from the fiscal balance to the current account balance reflects the Government's direct demand for imports via its capital programme as well as indirectly through public employment. More specifically, a significant proportion of spending on the Government's capital programme (bridges, highways, hospitals and other public goods) requires the purchases of foreign produced goods[10]. As a result, changes in the Government's import demand affects the trade balance. The results can be interpreted more generally within the Keynesian context as changes in the fiscal stance. Hence, expansionary fiscal policy induces domestic absorption and leads to import expansion. The Government also indirectly affects demand for imports as it is the largest single employer in the economy. In Trinidad and Tobago, the public service comprises approximately 90,000 individuals. The associated wage bill for the public sector has risen over the years providing for employees to increase their demand for foreign produced goods. Finally, it should also be noted that fiscal policy in Trinidad and Tobago plays an important catalyst role for private-sector activity by impacting consumer and investor confidence.

In terms of exports, while empirical research has not been undertaken to quantify the impact of fiscal incentives on exports, particularly non-energy exports, the Government has introduced a number of initiatives to bolster exports such as the establishment of exporTT, the introduction of the EXIMBANK Foreign Facility as well as the Export Booster Initiative. These measures would have influenced exports earnings. Over the last three decades, Trinidad and Tobago has negotiated and implemented several trade agreements, both regionally and

[10] Central Bank of Trinidad and Tobago's internal estimates suggest foreign capital expenditure amounts to 35 per cent of total capital expenditure.

internationally, with the aim of providing access to a wider range of export markets and broadened the range of choices (of goods and services) available to consumers and producers. These measures would have influenced the performance of the trade balance.

Causation running from the current account balance to the fiscal balance (reverse causality), is evident in economies that rely heavily on international trade (external funds) as a form of Government revenue and a source of foreign exchange, and also on the composition of the economy's current account balance. According to the literature, a decline in the value of exports caused by a negative shock, can lead to the creation of a current account deficit through reduced earnings (Bird, Pentecost and Yang 2019). In analysing the domestic economy, Trinidad and Tobago has a high degree of export concentration in the hydrocarbon industry which is vulnerable to external factors. In particular, energy exports have averaged 70.0 per cent of total exports, while imports of energy commodities accounted for 23.0 per cent of total imports, over the period 1988 to 2019. Apart from energy commodities, a significant portion of Trinidad and Tobago's import demand stems from consumption of capital goods; namely machinery and equipment, which has averaged 30.0 per cent of total imports. This category represents a notable percentage of imports as it is a necessary vehicle to facilitate economic development. In terms of the fiscal account, collections from the oil sector have averaged 33.0 per cent of total revenue, over the 30-year estimation period (1988 to 2019). Furthermore, revenue earned from taxation of international trade has averaged 9.4 per cent of overall non-oil revenue during the reference period.  It also represents the third largest category of non-oil related tax earnings; following collections from taxes on income and profits and goods and services. Therefore, the degree of openness of the domestic economy to movements in international commodity prices and the demand for energy products, increases the exposure of the external accounts to the vagaries of world markets, which can easily produce swings in the current account position. With persistence, this outturn can negatively impact revenue collections, generating fiscal deficits and also leading to the accumulation of debt.

The result is in contradiction to Reisen (1998) who posit that reverse causality (causation from the current account to the fiscal balance) as opposed to a TDefH should hold for developing countries, since, developing countries have limited domestic resources and frequently require external funds. However, it should be noted that these studies do not consider the existence of sovereign wealth funds, which can be accessed for fiscal support (such as the Heritage and Stabilisation Fund (HSF))[11].  Additionally, limited flexibility in the exchange rate also helps to keep the domestic currency overvalued making imports cheaper for residents. The result is also inconsistent with Alleyne et al. (2011) who found no evidence of causation for Trinidad and Tobago.

[11] The HSF Act allows for withdrawals of funds not exceeding US$1.5 billion or TT$10.0 billion at any time during the fiscal year where: a disaster area is declared under the Disaster Measures Act; a dangerous infectious disease is declared under the Public Health Ordinance; or there is, or is likely to be, a precipitous decline in budgeted revenues which are based on the production or price of crude oil or natural gas.

The VEC Granger Causality /Block Exogeneity Wald test also reveals that the FB granger causes real GDP and the real effective exchange rate. Similarly, the current account granger causes real GDP and the real effective exchange rate. Real GDP granger causes the FB. The real effective exchange rate granger causes real GDP. There is also causation running from the inflation rate to real GDP and the FB. Interest rates do not granger cause any variable in the system. The results suggest that economic conditions and the relative price channel through the exchange rate regime are key mechanisms underlying the twin deficit link. Regarding the former, the responses of the current account to fiscal shocks may vary across states of the business cycle. Several studies in the literature have shown that the response of output to government spending shocks tends to be higher during periods of recessions than in expansions (see, among others, Auerbach and Gorodnichenko 2013 and Blanchard and Leigh 2013). The results of the IRF also helps to corroborate the findings. A one standard deviation shock to the fiscal balance leads to an improvement in the current account balance but with a lagged effect of one year **(Exhibit 1)**.

**Exhibit 1: Accumulated Impulse Response of Current Account to Fiscal Balance**
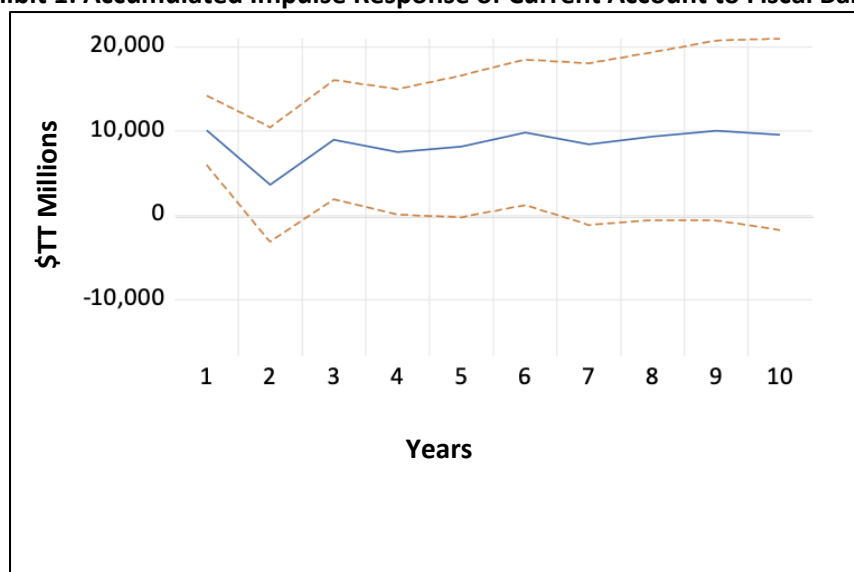


Source: EViews 11

The percentage composition of the variance (variance decomposition) due to a fiscal shock in the system is primarily explained by itself, followed by the current account balance, while the real effective exchange rate, interest rate, and inflation account for a minor percentage of the variation in the initial period[12]. However, in the latter period the interest rate and the inflation rate become significantly more important in explaining the percentage composition of the variance than the real effective exchange rate **(Exhibit 2).** This could be due to the lack of flexibility in the exchange rate on account of Trinidad and Tobago's exchange rate (which is formally defined

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[12] This is based on a Cholesky Ordering of the fiscal balance followed by the inflation rate, interest rate, real effective exchange rate and real GDP.

as a stabilised arrangement by the International Monetary Fund due to periodic interventions in the domestic foreign exchange market) regime which allows for minimal depreciation of the domestic currency (overvalued currency). The elasticity of imports and exports also has a part to play but it depends on the extent to which imports of inputs are used in exports[13].

**Exhibit 2: Variance Decomposition of the Fiscal Balance**

| Period | S.E. | CA | FB | INF | IR | REER | Y |
|---|---|---|---|---|---|---|---|
| 1 | 13395.27 | 0.000000 | 100.0000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| 2 | 16398.86 | 3.173360 | 95.75090 | 0.151041 | 0.222320 | 0.670546 | 0.031837 |
| 3 | 20411.23 | 10.47667 | 88.79305 | 0.116211 | 0.145970 | 0.425581 | 0.042516 |
| 4 | 22870.44 | 9.268339 | 89.93546 | 0.106203 | 0.271677 | 0.366780 | 0.051536 |
| 5 | 26326.74 | 10.35363 | 87.91461 | 0.525626 | 0.802419 | 0.351096 | 0.052624 |
| 6 | 30170.69 | 11.87649 | 86.78022 | 0.399088 | 0.621363 | 0.278594 | 0.044248 |
| 7 | 32898.93 | 11.14963 | 87.39968 | 0.368544 | 0.780406 | 0.260100 | 0.041636 |
| 8 | 36022.26 | 11.35073 | 86.85959 | 0.393512 | 1.057576 | 0.290307 | 0.048284 |
| 9 | 39222.21 | 11.60840 | 86.75544 | 0.344402 | 0.965367 | 0.280347 | 0.046045 |
| 10 | 42077.86 | 11.52532 | 86.70825 | 0.319719 | 1.115546 | 0.286630 | 0.044533 |

Source: EViews 11

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[13]The Marshall-Lerner condition posits that a currency depreciation will only lead to an improvement in the current account balance if the sum of demand elasticity for imports and exports is greater than one.

# 6 Conclusion and Policy Recommendations

This paper sought to investigate the twin deficits hypothesis in the case of Trinidad and Tobago given the co-movement between the fiscal and current account balances at different points in time over the period 1988 to 2019. The results from the VECM confirmed a positive long-run relationship between the deficits, thus validating the twin deficits hypothesis for Trinidad and Tobago. Further, the error correction term was negative and statistically significant, implying a causal relationship between the fiscal balance and the current account, with both a short-run dynamic and long-run equilibrium impact. Corroborating that result were the outcomes of granger causality tests which provided evidence of causation running from the fiscal balance to the current account and vice versa (bidirectional). The results are consistent with small open exporting economies where governments directly account for a large share of domestic demand in oil exporters and its indirect impacts through public employment. The reverse causality outcome—the causation running from the current account to the fiscal balance—is also consistent with small open energy-based economies such as Trinidad and Tobago, which are vulnerable to shocks emanating from global energy commodity markets. Therefore, international trade underpins foreign exchange earnings and the current account and significantly influences the performance of the fiscal accounts.

The results of the paper are crucial given the most recent impact of the COVID-19 pandemic on Trinidad and Tobago's fiscal and current account balances. The health crisis and associated mitigation measures which led to a sharp falloff in global energy prices together with a decline in domestic energy production, resulted in a deterioration in the fiscal and current account balances. Consequently, policies aimed at improving both the fiscal and current account balances should be considered. In terms of the fiscal accounts, the overall balance can be improved through further revenue generating and expenditure reducing measures. The incorporation of these adjustments into a wider medium-term fiscal framework would support counter-cyclical fiscal policy geared towards smoothing the impact of external shocks on the domestic economy, rebuilding financial buffers and ensuring fiscal sustainability.

More specifically, policies targeted at boosting foreign direct investment (FDI) can bolster the fiscal and current account balances.  Since the GFC, FDI, which is largely driven by the energy sector, has trended downwards. As a result, reforming the energy fiscal regime is necessary to attract greater investment from multinational energy companies while ensuring that the Central Government operations benefit from improving tax collections from this sector. An uptick in FDI would boost domestic production, increase energy exports earnings and may ultimately lead to an improvement in the current account balance. At the same time, the global thrust towards a greener economy, which entails a reduction in carbon emissions and improving energy efficiency, is causing a

significant shift away from the production and consumption of "brown industries". Al-Sarihi (2018) indicated that the implementation of mitigation measures to reduce carbon emission could change the trading landscape of hydrocarbon markets by reducing the demand for fossil fuels exports, leading to lower prices and diminished GDP growth. Domestically, this can negatively affect FDI in the energy sector. However, this reality presents an opportunity for the integration of climate change action into the national economic diversification strategy, which would ultimately result in broad-based, sustainable economic growth for Trinidad and Tobago.

In terms of non-energy sector exports, the Central Government has implemented several initiatives aimed at improving foreign exchange earnings from the non-energy sector and export competitiveness, especially for the manufacturing sector. Some of these measures include the establishment of exporTT, the introduction of the EXIMBANK Foreign Facility as well as the Export Booster Initiative. The expansion of these initiatives along with an enabling business environment can support domestic economic activity, fuel non-energy exports, and ultimately result in an improvement in the external and fiscal accounts.

The slowdown in domestic economic activity, accompanied by a steady reduction in foreign exchange reserves, has led to a renewed focus on the level and the composition of imports. Given that Trinidad and Tobago is an energy-based economy, it is not surprising that the demand for imports was primarily influenced by energy sector activities. However, the substantial rise in consumer goods such as food imports concerns policy makers as it represents a significant drain on international reserves. In particular, the increase in the demand for food commodities reflects declining agricultural production along with changes in consumer taste and preferences supported by higher household incomes. As a consequence, initiatives geared towards improving production and productivity within the agricultural sector are necessary to stem the rise in food imports. More so, a concerted effort is needed by policy makers to match domestic agricultural production with the changing needs and preferences of consumers. Finally, the introduction of education campaigns to encourage citizens to buy and consume locally produced products would help to manage the level and composition of imports over the long-run. Overall, a recalibration of the domestic economy's import structure is needed to ensure that imports are skewed towards certain products that would promote economic growth and development.

The exchange rate remains a topical issue in Trinidad and Tobago, amidst subdued energy receipts, the main contributor to inflows, and its impact on the domestic foreign exchange market. Energy receipts have fallen markedly since 2016, while outflows underpinned by the Central Bank interventions to support the domestic foreign exchange market declined at a slower pace. Foreign exchange intervention could help to mute volatility in foreign exchange markets, control inflation, mitigate currency mismatch risks and build foreign exchange for precautionary reasons (IMF 2020). However, lower financial buffers largely resulting from past energy shocks

warrant an examination of allowing more flexibility in the exchange rate. Notably, allowing market forces to play a greater role in determining the exchange rate could facilitate adjustments to global energy commodity shocks, improve competitiveness and help to temper the decline in foreign exchange reserves. The first step would involve an assessment of the equilibrium exchange rate for Trinidad and Tobago. The equilibrium exchange rate could be determined based on several models, including the Fundamental Equilibrium Exchange Rate (FEER) and Behavioural Equilibrium Exchange Rate (BEER). The FEER is the real exchange rate that equates the current account at full employment with sustainable net capital flows. On the other hand, the BEER approach relates the deviation between the actual exchange rate and the value by the estimated equilibrium relationship. Following the determination of the equilibrium exchange rate, steps should be taken to adjust the current exchange rate to its equilibrium. Alongside the investigation of the equilibrium exchange rate, research focusing on the Marshall-Lerner condition is necessary since it would determine whether a depreciation, and to what extent, would cause an improvement in the balance of trade.  Ultimately, given the potential impact on the domestic economy such as adverse balance sheet exposures of private and public sector entities as well as exchange rate pass-through to inflation, the adjustment to the exchange rate requires careful design and implementation and would need to be supported by a combination of fiscal, monetary, financial and structural policies (IMF 2018).

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# Appendix 1

**Augmented Dickey-Fuller Unit Root Test**

The ADF Test is employed to determine whether the variables, namely, the fiscal deficit and the current account deficit are integrated of the same order. As noted by Kim and Kim (2007), if the variables are integrated of different orders or are not cointegrated at all, VECM cannot be applied. In addition, VECMs may be biased especially for finite samples. The rationale here is to prevent biased results since nonstationary variables can meander without a tendency to return to the long-run equilibrium and the regression performed can produce spurious regression results. Therefore, differencing any non-stationary series will correct for this limitation by making it stationary, but results in the loss of the trend or long-term memory of the data. As a result, the Johansen Test for cointegration performs this analysis on nonstationary variables thus retaining the trend. Accordingly, if there is a cointegrating relationship, the VECM framework estimates this relationship and generates the respective vector error correction model that corrects for disequilibrium.

**VAR, Johansen Cointegration Test and VECM**

To ensure the Johansen and the VECM tests yield valid test statistics, it is necessary to perform several diagnostic tests to evaluate the robustness of the model and select the maximum lag lengths of the estimated VAR model. Hence, the VAR stability test, and the Optimal Lag Selection Test are estimated and reviewed. The VAR stability test examines whether all the unit roots lie within the unit circle. This ensures that when there is a shock to the system, the shock decays over time. Meanwhile, the Optimal Lag Selection Test determines the number of lags required to remove serial correlation from the model and specify the Johansen test for cointegration and the VECM. The Johansen test for cointegration, as its name suggests, examines for the presence of cointegration while the VECM model estimates the speed of adjustment parameters and the cointegrating relationships. The specification of a VECM is important as it would describe the dynamic behaviour of the current account and fiscal balances together with other business cycle variables and evaluate mean reversion and sustainability. The presence of a negative and statistically significant error correction term will indicate that, if there is a departure from equilibrium, there will be an adjustment in the opposite direction to maintain equilibrium. A significant error correction term (speed of adjustment parameter) also implies that the fiscal balance, which is the explanatory variable in the model specification, granger causes the current account balance. The ADF Test, the VAR and the Johansen procedure form the building blocks for the estimation of the VECM.

**Pairwise Granger Causality Test, VEC Granger Causality/ Block Exogeneity (Wald) Test, Impulse Response and Variance Decomposition**

Granger causality tests are also employed to determine the direction of the relationship. In testing to determine whether the fiscal balance causes the current account balance or vice versa, the results of the Pairwise Granger causality test and the VEC Granger Causality /Block Exogeneity Wald test can yield three possibilities. The first is that there may be no evidence of causality between the variables, secondly, there may be causality in one direction or unidirectional causality, and thirdly, bidirectional causality in which causation runs from both variables. The test determines in a statistical sense whether lags of the current account balance are important in predicting the fiscal balance and vice versa[8]. To support the granger causality tests, impulse response and variance decomposition using the VECM framework are computed and evaluated. The impulse response function traces the effect of a one standard deviation shock to one of the innovations on the current and future values of the endogenous variables in the model. The variance decomposition examines the percentage composition of the variance as a result of the impact of a shock from the fiscal balance on the current account balance and vice versa.