

# **CONSUMER PRICE INFLATION IN TOBAGO**

by

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**Abstract:** Over the past few years, issues pertaining to the behavior of consumer prices have been of major concern to policy makers in Tobago, as well as to the general public. Indeed, much of the concern has been related to the price differential between Tobago and Trinidad and the implications of this differential for the cost of living differential and the rate of change in the price level, i.e. the inflation rate. Although several recent studies have been done to look at the price level differentials between Tobago and Trinidad and the influence of this on the cost of living, no work has been undertaken to look at inflation in Tobago and the factors affecting it. This study seeks to examine inflation in Tobago with a view to identifying the main factors affecting it and to identify policy recommendations to moderate its impact. The study uses Central Statistical Office (CSO) data on inflation over the period January 2003 to May 2007. Standard econometric analysis is then used to test whether or not inflation in Tobago is imported from Trinidad. The study found that inflation in Tobago was lower than for the nation and declining. The study also found that the pattern of inflation in Tobago mirrors closely that for the nation as a whole. In addition the study revealed that inflation in Tobago is lower than in almost all the other sub-regions in the country. The study concluded that inflation in Tobago is influenced by a multitude of factors and identifies various roles to be played by both the Tobago House of Assembly and the Central Government to minimize the impact of inflation in Tobago.

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# CONSUMER PRICE INFLATION IN TOBAGO<sup>1</sup>

## 1 Introduction

- 1.1 Over the past few years, issues pertaining to the behavior of consumer prices have been of major concern to policy makers in Tobago as well as the general public<sup>2</sup>. Indeed, much of the concern has been related to the price differential between Tobago and Trinidad and the implications of this differential for the cost of living differential; and the rate of change in the price level, i.e. the inflation rate<sup>3</sup>. Although several recent studies have been undertaken to look at the price level differentials between Tobago and Trinidad and the influence of this on the cost of living<sup>4</sup>, no work has been undertaken to look at inflation and the factors affecting it. The purpose of this paper is to examine inflation in Tobago with a view to identifying the main trends, clarifying some of its causes, and providing recommendations on how to moderate the impact of inflation.
- 1.2 The remainder of the paper is organized as follows. The next section briefly describes the macroeconomic context by examining some stylized facts about the Tobago economy. This is followed by an

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<sup>1</sup> *The author acknowledges the assistance of Dr. Anselm London, Secretary of Finance and Enterprise Development in the preparation of this paper. However, the views expressed in this paper are those of the author and no responsibility for them should be attributed to the THA.*

<sup>2</sup> *The behaviour of consumer prices have also been a national concern so much so that on the 15<sup>th</sup> and 16<sup>th</sup> August 2006, the Prime Minister commissioned a National Consultation on food prices with a view of finding solutions to moderate the rate of increase in food prices. The Prime Minister also stated his intention to hold consultations on the prices of building materials.*

<sup>3</sup> *Inflation refers to a sustained increase in the general price level in the economy; see Central Bank of Trinidad and Tobago (2006).*

<sup>4</sup> *The most notable and definitive piece of work on the Cost of Living differential between Tobago and Trinidad was a study conducted by the Tobago House of Assembly Cost of Living Task Force in 2006. The study found that with respect to grocery items prices in Tobago and Trinidad appeared to be converging. However with respect to green grocery items and perishables, the differential was a lot more substantial, with prices in Tobago being on average 29 % higher than that in Trinidad. Similarly with respect to building materials, the differential was also substantial, with prices in Tobago being on average 24 % higher than that in Trinidad, See Division of Finance and Planning (2006). Also see work by Policy Research and Development Institute (2003) and Marshall (2007)*

examination of the data on inflation in Tobago, with a view to identifying the main trends and, where possible, making comparisons with national data, as well as the data for several sub-regions in Trinidad. The possible causes of, and the main influences on inflation in Tobago are then examined. In this section, standard econometric analysis is used to test whether or not inflation in Tobago is imported from Trinidad. The next section of the paper examines some of the options available to the Tobago House of Assembly (THA) and the Central Government to moderate the rate of increase in prices in Tobago. The paper concludes with a summary of the main findings.

## **2 The Tobago Economy: Some Stylized Facts**

- 2.1 Tobago is a sub-regional economy within the national economy of Trinidad and Tobago. The Tobago House of Assembly is the entity charged with the responsibility for the management of the Tobago economy<sup>5</sup>. The Tobago House of Assembly receives almost all its revenues from the Cabinet-controlled Consolidated Fund, in the form of transfers.
- 2.2 In the year 2006, Tobago's GDP, at constant 2000 prices, was estimated at \$4 billion or approximately 4.5 per cent of the national figure. It is estimated that the services sector accounts for approximately 98 per cent of Gross Domestic Product (GDP), of which tourism accounts for approximately 46 per cent and employs 57 per cent of the labour force in Tobago<sup>6</sup>. The tourism sector is one of the most buoyant sectors on the island at present. In 2001, hotel occupancy rate in Tobago averaged approximately 20 per cent and the tourism industry was seasonal. At present, hotel occupancy rates average 70 per cent and the industry is now transformed to a year round industry. The majority of the tourism plants in Tobago are concentrated in the south-western part of the island.
- 2.3 Tobago has a very low and declining unemployment rate. The data in Appendix 1 show that the unemployment rate in Tobago declined from a maximum of 13 per cent in the first quarter of 2003 to 2.8 per cent in

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<sup>5</sup> *There are a few areas of responsibility that are outside the purview of the Tobago House of Assembly, See Government of Trinidad and Tobago (1996).*

<sup>6</sup> *See World Travel and Tourism Council (2005).*

the first quarter of 2007. An examination of data from the Central Statistical Office (CSO) shows that the unemployment rate in Tobago is lower than that of all other sub-regions in Trinidad. To illustrate, the data from the Central Statistical Office (CSO) show that in 2006 the unemployment rate in Tobago was 4.9 per cent, in comparison to figures of 5.6 per cent for Port-of- Spain, 6.1 per cent for San Fernando and 8.9 per cent for Point Fortin.

- 2.4 In terms of the poverty, data from the most recent Survey of Living Conditions 2006 (SLC) for Tobago placed the poverty rate in Tobago at 17 per cent. This figure compares quite favourably with the 1997 estimate of 26 per cent; and is not surprising, given the labour market situation.
- 2.5 In Tobago, although there have been some recent attempts to spur business development on the island, the private sector on the island is not well developed. Although there have been tremendous efforts on the part of the THA to diversify the Tobago economy and establish an indigenous business class through initiatives such as the development of the Cove-Eco-Industrial and Business Park, the expansion of the Enterprise Assistance Fund (EAF); expansion of the human resource capacity at the Enterprise Development Unit; and the completion of the Milford Road Esplanade, the majority of businesses on the island are engaged in retail and distributive trades<sup>7</sup>. Moreover, they are very dependent on imported raw materials.

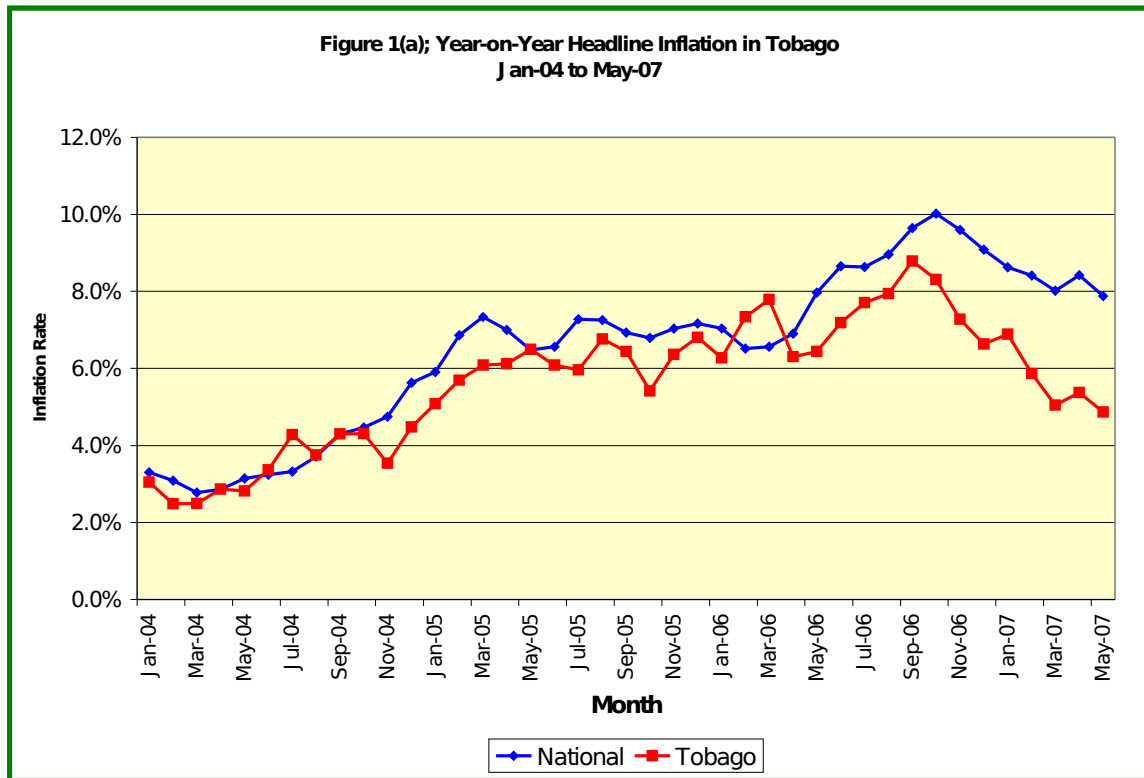
### **3 Inflation In Tobago: An Examination of the Data**

- 3.1 The figure 1 (a) shows data on monthly headline inflation<sup>8</sup> (year-on-year) for Tobago, as well as Trinidad and Tobago for the period January 2004 to May 2007. An examination of the data points to three critical observations.

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<sup>7</sup> *Division of Finance and enterprise Development (2007).*

<sup>8</sup> *Headline inflation is the change in the general level of prices in the economy as measured by the Retail Price Index (RPI).*



Source: Central Statistical Office of Trinidad and Tobago

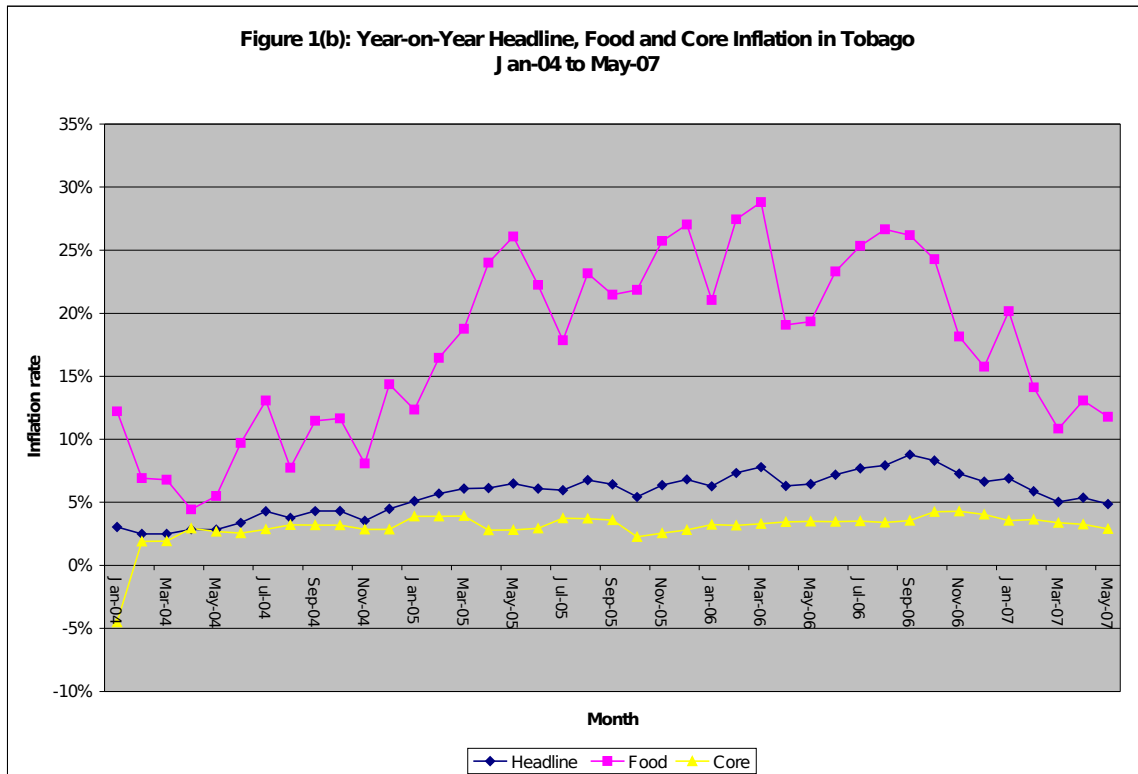
3.2 **First**, although there were a few isolated time periods in which Tobago's year-on-year headline inflation rate was either equal to, or higher than the national rate, generally, **inflation rates in Tobago have been lower than the national rates**. Some of the periods in which Tobago's inflation rates were equal to or higher than the national rates were April, June, July, August and September 2004; May 2005; February and March 2006. However, more generally, inflation in Tobago has tended to be lower than the national rates. For twelve (12) consecutive months since May 2006, Tobago's inflation rates have been lower than that for the nation. In May 2006 Tobago recorded headline inflation rates of 6.4 per cent compared to the national figure of 8 per cent. By October 2006, when the national inflation rate rose to double digit ten per cent (10%), raising concerns at the Central Bank of Trinidad and Tobago, Tobago's inflation rate was 8.3 per cent. In May 2007, Tobago's inflation rate of 4.9 per cent compared favorably to the national figure of 7.9 per cent.

- 3.3 **Second**, the pattern of **inflation in Tobago seems to mirror very closely, the pattern of inflation nationally**. Generally, when one observes the line graphs in Figure 1 (a), it is clear that they follow a very similar pattern. Generally, when Tobago's inflation rate is rising, the national rate is rising and when Tobago's rate is falling, the national rate is also falling. For instance, between April and September 2006 when inflation rate in Tobago was rising, the national rate was also rising. Conversely, since October 2006, when the national inflation rate has been generally on a downward trend, the same pattern can be observed for Tobago. The fact that Tobago's inflation rate closely mirrors the national rates may well reflect the high levels of connectivity between the two economies, where almost all of the inputs into the production processes in Tobago; are imported from Trinidad. This may well point to some level of imported inflation taking place in Tobago.
- 3.4 **Third**, another critical point that can be discerned from the Figure 1 (a), is the fact that **since September 2006, inflation in Tobago has been generally falling**. Indeed, inflation fell from 8.8 per cent in September 2006 to 4.9 per cent in May 2007<sup>9</sup>. Moreover, the fact that there is low and falling inflation; and, low and falling unemployment, at variance with the prediction of the Phillips Curve that implies an inverse relationship between inflation and unemployment<sup>10</sup>.
- 3.5 Figure 1 (b) below disaggregates inflation into core and food components, to understand better what is driving some of the observed changes.

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<sup>9</sup> One must hasten to add that a falling inflation rate does not necessarily mean prices are falling. Indeed what it means is that prices are increasing at a decreasing rate.

<sup>10</sup> For further discussion of Phillips Curve see Llaudes (2005).



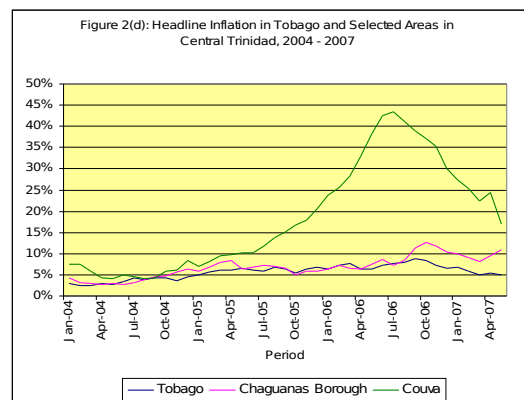
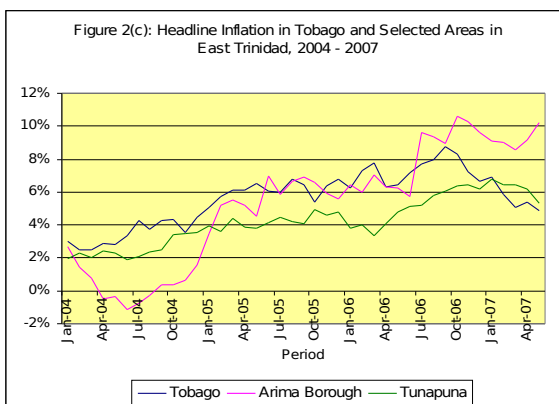
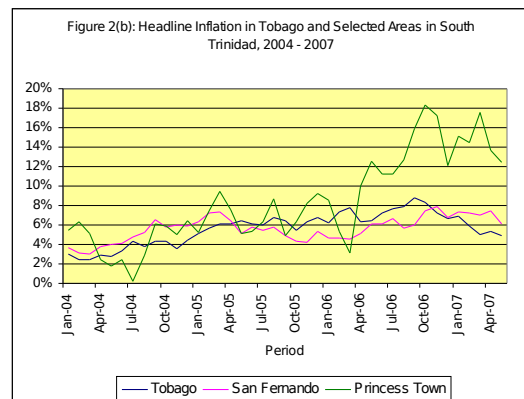
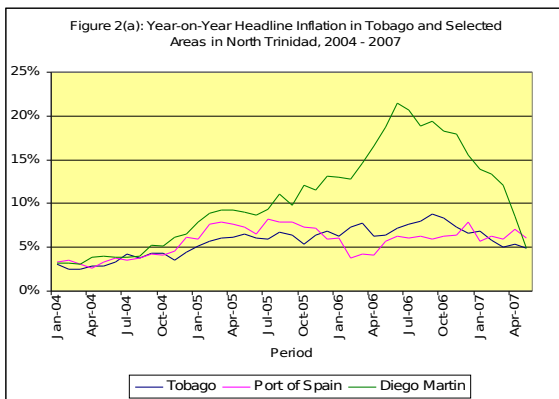
Source: Central Statistical Office

- 3.6 Figure 1 (b) above shows clearly that core inflation, which excludes the impact of food prices, remained virtually constant over the period of analysis; as seen from the graph, and corroborated by the calculation of the variances for core and food price inflation. The calculated variance for core inflation was 1.76 while that for food price inflation was 4.92. Moreover, the figure shows that **headline inflation is heavily influenced by inflation in food and non-alcoholic beverages.** In the period before September 2006, the main factor accounting for the increase in inflation in Tobago, has been an increase in the rate of food price inflation. Similarly, the main factor influencing the fall in inflation between September 2006 and May 2007, was the fall in the rate of increase in food prices. The rate of increase in food prices fell from over 25 per cent in September 2006 to just over 10 per cent in May 2007. This finding is quite consistent with that of the Central Bank of Trinidad and Tobago; which identified the falling inflation rate in food as



the single most important factor, resulting in the decline in the national inflation rate since October 2006<sup>11</sup>.

3.7 The data in Figures 2 (a) to 2 (d) show a comparative analysis of inflation rates for Tobago, and several sub-regions in Trinidad, over the period January 2004 to May 2007.



3.8 What the graphs show is that Tobago's inflation rates was generally lower than that of several of the sub-regions in Trinidad. This was particularly evident from the later part of 2005. It is important to note, however, that although the rate of inflation in Tobago is lower than that of several sub-regions in Trinidad; given the fact that the price levels in Tobago are higher than in Trinidad, one cannot conclude that inflation in Tobago is less of a problem, than in the various sub-regions in Trinidad.

#### 4 Inflation In Tobago: Some Possible Causes And Main Influences

4.1 The literature on macroeconomics distinguishes between two main types of inflation: cost push inflation, which, as the name suggests, is

<sup>11</sup> Central Bank of Trinidad and Tobago 2007.

caused by increases in the costs of factors of production; and demand pull inflation brought about by excess demands for goods and services<sup>12</sup>. In the context of Tobago, given the structure of the economy and the associated interconnection with the Trinidad economy, anecdotal evidence seems to suggest that the inflation occurring in Tobago is more of the cost-push type than the demand-pull type. The question which arises immediately is, why?

- 4.2 The answer may well be related to the structure of production in general, and high imported raw material content more specifically. Tobago is a small open economy with a relatively high propensity to import. Almost all the inputs in production are imported from Trinidad, and elsewhere. To illustrate, it is estimated that imports by the tourism sector, one of the largest sectors in Tobago, is estimated at 20 per cent of Tobago's GDP<sup>13</sup>. Other major sectors, such as the construction sector, are also heavily dependent on imported raw materials. The implication of this is that increases in the cost of imported raw materials are passed on to consumers in Tobago. In other words, inflation in Tobago is imported from Trinidad and elsewhere.
- 4.3 The "law of one price" was used to investigate whether there is any evidence of imported inflation in Tobago. As is well known, the law of one price states that the price of a traded good (imported good) will be the same in both domestic and foreign countries when the imported good is expressed in a common currency. The following expression captures this relation:

$$P^h = eP^f \dots\dots\dots\text{Equation 1}$$

Where  $P^h$  is the domestic price,  $e$  is the exchange rate and  $P^f$  is the foreign price. In logarithmic form equation 1 becomes

$$\ln(P^h) = B_0 + \ln(e) + B_1 \ln(P^f) \dots\dots\dots\text{Equation 2}$$

Since the Tobago economy and the Trinidad economy utilize a common currency, the exchange rate is one (1); and hence  $\ln(e) = 0$ .

<sup>12</sup> See *Central Bank of Trinidad and Tobago (2006)*.

<sup>13</sup> See *World Travel and Tourism Council (2005)*.

In order to test the law of price hypothesis, or, by extension, the hypothesis of inflation imported from Trinidad to Tobago, the following equation was estimated using monthly price data for the period January 2003 to May 2007.

$$\ln(P^T) = \alpha_0 + \alpha_1 \ln(P^{(T\&T)}) \dots \dots \dots \text{Equation (3a)}$$

Where  $P^T$  equals to the price level in Tobago; and

$P^{(T\&T)}$  equals to the price level in Trinidad and Tobago.

The coefficient  $\alpha_0$  represents the constant term and  $\alpha_1$  is expected to be positive with a value of unity<sup>14</sup>, if the law of one price holds.

The OLS estimates and summary statistics are as follows:

$$\ln(P^T) = -0.329_{(0.17)} + 1.06_{(0.03\theta)} \ln(P^{(T\&T)})$$

Adjusted R Square= 0.94

All the diagnostic test indicated that the equation fit well and all coefficients were found to be significant. The coefficient  $\alpha_1$  had a value of 1.06, not significantly different from unity. What the results indicates is that the rate on change in prices in Trinidad is equal to the rate of change in prices in Tobago. What this also means is that the law of one price holds and indicates that inflation in Tobago is imported from Trinidad. Equation (3a) was then estimated with the inclusion of a lag on the independent variable as shown below:

$$\ln(P^T) = \alpha_0 + \alpha_1 \ln(P^{(T\&T)}) + \alpha_2 \ln(P^{(T\&T)})_{(-1)} \dots \dots \dots$$

Equation 3 (b)

The OLS estimates yielded the following results:

$$\ln(P^T) = -0.475_{(0.25)} + 1.19_{(0.25)} \ln(P^{(T\&T)}) - 0.096_{(0.25)} (P^{(T\&T)})_{-1}$$

Adjusted R Square= .97

While the overall equation fit well, the coefficient on the lagged variable was not found to be significant. Again  $\alpha_1$  had a value of 1.19 and not

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<sup>14</sup> See Appendix 4

significantly different from unity, indicating that inflation in Tobago is imported from Trinidad.

Further to this, taking the first difference of equation (3a), these first differences reflecting month-over-month inflation rates, the following equation was estimated over the period January 2004 and May 2007:

$$\text{del}(\ln(P^T)) = \alpha_0 + \alpha_1 \text{del}(\ln(P^{(T\&T)})) \dots \text{Equation (4a)}$$

In this case the constant term is expected to have a value of 0 and  $\alpha_1$ , with perfect pass-through and imported inflation is expected to have a value of unity.

The OLS estimates yielded the following results

$$\text{del}(\ln(P^T)) = -0.0013 - 1.09 \text{del}(\ln(P^{(T\&T)}))$$

(0.003)                      (0.36)

Adjusted R Square = .13

What is notable here is that although  $\alpha_1$  had a value that is not significantly different from one and  $\alpha_0$  had a value not significantly different from 0, the overall equation did not fit as well given the low adjusted R Square figure. This finding is not unusual in a first difference equation. Even when the equation was estimated with the inclusion of a lag independent variable, the results did not change significantly.

$$\text{del}(\ln(P^T)) = -0.0007 - 0.9 \text{del}(\ln(P^{(T\&T)})) - 0.14 \text{del}(\ln(P^{(T\&)}))_{(-1)}$$

(0.0006)                      (0.122)                      (0.122)

Finally equation (4a), was estimated using year-over-year headline inflation rates for the period January 2003 to May 2007. The OLS estimates for this year-over-year definition of the inflation rates yielded the following results:

$$\text{del}(\ln(P^T)) = -0.012 + 0.62 \text{del}(\ln(P^{(T\&T)}))$$

(0.003)                      (0.36)

Adjusted R Square = .24

The overall equation did not fit well given the low R Square. Even when a lag independent variable was included in the equation the results did not change significantly as seen below.

$$(\ln(P^T)) = -0.012 + 0.629 \ln(P^{(T\&T)}) - 0.359 \ln(P^{(T\&T)})_{(-1)}$$

(0.001)
(0.36)
(0.262)

Adjusted R Square = .44

More generally, the various regression results seem to suggest that a significant amount of the inflation occurring in Tobago is imported from Trinidad.

#### *Labour Costs*

- 4.4 Another source of inflation in Tobago context is related to changes in labour costs. In Tobago, at present, there is a shortage of skilled and unskilled labour. Quite frequently, labour has to be imported from Trinidad and other Caribbean countries. This tight labour market situation exerts upward pressures on wage rates, production costs and consequently prices.

#### *Transport Costs*

- 4.5 As reported in the Cost of Living Study, several factors influence the behaviour of prices in the Tobago context. One of the most important factors is that of transport. As stated above, Tobago is heavily dependent on Trinidad, and elsewhere for its raw materials, and most of these materials are transported on the sea bridge. It is, thus, reasonable to expect transport costs to have some influence on final prices of goods in Tobago. Improved reliability of shipping and better scheduling have been identified as factors responsible for closing the differential between Tobago and Trinidad with respect to grocery items.

#### *Size of Market*

- 4.6 Another factor is the size of the market in Tobago. In Tobago, because of the smaller market size, economies of scale predict higher costs of production and this is reflected in higher prices. This arises because

firms usually set prices on the basis of production costs plus some mark-up. Relatedly, ten (10) supermarkets have control over 70% of the market share in Tobago. They, thus, can exercise a certain level of market power. What these means is that they have greater influence over prices.

### *Monetary Policy*

4.7 Another major influence on inflation in Tobago resides in the monetary policy initiatives of the Central Bank of Trinidad and Tobago. One of the key objectives of the Central Bank, is to ensure stability in prices in the country. From time to time, monetary policy measures instituted by the Central Bank, that are intended to have the effect of reducing national inflation rate, also reduces the inflation rate in Tobago. In the period October 2006-April 2007, net fiscal injections rose to TT\$ 7,080 million, 67 per cent higher than for the corresponding period for fiscal 2005/2006. If this heavy fiscal injection was not met by appropriate monetary policy, it could have generated tremendous inflationary pressures in the national economy. In the first nine months of 2006, the Central Bank increased the repo rate<sup>15</sup> on eight occasions with a view to dampening domestic demand and restraining inflationary pressures.<sup>16</sup> In addition, towards the end of 2006, the Bank adopted a more aggressive programme of liquidity management, that involved the intensification of open market operations and the auction of government bonds of various maturities<sup>17</sup>. The sale of foreign exchange by the Central Bank to the market, has also contributed to significant liquidity absorption.

4.8 Appendix 4 shows the relationship between Tobago's headline inflation

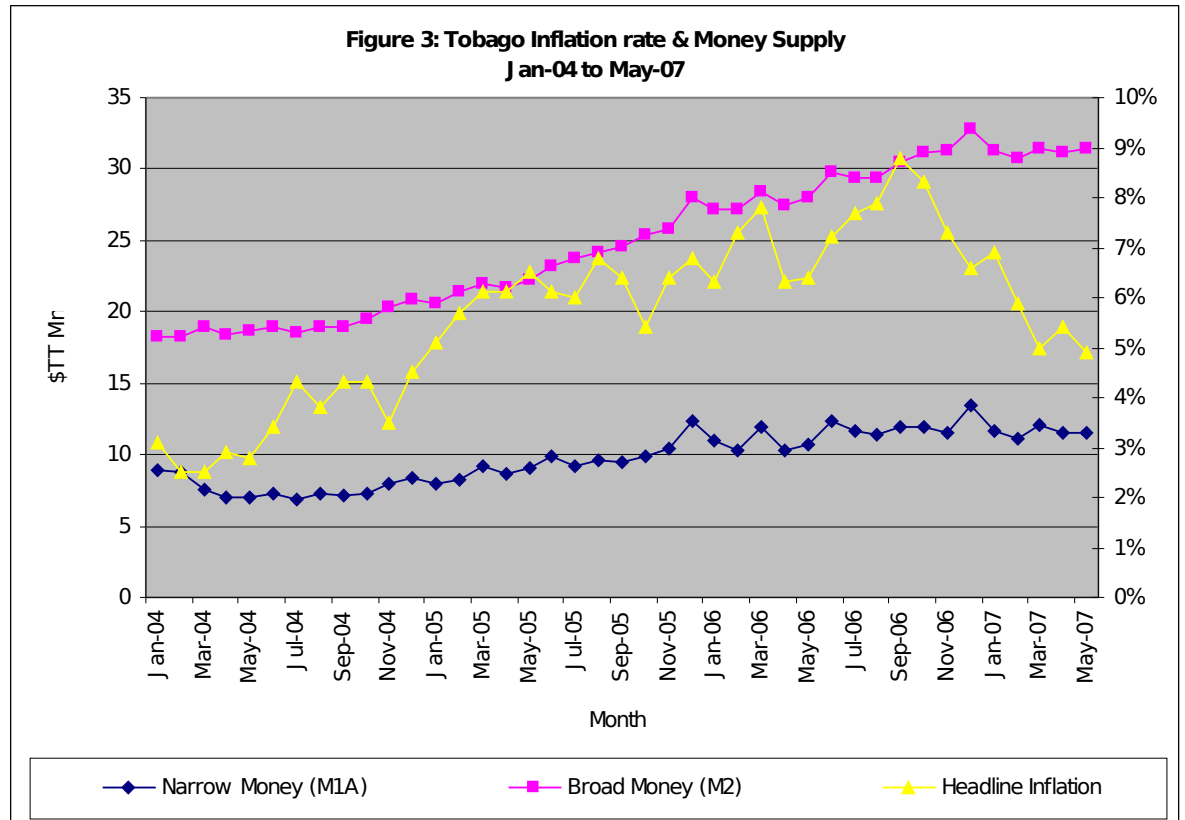
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<sup>15</sup> *The repurchase rate or repo rate is the rate that the Central Bank charges commercial banks for funds that they wish to borrow on an overnight basis. In their day-to-day operations, commercial banks may experience liquidity shortfalls and may need to borrow money to cover their positions. They have the option of borrowing from each other or where this fails, borrowing from the Central Bank to meet the liquidity crunch. The Central Bank can tighten monetary conditions by making commercial bank borrowing from the Central Bank more expensive. It does this largely by raising the repo rate. This increases the cost of financing for commercial banks, which is passed on in terms of higher short term rates. The higher cost of credit is expected to dampen credit expansion, and ultimately, to restrain inflationary pressures, see Nicholls (2006).*

<sup>16</sup> *See Appendix 3a.*

<sup>17</sup> *See Appendix 3(b) and 3(c).*

rate and the Trinidad and Tobago money supply.



4.9 What is clear from the chart is that there is a strong positive correlation between Tobago’s inflation rate, and the both measures of money supply. Indeed, the correlation between Tobago’s inflation rate and the narrow money supply M-1A, is .75, and the correlation between Tobago’s inflation rate and the broad money supply M-2, is .76. What this seems to indicate is that monetary policy does influence the rate of inflation in Tobago through its impact on prices in Trinidad.

4.10 In summary, inflation in Tobago seems to be influenced by a multitude of factors operating both within Tobago and outside of Tobago. If inflation control has to be effective, the policy responses must take cognizance of this fact.

## 5 Moderating The Rate Of Inflation In Tobago: Some Policy Issues

5.1 There are several policy initiatives available to the Tobago House of Assembly and the Central Government to moderate the rate of increase

in consumer prices in Tobago. These initiatives can be classified into supply side initiatives, demand side initiatives, and general initiatives.

### **Supply Side Initiatives**

- 5.2 Several supply-side measures are available to the Tobago House of Assembly and the Central Government to moderate the rate of increases in prices in Tobago. Theory predicts that an increase in supply, *ceteris paribus*, will result in a fall in prices. The supply side initiatives are related to policies aimed at; improving the efficiency of the inter-island transportation system, policies which encourage specialized agriculture in Tobago, policies which allow Tobago to engage in direct trade with the rest of the world, policies which foster business development, and policies aimed at reducing the Common External Tariff (CET).

#### *Improving inter-island transport system*

- 5.3 Because of the structure of production in Tobago, Tobago imports almost all of its goods from Trinidad and the rest of the world. Almost all of these goods are transported on the sea-bridge. The study on the Cost of Living Differential between Tobago and Trinidad, identified improvements in the inter-island sea-bridge system as a key factor to moderate the rate of increase in prices in Tobago. Indeed, the study attributed the smaller differential in the prices of grocery items between Tobago and Trinidad, to improvements in the inter-island sea transport system. Although there have been some improvements in the inter-island sea transport system, with the acquisition of a dedicated cargo boat, in the *Warrior Sprit*, the introduction of the two fast ferries in the *T&T Sprit* and the *Trinidad & Tobago Express*, and the purchase of twenty (20) flat beds (10 forty feet and 10 twenty feet) by the Tobago House of Assembly, further improvements to the inter-island sea transport system could certainly assist in moderating the rate of increase in prices in Tobago, by reducing the monetary and non-monetary costs associated with sea transportation. Some of these improvements are related to making containers and flatbeds more readily available for the trans-shipment of goods, as well as improving the efficiency on the port by providing better storage facilities, and



improving the ticketing system etc.<sup>18</sup>

*Policies aimed at increasing domestic agricultural production.*

- 5.4 A significant amount of the food consumed in Tobago is imported from Trinidad. In the case of perishable goods and green grocer items, the Cost of Living Study found a significant differential between the prices in Trinidad, and in Tobago. This higher price in Tobago may be associated with the risk of transportation and spoilage. Increased agricultural production in Tobago is expected to moderate the rate of increase in prices in Tobago, as well as reduce the price level differential between Tobago and Trinidad.

*Direct importation of goods to Tobago*

- 5.5 Another initiative advanced to moderate the rate of increase in prices in Tobago is the direct importation of goods to Tobago. It is argued, that by reducing transactions costs associated with importing goods through Trinidad, the prices of goods in Tobago can be reduced. However, there are two main concerns associated with the implementation of this measure. The first, is that the market in Tobago may too small to make direct importation feasible. The second, is that because Tobago does not produce a sufficient number of goods, there are limited possibilities for backhaul of Tobago exports, and unit shipping costs to Tobago are likely to be relatively high. Interestingly, in line with the objective to facilitate direct importation of goods to Tobago, in the 2007/2008 Budget presentation, the Tobago House of Assembly signaled its intention to establish a CARICOM Jetty. This will allow for direct importation of goods to Tobago from CARICOM Countries, thus making goods available in Tobago at a lower price than if importation took were to take place via Trinidad.

*Business Development*

- 5.6 In Tobago, market structure does influence prices, especially those of grocery items. Indeed, the Study on the Cost of Living differential study

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<sup>18</sup> *The assumption here is that the gains are not held by the businessmen as profits, but passed on to consumers.*

recommends greater competition as one of the initiatives to moderate the rate of increase in prices in Tobago. In this regard, there is a role for the Tobago House of Assembly to facilitate competition, in cases where significant market power exists.

*Reduction of Common External Tariff*

- 5.7 It has been argued that one factor which accounts for the high prices of goods is the duty placed on imported goods. It is argued, that by reducing import duties, goods could be put on the market in Tobago at a lower price. However, this measure is not likely to be effective because there are not many items on which import duties are charged. This is due in large measure, to the terms and conditions of regional and international trading agreements. Moreover, experience has shown that even when import duties are removed, this does not necessarily translate to lower prices. In other words, prices tend to be very “sticky downwards”.

**Demand Side Initiatives**

*Information Flows*

- 5.8 It has been suggested that if consumers in Tobago are supplied with the pertinent information, this will allow them to do comparison shopping, and this could help prevent businessmen from arbitrarily raising prices. In this regard, the initiative by the Ministry of Legal Affairs, Consumer Affairs Division to publish routinely the prices of consumer goods for several regions in Trinidad; and in Tobago, is a step in the right direction, and is expected to have the effect of reducing the rate of increase in prices.

*Establishment of a Consumer Association*

- 5.9 One initiative that can help moderate the rate of increase in prices is the establishment of a Consumer’s Association. It is argued that, by collective action, consumers can resist “unjustified” price increases, and force businessmen from arbitrarily increasing prices in cases where this is attempted.

*Removal of Vat*

5.10 Another initiative that has been advanced to moderate the rate of increase in prices, is the removal of Value Added Tax (VAT) on certain items. It is expected that by the removal of Value Added tax (VAT), the final price of goods to consumers will be lower. However, experience has shown that in cases where Value Added Tax (VAT) has been removed, the prices of goods do not fall by the same amount. In other words, prices tend to be “sticky downwards” and this policy initiative is likely to have very minimal effectiveness.

*Liquidity Management by the Central Bank of Trinidad and Tobago*

5.11 The Tobago economy is a part of the broader economic system of Trinidad and Tobago. As a consequence, national policy initiatives are likely impact the Tobago economy. As shown in section four, monetary policies do seemingly influence Tobago’s inflation. In this regard, liquidity management strategies of the Central Bank are likely to reduce national inflation rate and by extension the inflation rate in Tobago.

**General Initiative**

5.12 If inflation must be controlled, reliable and accurate data on the phenomenon is of utmost importance. The retail price index (RPI) is the indicator used to measure inflation. The RPI for Tobago was constructed on the basis of national spending patterns which were determined from the Household Budgetary Survey 1997/1998. In terms of the measurement of inflation from a Tobago perspective, there is need for the development of a Tobago specific RPI that fully captures the unique spending patterns in Tobago. This issue must, of necessity be placed high on the work programme of the newly expanded Central Statistical Office (CSO) in Tobago. In addition, there may be great merit in collecting price data at the regional level in Tobago, to allow for greater comparison between the various sub-regions in Tobago. Some of this regional reporting has already started though collaboration between the Ministry of Consumer Affairs and the Division of Consumer Affairs.

**6 Conclusion**

6.1 In conclusion several interesting findings emanated from this research. First, inflation in Tobago as a specific sub-region in Trinidad and Tobago is lower than that for the nation and declining. Second, the pattern of inflation in Tobago mirrors that for the country as a whole. Third, inflation in Tobago is influenced by a host of different factors. Fourth, headline inflation in Tobago is heavily influenced by inflation in food and non-alcoholic beverages. Fifth, while inflation in Tobago is influenced by lots of factors there seem to be some evidence that inflation in Tobago is imported from Trinidad. The paper concludes that there is a significant role for the Tobago House of Assembly to moderate the rate of increase in prices in Tobago.

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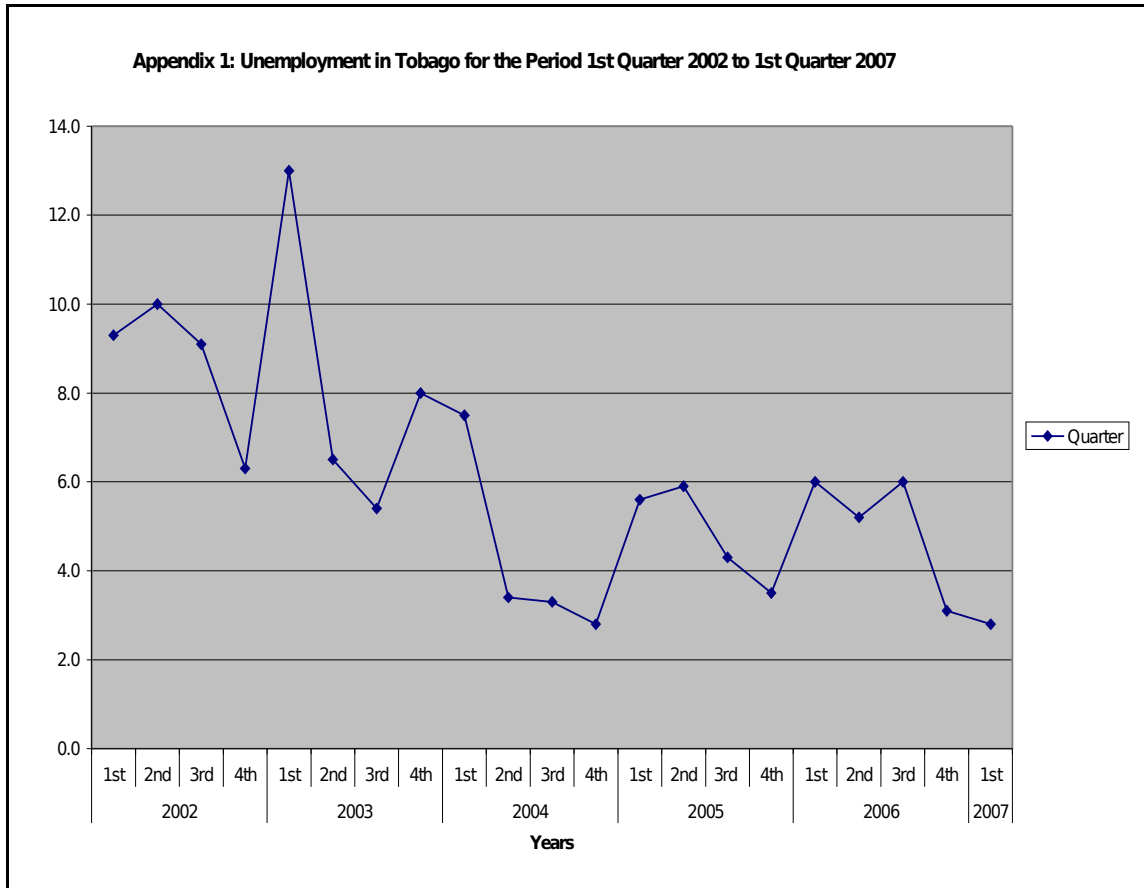
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**Appendix 2: Year-on-Year Headline Inflation rate by in selected areas in  
Tobago and Trinidad, January 2004 to May 2007.**

Year On Year	Inflation All Items		Port Of Spain	San Fernando	Arima Borough	Tacarigua Tunapuna	Chaguana s Borough	Couva	Prince Town
	National	Tobago							
Jan-04	3.3%	3.1%	3.3%	3.6%	2.7%	2.0%	4.2%	7.5%	5.4%
Feb-04	3.1%	2.5%	3.6%	3.1%	1.4%	2.3%	3.2%	7.4%	6.4%
Mar-04	2.8%	2.5%	3.1%	3.0%	0.8%	2.0%	2.8%	6.0%	5.1%
Apr-04	2.9%	2.9%	2.7%	3.7%	-0.5%	2.5%	2.6%	4.4%	2.5%
May-04	3.1%	2.8%	3.3%	4.0%	-0.3%	2.3%	2.9%	4.0%	1.8%
Jun-04	3.2%	3.4%	3.8%	4.1%	-1.1%	1.9%	2.7%	4.9%	2.5%
Jul-04	3.3%	4.3%	3.6%	4.8%	-0.8%	2.1%	3.3%	4.4%	0.3%
Aug-04	3.7%	3.8%	3.8%	5.2%	-0.3%	2.4%	3.9%	4.0%	2.8%
Sep-04	4.3%	4.3%	4.2%	6.5%	0.4%	2.5%	4.5%	4.3%	6.1%
Oct-04	4.5%	4.3%	4.2%	5.8%	0.4%	3.4%	4.8%	5.9%	5.9%
Nov-04	4.7%	3.5%	4.6%	6.0%	0.7%	3.5%	5.6%	6.2%	5.0%
Dec-04	5.6%	4.5%	6.1%	5.9%	1.5%	3.6%	6.3%	8.3%	6.4%
Jan-05	5.9%	5.1%	6.0%	6.3%	3.5%	3.9%	5.9%	6.9%	5.2%
Feb-05	6.9%	5.7%	7.6%	7.2%	5.2%	3.6%	6.8%	8.2%	7.4%
Mar-05	7.3%	6.1%	7.9%	7.4%	5.5%	4.4%	7.9%	9.5%	9.4%
Apr-05	7.0%	6.1%	7.6%	6.4%	5.2%	3.9%	8.3%	9.8%	7.6%
May-05	6.5%	6.5%	7.3%	5.2%	4.6%	3.8%	6.3%	10.2%	5.1%
Jun-05	6.6%	6.1%	6.5%	5.8%	7.0%	4.2%	6.8%	10.2%	5.3%
Jul-05	7.3%	6.0%	8.2%	5.4%	5.9%	4.4%	7.3%	11.7%	6.3%
Aug-05	7.3%	6.8%	7.9%	5.7%	6.6%	4.2%	7.0%	13.8%	8.7%
Sep-05	6.9%	6.4%	7.9%	4.9%	6.9%	4.1%	6.6%	15.1%	4.9%
Oct-05	6.8%	5.4%	7.3%	4.4%	6.6%	4.9%	4.9%	16.8%	6.3%
Year On Year	Inflation All Items		Port Of Spain	San Fernando	Arima Borough	Tacarigua Tunapuna	Chaguana s Borough	Couva	Prince Town
	National	Tobago							
Nov-05	7.0%	6.4%	7.2%	4.2%	5.9%	4.6%	5.9%	17.9%	8.2%
Dec-05	7.2%	6.8%	5.9%	5.3%	5.6%	4.8%	5.9%	20.5%	9.2%
Jan-06	7.0%	6.3%	6.0%	4.6%	6.4%	3.8%	6.3%	23.9%	8.5%
Feb-06	6.5%	7.3%	3.8%	4.7%	6.0%	4.0%	7.3%	25.7%	5.4%



Mar-06	6.6%	7.8%	4.3%	4.5%	7.1%	3.4%	6.7%	28.4%	3.1%
Apr-06	6.9%	6.3%	4.1%	5.1%	6.3%	4.1%	6.3%	32.9%	10.0%
May-06	8.0%	6.4%	5.8%	6.1%	6.3%	4.8%	7.4%	38.3%	12.6%
Jun-06	8.7%	7.2%	6.3%	6.1%	5.7%	5.1%	8.5%	42.5%	11.2%
Jul-06	8.6%	7.7%	6.0%	6.7%	9.6%	5.2%	7.3%	43.4%	11.3%
Aug-06	9.0%	7.9%	6.3%	5.7%	9.4%	5.8%	8.3%	41.1%	12.7%
Sep-06	9.6%	8.8%	5.9%	6.0%	9.0%	6.1%	11.3%	38.9%	15.8%
Oct-06	10.0%	8.3%	6.3%	7.4%	10.6%	6.4%	12.7%	37.1%	18.4%
Nov-06	9.6%	7.3%	6.4%	7.9%	10.3%	6.4%	11.7%	35.3%	17.2%
Dec-06	9.1%	6.6%	7.9%	6.8%	9.6%	6.2%	10.4%	30.1%	12.1%
Jan-07	8.6%	6.9%	5.7%	7.3%	9.1%	6.8%	10.0%	27.4%	15.1%
Feb-07	8.4%	5.9%	6.3%	7.2%	9.1%	6.5%	9.0%	25.3%	14.4%
Mar-07	8.0%	5.0%	5.9%	7.0%	8.6%	6.4%	8.2%	22.4%	17.5%
Apr-07	8.4%	5.4%	7.0%	7.4%	9.2%	6.2%	9.5%	24.5%	13.7%
May-07	7.9%	4.9%	6.1%	6.1%	10.2%	5.3%	10.8%	17.0%	12.4%

Source: Central Statistical Office

**Appendix (3a): Adjustment in the 'Repo' rate by the Central Bank of  
Trinidad and Tobago, January 2006 to April 2007.**

Date	Policy Measures
January 2006	'Repo' rate increased to 6.25 per cent
February 2006	'Repo' rate increased to 6.50 per cent
March 2006	Repo' rate increased to 6.75 per cent
April 2006	Repo' rate maintained to 6.75 per cent
May 2006	Repo' rate increased to 7.00 per cent
June 2006	Repo' rate increased to 7.25 per cent

July 2006	Repo' rate increased to 7.50 per cent
August 2006	Repo' rate increased to 7.75 per cent
September 2006	Repo' rate increased to 8.00 per cent
October 2006	Repo' rate maintained to 8.00 per cent
November 2006	Repo' rate maintained to 8.00 per cent
December 2006	Repo' rate maintained to 8.00 per cent
January 2007	Repo' rate maintained to 8.00 per cent
February 2007	Repo' rate maintained to 8.00 per cent
March 2007	Repo' rate maintained to 8.00 per cent
April 2007	Repo' rate maintained to 8.00 per cent

Source: Central Bank of Trinidad and Tobago.

**Appendix (3b): Government Bond Issues, 2004-2007.**

Year	Date Issued	Tenor	Coupon Rate Percent	Yield Percent	Issue Price TT\$	Initial Offering TT\$ Mn	Amount Allotted TT \$Mn
2004	3-Aug	15 years	Fixed rate 6.15	6.15	\$100.00	300.00	300.00
	15-Sep	10 years	6.00	6.00	\$100.00	516.00	516.00
	22-Sep	15 years	Fixed rate 6.00	6.14	\$99.66	300.00	300.00
			Fixed rate 6.10				
2005	16-Mar	10 years	Fixed rate 6.00	6.05	\$99.63	400.00	400.00
	24-May	10 years	6.10	6.11	\$99.90	400.00	202.78
	22-Jul	10 years	Fixed rate 6.10	6.35	\$98.18	400.00	197.22
			Fixed rate 6.10				
2006	28-Nov	8 years	Fixed rate 8.00	8.15	\$99.13	700.00	700.00
2007	9-Feb	5 1/2	Fixed rate 7.80	7.80	\$100.00	300.00	674.30
	27-Apr	years 7 years	Fixed rate 8.00	8.00	\$100.00	450.00 -650.00	1,017.98

Source: Central Bank of Trinidad and Tobago.

**Appendix (3c): Liquidity Management Measures by the Central Bank of Trinidad and Tobago, December 2005 to April 2007.**

Date	Liquidity Management Measures
December 2005	<p>Commercial bank deposited TT\$1 billion in an interest-bearing account at the Central Bank for a minimum period of one year.</p> <p>Special Deposit rate reduced to zero.</p>
June 2006	<p>Commercial banks deposited TT\$500 million in an interest-bearing account at the Central Bank for a minimum period of one year.</p>
September 2006	<p>Commercial banks were required to hold, on a temporary basis, a secondary reserve requirement of 2 per cent of their prescribed liabilities, effective October 4 2006 remunerated at 350 basis points below the 'Repo' rate.</p>
September 2006	<p>Parliament approved an increase in open market securities for government borrowing from \$8 billion to \$15 billion.</p>
November 2006	<p>Additional steps were taken by the Central Bank in consultation with the Government to increase liquidity absorption. To this end, a TT \$700 million eight-year bond was issued to the public in November, the proceeds of which have been sterilized.</p>
February 2007	<p>Another bond in the advertised amount of \$300 million was offered, but due to overwhelming public support, the actual size was increased to \$674.3 million with a maturity date of August 9, 2012 and a coupon rate of 7.80 per cent. The proceeds of this bond were also sterilized.</p>
April 2007	<p>A third bond aimed at liquidity absorption was initially offered in the amount of \$450 million, but again due to the public's reception of the issue, the bond's value was raised to \$1 billion with a coupon rate of 8.00 per cent and a tenor of 7 years. The proceeds of this bond were sterilized.</p>

Source: Central Bank of Trinidad and Tobago.

## Appendix 4

The coefficients of unity is derived as follows:

$$\text{Assuming } \ln(P^T) = \alpha_0 + \alpha_1 \ln(P^{Trin})$$

$$\text{Assuming } \ln(P^{Trin}) = a_1 * \ln(P^{T\&T}),$$

$$\ln(P^T) = \alpha_0 + \alpha_1 * (a_1 * \ln(P^{T\&T}))$$

$$= \alpha_0 + \alpha_1 a_1 + a_1 * \ln(P^{T\&T})$$

$$= A_0 + \alpha_1 \ln(P^{T\&T}),$$

Where  $A_0$  is indeterminate, a priori, sign and size and  $\alpha_1$  remains assumed to be unity.