

IIa. What Accounts for Food Price Inflation in Trinidad and Tobago in Recent Years?

Prepared by

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In recent years food inflation has been the major driver of headline inflation in Trinidad and Tobago. This paper seeks to examine the contribution of international and domestic food prices to overall food inflation. This article also briefly reviews the methodology for measuring inflation and examines the time it takes for changes in international food prices to be reflected in the domestic market. Further, it seeks to ascertain whether food inflation is volatile and whether it has a cyclical trend. The results show that domestic food prices are much more volatile when compared to international food prices. Also, increases in international food prices are transmitted to the domestic market with a lag of between 2 to 5 months. However, declines in international food prices are not fully transmitted to the domestic market.

I. How are Food and Non-Alcoholic Beverages² prices measured in the RPI?

The rate of inflation in Trinidad and Tobago is measured using the Index of Retail Prices (RPI) which is compiled by the Central Statistical Office (CSO). The RPI measures the weighted average of the changes in the prices of a specified set or basket of consumer goods and services between two time periods.

The composition of the basket of items used to calculate the RPI is determined by a decennial Household Budgetary Survey (HBS) which is also administered by the CSO. Using data from the 1997/1998 HBS, the RPI was last re-based in January 2003 from the previous base period of September 1993. More recently, a HBS was conducted by the CSO in 2008/2009 and it is likely that the RPI will be revised or rebased in 2011 to reflect the latest information on spending patterns.

The basket of goods that comprise the RPI is categorized according to the Classification of Individual Consumption by Purpose (COICOP), which has 12 divisions concerned with final consumption (Appendix I). Each division is assigned a weight, for example, 180/1000 is the weight for Food and Non-Alcoholic Beverages (Table 1). This reflects the estimation from the HBS that 18 per cent of household expenditure is devoted to Food and Non-Alcoholic Beverages. Over the years, the weight of the Food and Non-Alcoholic Beverages component has been reduced (Table 2). Between 1960 and 2003, the weight of this component decreased from 49 per cent to 18 per cent.

In order to obtain information on the prices of items used to track and measure price changes in the RPI, field officers are assigned by the CSO to contact and visit retail stores and service establishments. The field officers record the prices paid by consumers for goods (3 varieties/brands of each good) and services purchased at three retailers in each of the fifteen (15)

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² In the discussion that follows the Food and Non-Alcoholic Beverages sub-index is collectively referred to as the food category.

Table 1
Components of the Food and Non-Alcoholic Beverages Category of the RPI
January 2003=100

Items	Weight
Food and Non-Alcoholic Beverages	180.00
Food	156.20
Bread and Cereals	31.21
Meat	29.21
Fish	11.37
Milk, Cheese and Eggs	19.05
Oils and Fats	9.07
Fruits	14.28
Vegetables	21.84
Sugar, Jam, Confectionary etc.	7.66
Food Products	12.51
Non-Alcoholic Beverages	23.80
Coffee, Tea, Cocoa	3.06
Minerals, Water, Soft Drinks and Juices	20.74

Source: The Central Statistical Office of Trinidad and Tobago.

Table 2
Weight of the Food and Non-Alcoholic Beverages Sub-Index in the RPI

Base Year	Weight (%)
1960	49.0
1975	33.4
1982	35.1
1993	21.7
2003	18.0

Source: The Central Statistical Office of Trinidad and Tobago.

selected geographical³ areas in Trinidad and Tobago. The price quotes for each item along with their specifications (including brand and size) are recorded on “pricing sheets”. Food prices are collected on a monthly basis.⁴ Further information on the price collection and dissemination process is provided in Appendix II.

The RPI is the main series that is used to collect price information. In addition to the CSO, the Trinidad and Tobago Chamber of Industry and Commerce,⁵ the Consumer Affairs Division of the Ministry of Legal Affairs⁶ and the National Agricultural and Marketing Development Corporation (NAMDEVCO)⁷ collect prices on selected grocery items. These agencies monitor price changes in similar categories of items, such as sugar, dairy products, cereals and starches, pulses, meat, fruits and vegetables. Although the grocery baskets that the different agencies examine are not the same in terms of the size and brand of each item, the information regarding the direction of price changes is consistent for comparable types of items.

³ Weights are also assigned to the 15 geographical areas based on information collected on area purchases.

⁴ However, prices for the other items in the RPI are collected monthly, quarterly or semi-annually.

⁵ See the Trinidad and Tobago Chamber of Industry and Commerce. “Contact Magazine”. Quarterly Publications.

⁶ See Consumer Affairs Division of the Ministry of Legal Affairs website; <http://www.consumer.gov.tt/>. (Prices are collected on a monthly basis).

⁷ See National Agricultural and Marketing Development Corporation (NAMDEVCO) “GreenVine Monthly Bulletin” and <http://www.namistt.com/>.

II. The Determinants of Food Price Inflation

In order to determine the impact of domestic and international food prices on food inflation, the food price sub-index was disaggregated into two categories; domestically produced items and imported goods. Items sourced domestically were determined to account for two thirds of the Food and Non-Alcoholic Beverages sub-index while one third of the items were categorised as imported. For each category, a monthly index was calculated using the relevant weights of the RPI. Figure 1 illustrates the year-on-year per cent changes of the respected indices.

a. Recent Movements in Global Food Prices

During the period 2006 and 2007, prices of most international food commodities began to climb and the United Nations Food and Agricultural Organization (FAO) Food Price Index increased by 7 per cent and 27 per cent, respectively. By June 2008, the prices of these items on international markets had reached their highest levels for 30 years. The increase in prices of international agricultural commodities was also accompanied by high volatility, particularly in the cereals, oil seeds, vegetable oils and sugar sectors. The dramatic increase in world food prices between 2006 and 2008 was mainly on account of: (1) increased use of agricultural products for biofuels production; (2) elevated oil prices; and (3) higher demand for food products from emerging markets such as China and India. However, with the advent of the financial crisis and a slowdown in emerging markets, prices for most agricultural commodities fell significantly from the highs recorded in the first half of 2008. Most notably, grain prices fell by approximately 50 per cent and the prices for other basic foods followed a similar pattern. By the end of 2010, there was a resurgence in global food prices on account of a greater demand in developing economies, adverse weather conditions and export bans by several major agricultural producing countries.

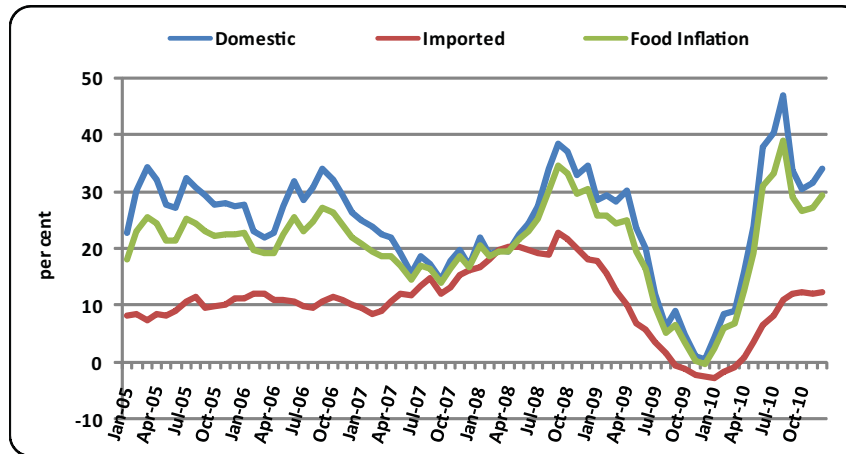
There appears to be some lag in the transmission of a fall in international food prices to the domestic economy. Food prices in the Trinidad and Tobago economy followed the pattern of increases in the international market from 2006 through the first half of 2008. Nonetheless, in the latter half of 2008 when global food prices were falling, local food prices remained high. For instance, on a year-on-year basis to October 2008, food inflation stood at a high of 33.4 per cent. However, during 2009 the persistent decline in international commodity prices began to be reflected in imported food items, such as flour, rice, milk and cheese. Thus, in the twelve months to December 2009 food inflation had moderated to -0.2 per cent. Since the start of 2010, food inflation increased consistently. The rise in food prices was primarily owing to an increase in domestic food prices, as the recent hike in international food prices had not yet been passed on to the domestic market. Food price inflation which measured 2.7 per cent in January 2010 surged to 39.1 per cent in August 2010 (year-on-year). The acceleration in food prices was mainly attributable to a fall in the supply of domestic agricultural commodities.

b. Domestic Production

Domestic agricultural production also impacts on food price inflation. In general, domestic production fluctuates as a result of seasonal factors. This could be substantially exacerbated by other factors such as extreme weather conditions. In the first quarter of 2010, local agricultural supplies were adversely affected by the severe drought. Following the drought conditions,

flooding in some key agricultural districts caused significant crop damage, further constraining domestic food production. Statistics from the CSO and NAMDEVCO showed that the adverse weather patterns caused a substantial decline in locally produced root crops, spices, vegetables and fruits. The prices of several agricultural produce soared and so did food inflation. As Figure 1 illustrates, food inflation in Trinidad and Tobago is mainly driven by the changes in the prices of locally produced goods.

Figure 1
Contribution to Food Inflation by Source
(Year-on-Year Percentage Change)



Source: The Central Statistical Office of Trinidad and Tobago.

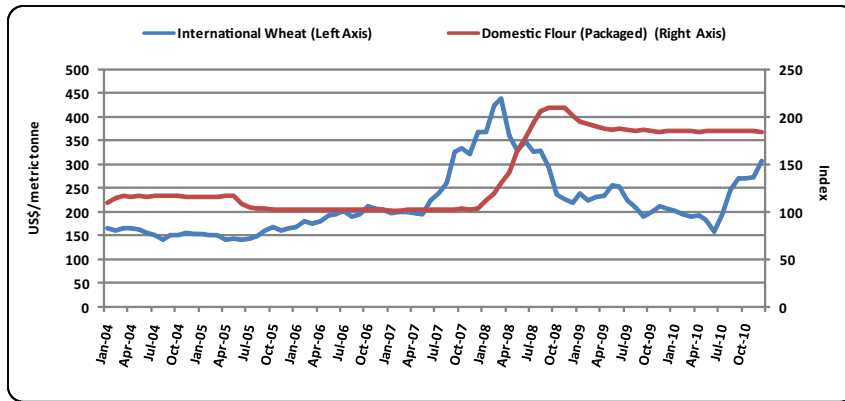
III. The Price Transmission Process: A Preliminary Assessment

To examine how changes in international food prices are transmitted to the domestic market, three key imported agricultural commodities were selected (wheat, rice and corn). The price of wheat was compared to locally produced flour since the latter uses wheat as a key ingredient in its production. Similarly, the price of imported rice was compared to locally packaged rice and imported corn to domestic corn-based cooking oil. The local retail items, flour, rice and corn-based cooking oils, carry weights in the RPI of 6.82 per cent, 6.35 per cent and 0.43 per cent, respectively.

Figure 2 shows that higher international price for wheat takes 4 to 5 months on average to be transmitted to the price of flour in the domestic market. One likely reason is the existence of inventories or stock, obtained at earlier prices. However, Figure 2 also shows that the fall in international wheat prices which began in 2008 was slowly transmitted domestically since there is much more downward stickiness in domestic flour prices. Notably, the rise in international prices in the latter half of 2010 is not yet transmitted to domestic prices.

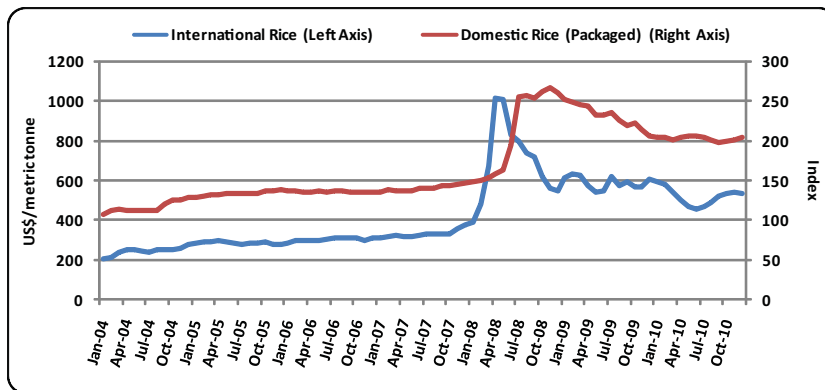
As for packaged rice, the analysis shows that an increase in the price of rice globally takes about 3 to 4 months before the higher price is reflected in the domestic price. On the other hand, a substantial decline in the international price in the second half of 2008 was associated with a gradual fall in the domestic price during 2009 (Figure 3). Furthermore, in some cases, the full impact of the lower price may not be transmitted.

Figure 2
The Transmission of the International Price of Wheat to Local Flour Prices
 January 2003=100



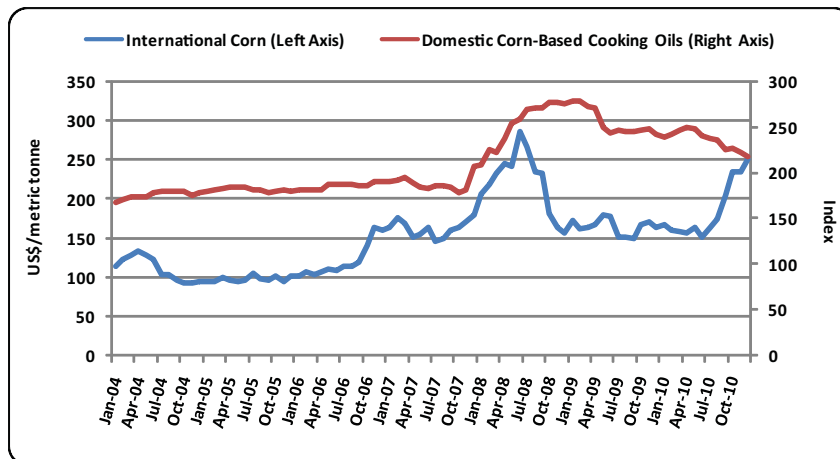
Sources: Index Mundi and the Central Statistical Office of Trinidad and Tobago.

Figure 3
The Transmission of the International Price of Rice to Local Rice Prices
 January 2003=100



Sources: Index Mundi and the Central Statistical Office of Trinidad and Tobago.

Figure 4
The Transmission of the International Price of Corn to Local Corn-Based Cooking Oils
 January 2003=100



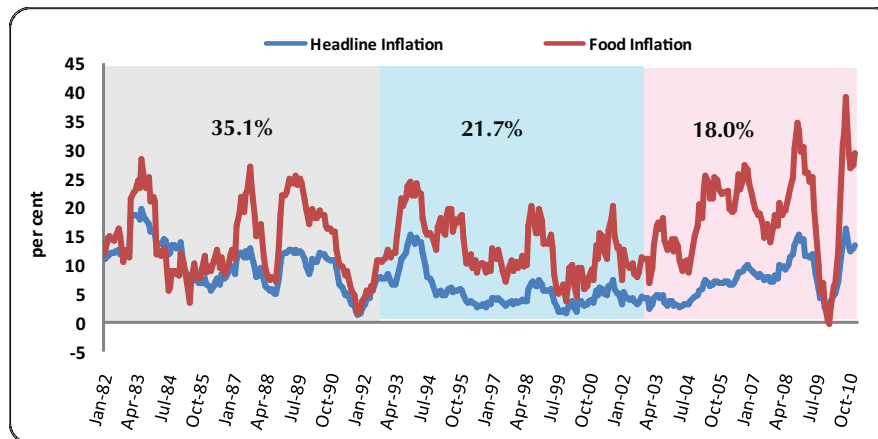
Sources: Index Mundi and the Central Statistical Office of Trinidad and Tobago.

Thirdly, a rise in the price of corn internationally is transmitted to the retail selling price of corn-based cooking oils in 2 to 3 months. Furthermore, similar to rice, a sizeable fall in the price of corn globally in the second half of 2008 was not fully transmitted to the domestic price, since there was only a marginal decrease in the local cost of corn-based cooking oils in the second quarter of 2009 (Figure 4).

IV. Long-term Relationship between Food Inflation and Headline Inflation

Inflation in Trinidad and Tobago has for quite some time displayed significant volatility. This is mainly due to the Food and Non-Alcoholic Beverages sub-index, which has exerted significant influence on the headline inflation rate. As Figure 5 illustrates, even though the weight of food inflation has declined over the period 1981-2010, food inflation tends to be between 5 per cent and 25 per cent.

Figure 5
Headline and Food Inflation
(Year-on-Year Percentage Change)

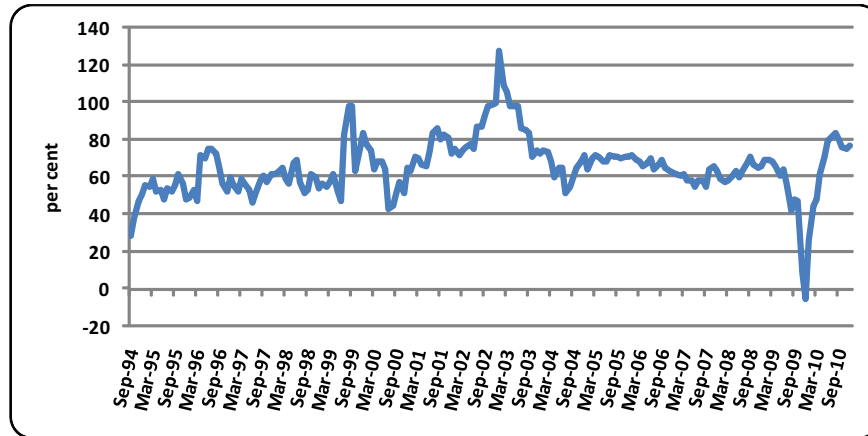


Source: The Central Statistical Office of Trinidad and Tobago.

Note: Percentages reflect weight of food sub-index in RPI.

The contribution of food inflation to headline inflation can be examined through an observation of the weighted change of food inflation as a proportion of the sum of the weighted changes of all other categories of the RPI (Figure 6). This contribution of food inflation to headline inflation has ranged between 50 per cent and 80 per cent since 1994. During 1999/2000 and 2002/2003, the percentage contribution of food inflation to the overall inflation rate rose significantly, peaking at 98 per cent in the former instance and 128 per cent in the latter. These periods saw buoyancy in food prices while the prices of non-food items (i.e. core inflation) were relatively unchanged, resulting in a substantial role for food in headline inflation. During the 24 months of 1999/2000, food inflation averaged 8.6 per cent while headline inflation was 3.5 per cent. While food inflation was 13.3 per cent during 2002/2003, headline inflation measured 3.8 per cent. In late 2009, the contribution to headline by that of food prices fell notably, reaching -5.1 per cent by December 2009. The second half of 2009 saw a slowing of food price increases, brought on by the lagged effect of declining prices of imported food on the international market.

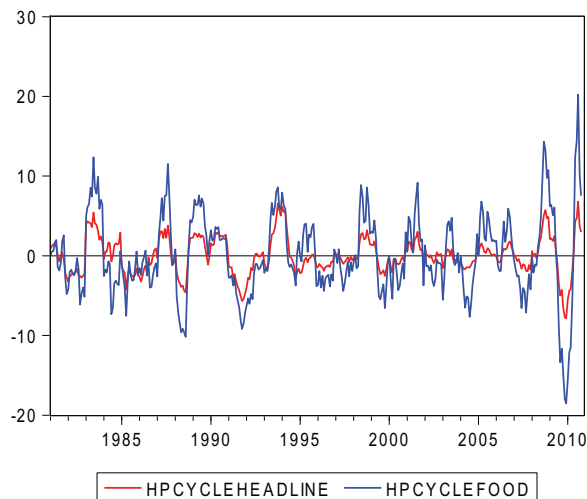
Figure 6
Contribution of Food Inflation to Headline Inflation



Source: The Central Statistical Office of Trinidad and Tobago.

Inflation in Trinidad and Tobago has been relatively volatile since 1981, as can be seen from the cyclical component of headline, core and food inflation⁸ (Figures 7 and 8). A visual inspection of the plots reveals that, arguably, there exists a discernible cyclical pattern to inflation in Trinidad and Tobago. More importantly however, the level of volatility in the data is quite clear. Food inflation is highly volatile (Figure 7). There is also notable volatility in core inflation, albeit to a lesser extent, which indicates that this category also contributes to movements in headline inflation (Figure 8). Notwithstanding this, most of the volatility present in headline inflation is driven by the food sub-index

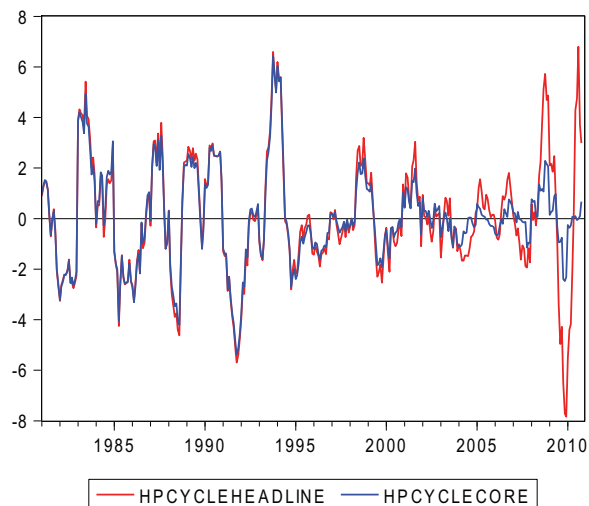
Figure 7
Cyclical Component of Headline and Food Inflation⁹



⁸ The Hodrick-Prescott Filter Process was used to decompose the variable into its cyclical and trend components.

⁹ The Hodrick-Prescott Filter was used to extract the cyclical component of headline and food inflation.

Figure 8
Cyclical Component of Headline and Core Inflation¹⁰



V. Conclusion

This note examined various elements of food price inflation in Trinidad and Tobago. Domestic food prices account for two-thirds of the overall weight in the Food and Non-Alcoholic Beverages sub-index while imported food prices account for the remaining one-third. The analysis revealed that there is a lag in the transmission of changes in foreign prices to domestic prices. More specifically, the study found that the transmission of international price increases to the domestic market takes approximately 2 to 5 months. There is also an asymmetry in the transmission mechanism as international price declines take longer to be transmitted locally, and may only be partially passed on to the domestic market. An inspection of the time series revealed that the contribution of food to headline inflation has increased although the related weight in the RPI has declined. At the end of 2010 the FAO's Food Price Index was at its highest level on record. The transmission of these high prices to the domestic market will exert upward pressure on food inflation in the coming months. The prognosis is for further international food price increases with onward transmission to the domestic market. However, initiatives by the Government of Trinidad and Tobago to both increase and smoothen agricultural production in the medium to long term may provide a damping effect on food price inflation.

¹⁰ The Hodrick-Prescott Filter was used to extract the cyclical component of headline and core inflation.

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Appendix I

Table I
Components of the Index of Retail Prices
January 2003=100

Division	Weight
Alcoholic Beverages and Tobacco	25.00
Clothing and Footwear	53.00
Housing, Water, Electricity, Gas and other Fuels	262.00
Furnishing, Household Equipment and Maintenance	54.00
Health	51.00
Transport	167.00
Education	16.00
Communication	41.00
Recreation and Culture	85.00
Hotel, Cafes and Restaurants	30.00
Miscellaneous Good and Services	30.00
Total – Core	820.00
Food and Non-Alcoholic Beverages	180.00
Total – All Items	1,000.00

Source: The Central Statistical Office of Trinidad and Tobago.

Appendix II

The Central Statistical Office Price Collection Process for the Items in the Food and Non-Alcoholic Beverages Category

- Price collection is usually carried out during the first two (2) weeks of the month.
- The price sheets are returned to the CSO during the 15th to 17th of each month.
- During the remaining two (2) weeks of the month, the data is edited, entered into the RPI database, and the index is subsequently calculated.
- This data (for the previous month) will therefore be reported in the following month.