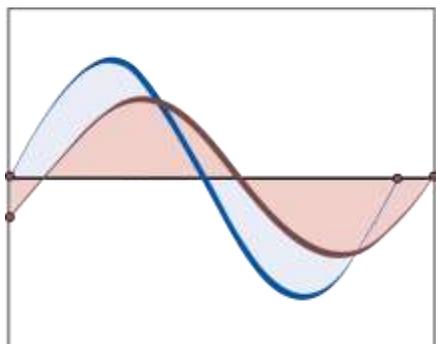


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Price Setting in Trinidad and Tobago: Evidence from Survey Data

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This paper analyses the results of a survey conducted by the Central Bank of Trinidad and Tobago aimed at investigating the factors that influence domestic firms' price setting decisions. Firms primarily from the non-energy manufacturing and services sectors were surveyed over the last quarter of 2011. The study revealed that, firms reviewed their prices on a regular basis, and when there were changes in the economy. The study also confirmed the existence of price rigidity, which appeared to be more prevalent in the services sector. While there was a significant degree of downward price rigidity, the factors influencing the decision to lower prices varied according to firm size. These factors included raw material costs (small firms), falling demand (medium sized firms) and competitor prices (large firms). In the case of price increases, however the main factors across sectors and size of firms were raw material and wages cost.

JEL Classification Numbers: D22, E31, O54

Keywords: Price Setting Behaviour, Price Rigidity, Survey Data, Trinidad and Tobago.

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PRICE SETTING IN TRINIDAD AND TOBAGO: EVIDENCE FROM SURVEY DATA

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1. Introduction

Over the last few years there has been increased interest in microeconomic price setting behaviour. Investigations into the issue have been pursued by the central banks of several countries such as Canada, Portugal, Spain and Austria². Understanding the factors that determine on what basis firms change their prices can aid the Central Bank of Trinidad and Tobago in fine tuning its monetary policy as it tries to maintain a stable inflationary environment as well as policy makers more generally. The authors are unaware of any previous or ongoing investigation in the Caribbean region on this subject and certainly for Trinidad and Tobago this is novel research. Adopting the methodology of the European Central Bank, the authors use questionnaire data to understand the motivation behind price changes in Trinidad and Tobago.

In Trinidad and Tobago most companies alter their prices without publicly explaining why. However, recent announcements of price changes by two large companies were accompanied by short explanations of the reasons for the changes³. In the first instance, at the end of 2011, a large manufacturing company increased the price of one of its products by between 7 per cent and 12 per cent. The company identified escalating operation costs including labour and energy costs, along with the depreciation of the Trinidad and Tobago (TT) dollar as factors influencing the rise. The company also revealed that it had been absorbing the higher costs for some time. In the second case, in February 2012, a food manufacturing company announced an increase in the price of a popular product, citing high material and labour costs. The price of the items would rise by between 17 per cent and 50 per cent, and the company further noted that prices of these items had not been increased since 2008. The factors identified as

¹ The authors are economists in the Research Department of the Central Bank of Trinidad and Tobago, with the exception of Ms Primus who was an economist at the Central Bank during the commissioning of the study but is now currently a graduate student at the University of Manchester. The views expressed are those of the authors and not necessarily those of the Central Bank.

² Amirault, Kwan and Wilkinson (2006); Martins (2005); Álvarez and Hernando (2005) and Kwapiil, Baumgartner and Scharler (2005.)

³ See "Kiss raises snack cakes prices." Trinidad Express, February 2 2012 @ http://www.trinidadexpress.com/business/kiss_raises_snack_cakes_prices-128615424.html. and *Cement prices go up.*" Trinidad Express, December 30 2011 @ http://www.trinidadexpress.com/business/cement_prices_go_up-136461013.html.

contributing to the change in the prices, and the suggestion that the companies absorbed increased operational costs until some specific threshold was crossed lends empirical guidance and support to the aim of this study.

The literature on pricing motivations over the years shows that various factors influence firms' decisions to change prices. These factors may differ in importance for firms in different countries, sectors or of different sizes. Blinder (1991) in his examination of the US manufacturing sector pioneered the investigation into the micro determinants of price changes using survey methodology. He found little evidence that prices increased faster than they decreased, and virtually none that firms responded to cost shocks more quickly than to demand shocks. Fabiani *et al* (2006) in a study looking at price determination in nine Euro area countries found that prices were primarily determined by mark up rules. Further, firms considered both price and expected economic developments when making their pricing decisions. Loupias and Richart (2004) observed that among French manufacturing companies, prices were adjusted infrequently and price reviews were more frequent than price changes. Álvarez and Hernando (2005) also found that prices in the Spanish market were generally sticky, with changes occurring on average once per year.

Copaciu *et al* (2010) in examining how firms set their prices in Romania employed a questionnaire which covered issues such as the relation of prices to the market price, competitors' prices, whether the firm engaged in price discrimination, the impact of shocks, wages adjustments, and movement in interest rates and exchange rates. Kwapi *et al* (2010) using information from a survey of firms in an ordered probit model, found that price rigidity was strongly related to a lack of competition, the number of regular customers, and somewhat mildly related to menu costs. In the Netherlands, Hoerberichts and Stokman (2010) surveyed 1,246 firms and concluded that prices are stickiest in small firms and most flexible in large firms. Martins (2005) in looking at the Portuguese market, found a higher degree of price stickiness in the services sector than in the manufacturing sector.

The next section describes the survey methodology used in this paper. This is followed by a discussion of the results of the survey, first relating to the characteristics of the companies surveyed and the market in which they operate, and second to the price setting behavior of the firms. The paper concludes with a summary of the results and some possible policy implications and prescriptions.

2. The Survey

The sample was drawn from the Survey of Business Establishments database for 2011 maintained by the Trinidad and Tobago Central Statistical Office⁴ (CSO). The CSO provided a sample stratified by industry and size, with size being determined according to the number of employees in each firm. The authors omitted companies from the

⁴ See <http://www.cso.gov.tt/statistics/statistics/-in-statistics/statistics/business-statistics> for further information on the Survey of Business Establishment.

financial sector, the energy sector as well as non-profit institutions. Financial sector companies were omitted because of the difficulty of determining a main product in this sector. Companies in the energy sector were also omitted since the prices of energy products are primarily determined on the international market. There was wide coverage of both manufacturers and services providers. One weakness of the Survey of Business Establishments however is that firms are not required to indicate when they are no longer in operation, and thus the sample would contain a number of firms that are no longer in existence. The questionnaire was a modified version of the one employed by the Banco de Portugal in its assessment of firm price behaviour (Martins 2005), adjusted to make it more fitted to the local business environment. The survey was administered during the period August to December 2011 to 250 businesses in Trinidad and Tobago by traditional mail. Staff members followed up with telephone calls and electronic mails.

Of the 196 firms contacted, 63 firms responded, resulting in a response rate of 32 per cent. The authors considered this response rate acceptable, given that in the studies in more developed countries the response rates ranged from 36 per cent (Austria) to 69 per cent (Spain). Small firms (firms with less than 25 employees), accounted for approximately 49 per cent of the responses, large firms (firms with 51 and employees) represented 38 per cent of the responses, with medium firms making up the remaining 13 per cent. The responding firms could be also grouped into 5 sectors, food manufacturing, other manufacturing, construction services, distribution services and other services. Of these other manufacturing accounted for 33 per cent of the responses, food manufacturing and construction services each accounted for 13 per cent of the responses, while distribution services represented some 22 per cent of the responses, and other services made up the remaining 19 per cent.

Below, the survey is assessed from the perspectives of size of company, and sector of operation, noting especially the differences between manufacturing and services companies. The respondents were requested to answer the survey questions as it pertains to their main product or service, i.e. the good or service that represented the highest sales or principal activity of the firm in 2010.

3. Main Market Characteristics⁵

3.1 Main product and main market

The main product accounted for, on average, 75.7 per cent of total turnover (Chart 1), perhaps because firms choose to specialize given the small market in which they operate. The contribution of the main product to total turnover was highest for food manufacturing (77.0 per cent) and lowest for distribution (68.5 per cent), and in terms of firm size,

⁵ As a test of the robustness of the results, the responses in all the sections were also weighted by the size of the firm. The results essentially remained the same.

higher for large firms (82.5 per cent) than for small (72.7 per cent) and medium firms (68.0 per cent). This latter result is surprising since one may expect larger firms to be better resourced to diversify their earnings. However, on the other hand, small and medium-sized firms may be forced to supplement earnings from their main product with one or two other product offerings.

Approximately 95 per cent of all firms identified Trinidad and Tobago as their main market (Chart 2). While this seems natural for firms in the construction, distribution and other services categories, the proportion of firms in the food manufacturing (85.7 per cent) and other manufacturing sectors (89.5 per cent) selling mainly to Trinidad and Tobago was also high. The high proportion of firms focusing on the domestic market also reflected the fact that the energy companies — who are the country's main exporters — were excluded from the survey. Firms for which the domestic market was not the main market identified either the United States or CARICOM countries as their main markets. The importance of the local market for firms in this survey means that the investigation speaks mostly of firms' price setting behavior in the Trinidad and Tobago market.

Small firms showed a higher degree of openness with approximately 7 per cent selling mainly to a foreign market, but they also reported a lower share of total turnover due to exports compared to the medium and large categories (Chart 3). In their study on Spain, Álvarez *et al* (2005) also found that regional and local markets were more significant for smaller firms.

Consistent with the finding that manufacturing firms are more export oriented, export earnings comprised a higher proportion of total turnover for the food manufacturing (15.9 per cent) and other manufacturing sectors (9.7 per cent) than for construction (3.4 per cent) and other services (4.5 per cent). The low level of service exports is noteworthy, given the trend for the inclusion of services liberalization in negotiating trade agreements.

The sample results seem quite representative of the various modes of disposition of product. Many firms sold their main product directly to consumers (25.9 per cent) while about the same proportion sold to retailers, and slightly fewer (24.1 per cent) sold directly to companies (Chart 4).

Chart 1
Share of main product in total turnover (Question 2)

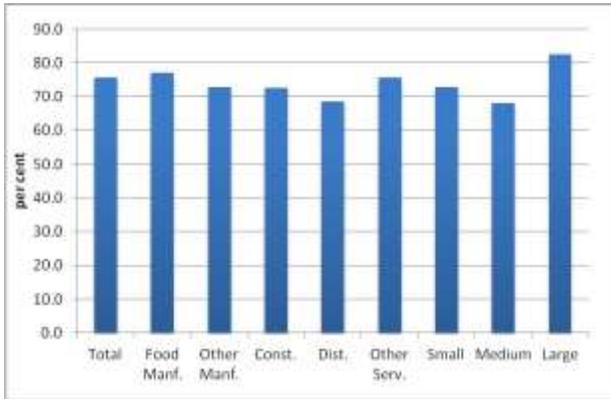


Chart 2
Main Market (Question 3)

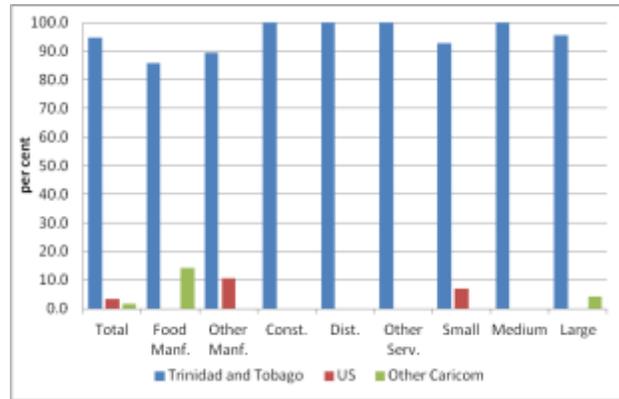


Chart 3
Share of exports in total turnover (Question 4)

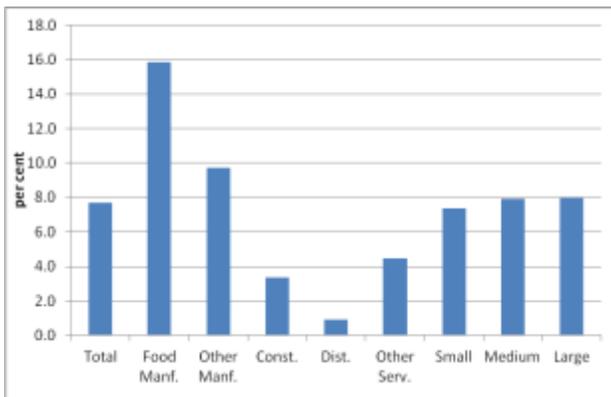
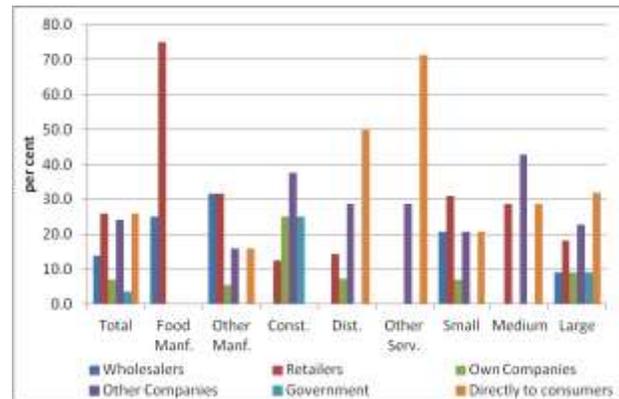


Chart 4
Main destination of sales (Question 5)



3.2 Degree of competition

In economic literature, the degree of competition is a significant factor in determining prices. Under perfect competition, the individual firm is unable to set the price of a homogenous product and is thus a price taker. Only when there is some departure from perfect competition, a firm may have some degree of market power. In developing countries like Trinidad and Tobago, this assumes increased significance since often small markets are dominated by large firms or even conglomerates who have disproportionate influence on prices. Questions 6 and 7 of the survey were designed to help determine the degree of competition faced by firms. Overall, 41.7 per cent of firms reported having between 5 and 10 competitors in their main market, and 56.2 per cent of them had a market

share less than or equal to 20 per cent. In general, then, firms appeared to have limited market power. But large firms had more market power, with 26.1 per cent of them enjoying between 51 to 99 per cent of market share compared to 11.1 per cent of small firms.

However, the picture of substantial competition in the domestic market changes when firms were asked about what would happen to the quantities they sold if they increased the price of their main product by 10 per cent. Some 40 per cent reported that there will be no change, led by construction and firms in the other services sectors, where demand tended more towards inelasticity. This inelasticity seems to be mirrored in the level of autonomy these companies have over their prices (Chart 8): 73 per cent of firms reported that they set their own prices.

Chart 5
Number of competitors
in Trinidad and Tobago (Question 6)

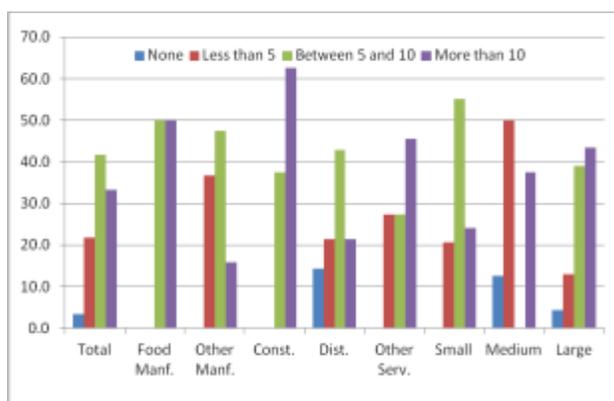


Chart 6
Market share of the main product
in Trinidad and Tobago (Question 7)

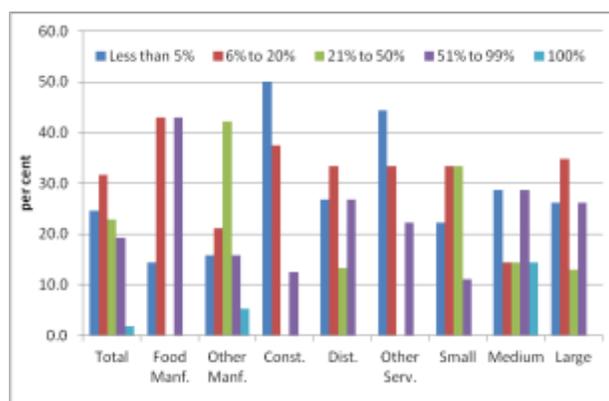


Chart 7
Elasticity of demand (Question 22)

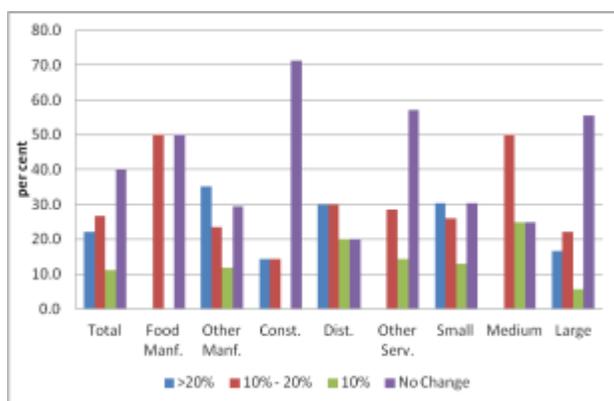
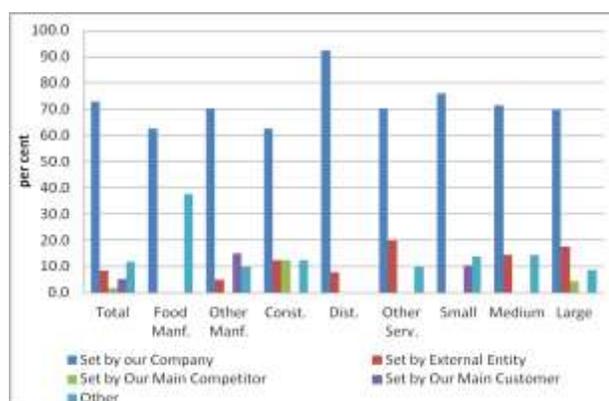


Chart 8
Degree of price-setting autonomy
(Question 16)



3.3 Relationship with customers

According to Hall *et al* (1997) firms which have more long-term customers⁶ change their prices less frequently. Results show that 93 per cent of firms have long-term customers (Chart 9). This ratio was slightly higher for services (93.5 per cent) than for manufacturing (92 per cent).

Firms also indicated that their sales to long-term customers accounted for the majority of their sales (73.6 per cent), with the share being higher for large firms (81.1 per cent). This is consistent with studies conducted in Portugal and Spain where on average, 83 per cent and 86 per cent of firms respectively, report that most of their customers are of a long-term nature.

Chart 9
Type of relationship with customers (Question 8)

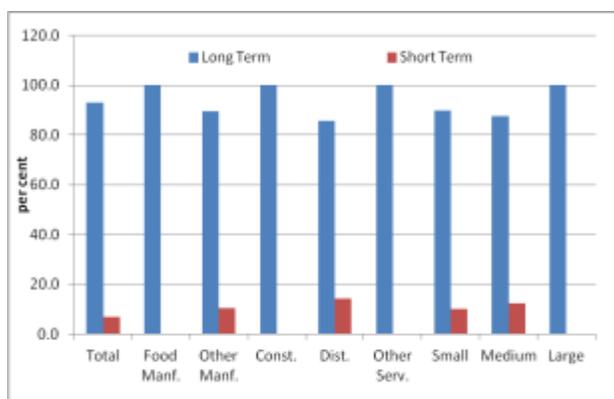
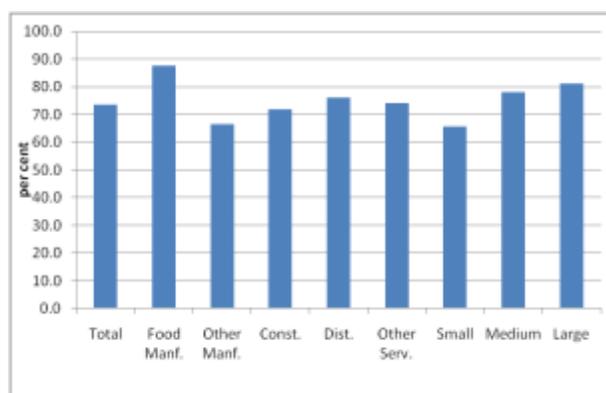


Chart 10
Share of sales to long-term customers (Question 9)



In summary, the results showed that the majority of firms surveyed sold their product mainly to the domestic market with a large share selling directly to consumers and retailers. Further, the degree of perceived competition was lower in the manufacturing sector and higher in the construction sector. The majority of firms also reported that most of their customer relationships were of a long-term nature.

⁶ Customers with whom they have had a relationship with for five or more years.

4.0 PRICE SETTING

4.1 Factors affecting Competitiveness

According to the survey, quality is the most important factor for competitiveness, followed by price. From a sectoral standpoint, this was also true, except for construction where price eclipsed quality. From the standpoint of firm size, quality outranked price as the most important factor in the competitiveness of small and large firms. In the medium category, after-sales service emerged as the most important factor, followed by price and quality. For the total sample, all factors, with the exception of product differentiation, were assigned relatively high average scores, indicating that firms use several non-price factors to generate some market power.

Table 1
Most important factors affecting competitiveness of main product (Question 10)

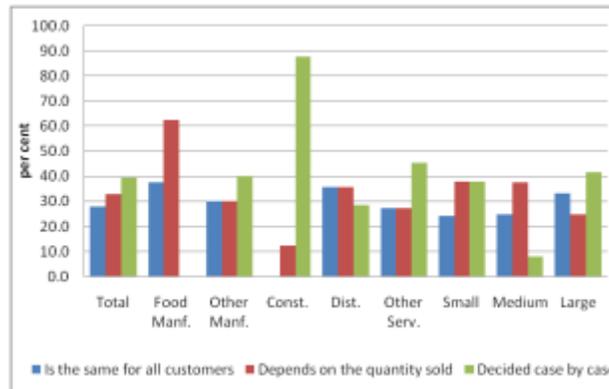
Question	Factor	Total	Food. Manf.	Other Manf.	Const.	Dist.	Other Serv.	Small	Medium	Large
10.1	Price	3.64	3.75	3.50	3.89	3.69	3.46	3.64	3.67	3.65
10.2	Quality	3.80	3.88	3.75	3.75	3.92	3.70	4.00	3.50	3.86
10.3	Product differentiation	2.72	2.57	2.57	2.67	2.75	2.40	3.05	1.83	2.59
10.4	Delivery period	3.18	3.50	3.50	3.50	2.67	3.00	3.24	3.57	3.00
10.5	Long-term relationship	3.40	3.38	3.38	3.33	3.17	3.60	3.64	3.57	3.00
10.6	After-sales service	3.15	3.21	3.21	3.17	3.17	3.56	2.85	3.71	3.24
10.7	Other	2.13	3.00	3.00	0.00	0.00	0.00	2.50	0.00	1.50

Note: Numbers represent the average responses of all the firms in the respective sector.

4.2 Price discrimination

In assessing how firms charge different prices to different groups of consumers for an identical good or service, firms were asked if they charged all customers a uniform price or whether the price varied according to quantity, or on a case-by-case basis. The evidence supports what would be expected intuitively, ie. quantity purchased was important in receiving a more favourable price. Only 28 per cent of all firms charge the same price to all their customers, while 33 per cent discriminate according to the quantity they sell, and 39 per cent on a case-by-case basis. Construction and non-distribution services show high discretionary pricing power as 88 per cent and 45 per cent respectively of firms determined the price of their product by case (Chart 11). Interestingly, small firms seem more inclined to differentiate their prices than larger firms, with only 27 per cent of these firms claiming to charge the same price to all customers compared to 33 per cent of large firms.

Chart 11
Evidence on price discrimination (Question 11)



5. PRICE RIGIDITY

Following Martins (2006) a series of indicators was used to gauge price rigidity among firms. The indicators used were: the share of firms following time-dependent pricing rules versus state dependent pricing rules; the frequency of price reviews; the frequency of price changes; the share of firms that take into account expectations about future economic developments when reviewing their prices; and the speed of price adjustment in response to cost or demand shocks.

5.1 The system for price change

Firms do not adjust prices continuously since price reviews and changes are costly. The theoretical literature considers two main forms of pricing behavior: ‘time-dependent’ and ‘state-dependent’ rules. The time-dependent rule refers to pricing mechanisms where prices are reviewed at some well defined frequency (e.g. annually or quarterly). Classic models of time-dependent rules were developed by Taylor (1980) and Calvo (1983). A main feature of Calvo-Taylor pricing models is that forward-looking firms know that they will only periodically reoptimize prices. Firms anticipating higher input prices, or inflation, therefore factor them into their prices on a periodic basis, unsure of their ability to do so when the higher marginal costs materialize. In state-dependent pricing models, the price is changed as a function of significantly altered market conditions. This is supported by Wolman *et al* (1999) who found that “in those periods when a firm is able to adjust its price, the price that it chooses will be affected by the pattern of future adjustment opportunities it expects”.

Question 18 sought to judge how important the two rules were in deciding when firms changed prices, and also what proportion of firms used a mix of both methods, for example reviewing at a particular frequency, but also assessing prices in response to particular events. The results show that under normal circumstances 40 per cent of firms follow state-dependent pricing, reviewing as a result of specific shocks. However, 40 per cent of firms report using a combination of time- and state-dependent pricing, while only 20 per cent followed purely time-dependent pricing strategies (Chart 12). Differences across sectors exist as time-dependent rules predominate for services and construction firms while the hybrid strategy is most popular for food manufacturing firms. Results also show that medium-sized firms generally prefer a combination of time and state dependent pricing rules. In comparison studies by Kwapil *et al* (2005), Martins (2005) and Álvarez *et al* (2005) indicated that the majority of Austrian and Portuguese firms follow time dependent pricing rules while firms in Spain are inclined to follow state dependent rules.

5.2 *The role of information*

Macro-economic theory provides two main approaches to modeling inflation, one which sees inflation as a backward-looking variable (related to the Expectations-Augmented Phillips Curve) and the other which views it as forward-looking (related to the New Keynesian Phillips Curve-NKPC). The Expectation-Augmented theory is based on an assumption that firms set their prices based on the rate of inflation in the previous period while the NKPC assumes that firms set their price equal to a weighted average of expected future nominal marginal costs (Rudd 2005). Firms under the NKPC theory are therefore assumed to be forward looking in setting their prices.

To determine which theory dominates in Trinidad and Tobago, firms were asked about the information set they consider when they review their prices. The majority of firms (53 per cent) review their prices based on current and past information compared to the 25 per cent which use recent and future information, including expectations about future economic developments (Chart 13). Some 22 per cent of firms simply adopt a rule-of-thumb approach based for instance on the overall retail price index or on wage growth. The findings are similar to those for the United Kingdom and Spain (Greenslade *et al*, 2012 and Álvarez *et al*, 2005 respectively).where most firms adopt backward looking price setting behavior and differ from Portugal (Martins, 2005). where firms are more forward looking.

Chart 12
Price-adjustment strategies
(Question 18)

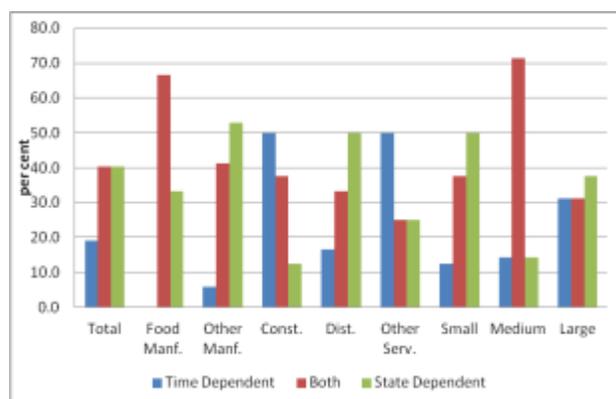
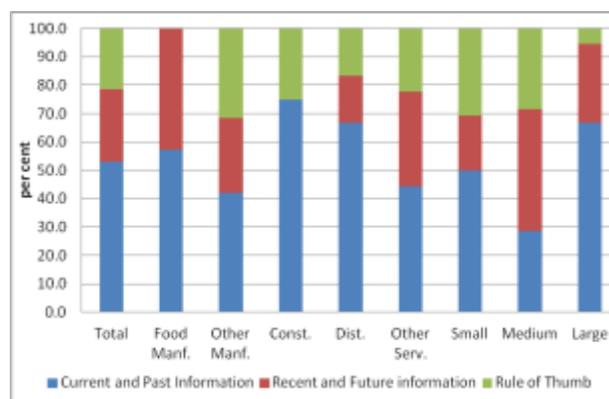


Chart 13
Information set used in price reviews
(Question 21)



5.3 The frequency of price reviews and the frequency of price changes

The degree of price rigidity could also be gauged using the frequency of price reviews and price changes obtained by survey analysis. Survey results could also provide a useful way of verifying the evidence obtained from the quantitative datasets that relate to price changes in Trinidad and Tobago.

Firms could be expected to review their pricing regularly if it were not costly to do so. However, the small proportion of firms reviewing their prices at least as once per month suggests that the review process may be costly and menu costs may also play a role here. Moreover, perhaps reflecting the costs factor, 50 per cent of firms adopting time-dependent rules review their prices no more than once a year (Chart 14). Comparing results across sectors, the data shows that price reviews are more frequent in food manufacturing than in other sectors; this is understandable given the high volatility in food prices, as measured by the RPI, which firms may have to consider regularly. The majority of firms review their prices once per year, but small firms do it twice per year, probably because they may not be able to absorb cost increases for longer periods of time.

The question of how often prices were actually changed was asked (Question 20). The results for firms that responded both to the question on price reviews and the question on price changes show that most firms change prices less frequently than they review them. However, large firms and the construction and distribution sectors tend to change prices as often as they review them (Charts 14 and 15).

Although 63 per cent of the firms change their price just once in a year, they do not seem to have a particular month when they do so (Chart 16). Only 38 per cent of firms answered that they change their price in a specific month of the year, which tends to be September, January or December in most cases (Chart 17). This could be related to seasonal factors such as the end of the fiscal year, the start of the school year, and the Christmas period.

Chart 14
Frequency of price reviews (Question 19)

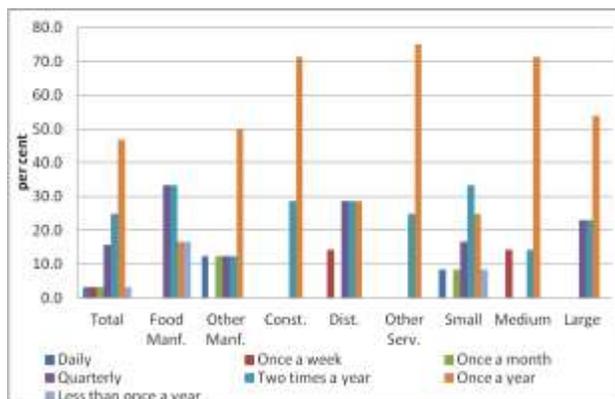


Chart 15
Frequency of price changes (Question 20)

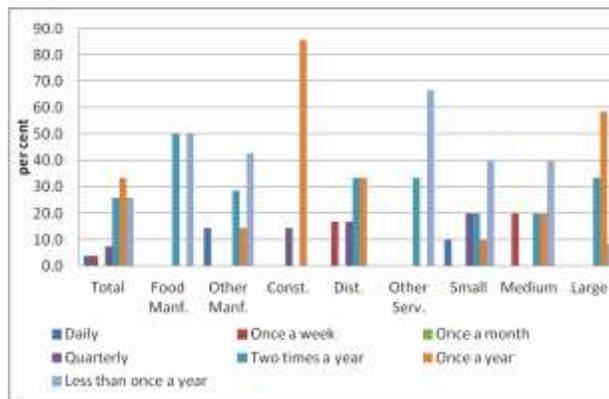


Chart 16
Is there any particular month where prices are most likely to change? (Question 12)

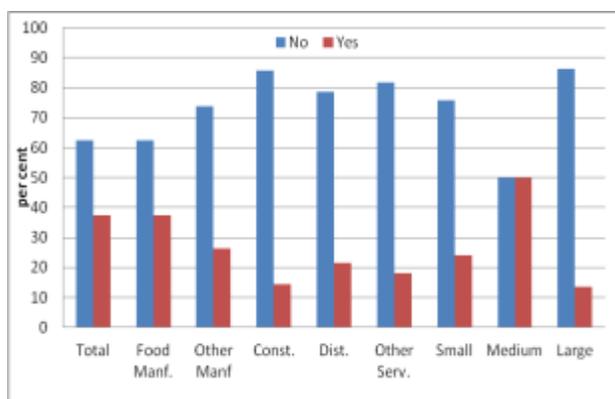
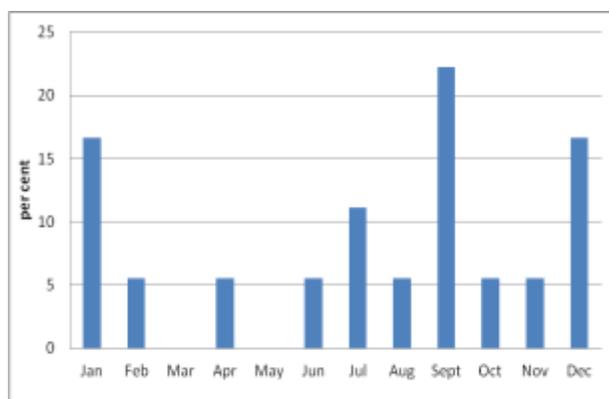


Chart 17
Monthly distribution of price changes (Question 12.2)



5.4 Direction and magnitude of price changes

The survey also provided insights into the direction of price changes in the economy. On average, 40 per cent of the last 10 price changes made by the companies were price reductions. Downward price rigidity was higher in large firms and the food manufacturing sector, with 63 per cent of these firms reporting that their last 10 price changes were increases (Chart 18).

An examination of the difference in the magnitude of the last 10 price changes finds that over average price increases were greater than price decreases. From a sectoral basis, the service sector followed by the construction sector led in terms of the size of price increases. Meanwhile, medium and large firms reported the largest price increases (Chart 19). The smallest price decreases are evident in the construction sector. The largest price decreases is in medium size firms (Chart 20).

Chart 18
Per cent of price increases
in the last 10 price changes (Question 14)

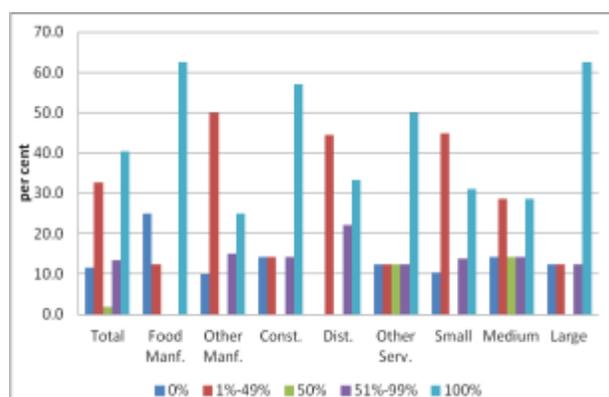


Chart 19
Average magnitude of last 10
price increases (Question 15)

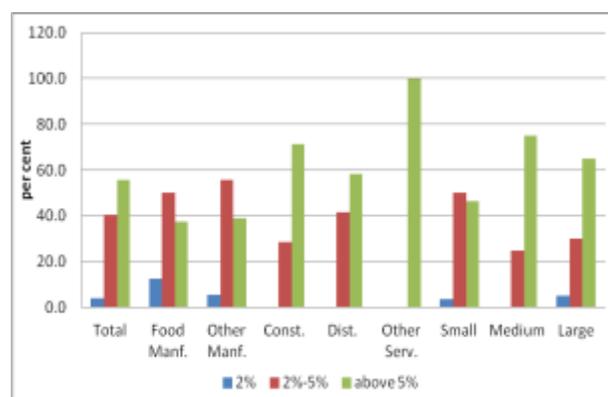
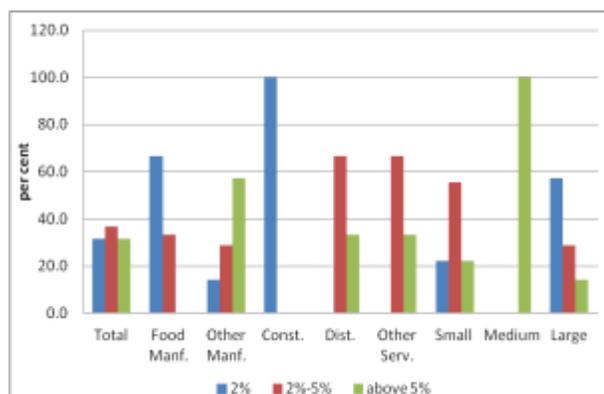


Chart 20
Average magnitude of last 10 price decreases
(Question 15)



An analysis of the quantitative aspects of price changes in Trinidad and Tobago was done by Mahabir and Jagessar (2011). The study made use of the Trinidad and Tobago's RPI which captures price changes of consumer goods and services and spanned the period January 2003 to May 2010. While conclusions related to the direction and magnitude of price change are consistent with this study, the conclusion on frequency of price changes differ.

Mahabir and Jagessar (2011) found that, when looking at all the items that comprise the RPI for Trinidad and Tobago, approximately 50 per cent of the items change their prices in a given month. It was also revealed that prices in the services sector in Trinidad and Tobago tend to be sticky, a conclusion supported by this study (Chart 21 and 22). The findings also implied that price increases tend to occur more frequently than price decreases. For example,

in the food sector approximately 61 per cent of the goods experienced price increases during a given month, consistent with this study's result that 67 per cent of the last 10 price changes were price increases. However, the 2011 study contradicts the survey response on frequency of price changes which indicates that monthly price changes do not occur and price changes greater than monthly occur only 4 per cent of the time. This seeming contraction can be explained by the difference in the coverage of the survey, as the current survey focuses on firms, and not on retailers.

In respect of the magnitude of price change, the 2011 study also found that price increases were normally larger than price decreases. Price increases were on average 4.03 per cent while prices decreased by 2.11 per cent on average. Service type products namely café & restaurants, education and transport give the largest index increases ranging from 3 to 14 per cent, consistent with survey results (Chart 19 and 20).

Chart 21
Frequency of price changes – all firms (Question 20)

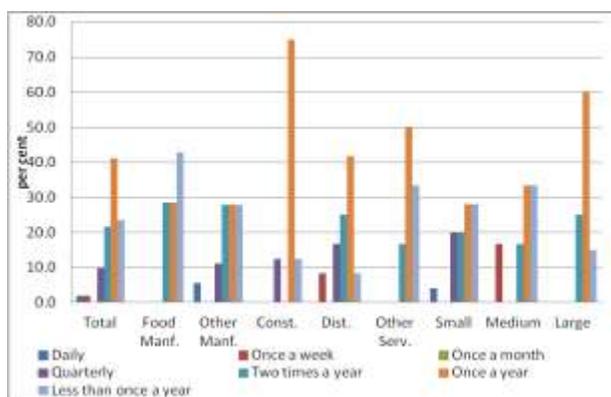
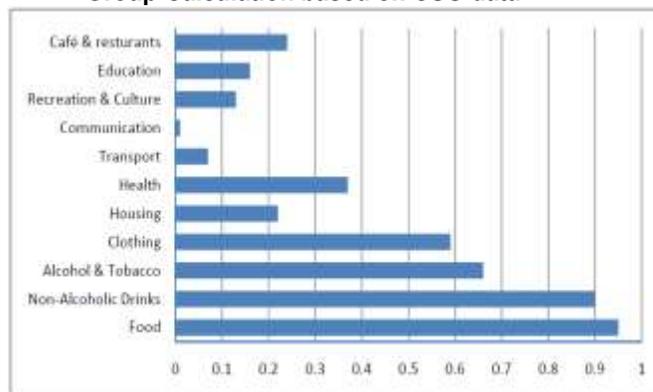


Chart 22
Frequency of price changes by product Group-Calculation based on CSO data



Source: Mahabir and Jagessar (2011).

In summary there is price rigidity in Trinidad and Tobago as measured by firms' frequency of price reviews, factors considered when reviewing prices and frequency and duration of price changes. As in many other countries, price reviews are generally infrequent, perhaps because of the associated costs, and these reviews are most often not undertaken at a set frequency. Further, firms change prices less frequently than they review them. Finally, the magnitude of price increases is greater than that of price decreases.

6. THE STRUCTURE OF PRICE CHANGES

Several items on the survey sought to assess the importance of different factors in firms' decisions to increase prices. According to the survey, the most important factor in this regard is increasing raw material prices, followed by wage cost increases (Table 2). A noteworthy finding here is that the "other" category was of relatively high importance for

the service sectors. This suggests that for service companies, other unknown factors influence heavily in firms' decisions to increase prices.

Table 2
Most important factors affecting a price increase decision (Question 23)

Question	Factor	Total	Food. Manf.	Other Manf.	Const.	Dist.	Other Serv.	Small	Medium	Large
23.1	Raw material cost	3.64	4.00	3.79	3.14	3.86	3.00	3.78	3.50	3.52
23.2	Wage cost	3.22	3.00	3.25	4.00	2.79	3.40	3.04	3.29	3.39
23.3	Demand	2.18	2.14	1.93	2.86	2.08	2.20	2.09	2.00	2.30
23.4	Competitors' price	2.39	2.88	2.20	2.43	1.91	2.80	2.32	2.33	2.48
23.5	Financing costs	2.73	2.71	2.67	2.57	2.75	2.90	2.59	2.83	2.83
23.6	Other	3.40	0.00	2.50	4.00	4.00	4.00	3.00	4.00	0.00

Note: Numbers represent the average responses of all the firms in the respective sector.

In respect of price reductions, the importance of factors varies according to firm size (Table 3). Most factors highlighted as important in this regard relate to changes in market conditions: small firms place the highest importance on falling raw material costs; medium-sized firms consider a fall in demand to be the most important factor; while a decrease in a competitor's price has the most influence on a large firm's decision to reduce prices. These results are consistent with the behavior of firms in the European Union (EU). Fabiani *et al* (2006) showed that for firms in Europe, cost shocks are more relevant in driving prices upward than downward while shocks to market conditions (changes in demand and competitors' prices) matter more for price decreases than increases. On a sectoral basis however, both food manufacturing and distribution firms listed raw material price reductions as the most important factor in deciding on a price reduction. This aberration may be due to the relatively high share of raw material costs in total costs for these industries.

Table 3
Most important factors affecting a price decrease decision (Question 24)

Question	Factor	Total	Food. Manf.	Other Manf.	Const.	Dist.	Other Serv.	Small	Medium	Large
24.1	Raw material cost	3.04	4.00	3.06	3.17	3.00	2.57	3.30	2.00	2.94
24.2	Wage cost	2.73	3.00	2.64	3.67	2.25	2.78	2.52	2.80	2.94
24.3	Demand	2.98	3.40	3.00	3.29	2.25	3.40	3.00	3.00	2.95
24.4	Competitors' price	2.91	3.40	3.20	2.83	2.17	3.25	3.00	1.75	3.05
24.5	Financing costs	2.24	3.00	2.00	2.50	1.82	2.56	2.05	2.25	2.44
24.6	Other	2.67	0.00	2.00	0.00	0.00	4.00	1.00	3.50	0.00

Note: Numbers represent the average responses of all the firms in the respective sector.

The survey also sought to gauge the speed at which price responds to changes in demand and costs. In general, prices are more responsive to increasing production costs than they are to increases in demand. However, the survey results were inconclusive as to whether price reductions are more responsive to changes in costs or demand. Additionally while a fall in demand will manifest itself in a price adjustment more rapidly than an increase in demand, a fall in production cost does not translate to movement in prices as quickly as if production costs were increased.

Question 26 was designed to establish motives for postponing price changes or changing prices only slightly. The survey revealed that firms in Trinidad and Tobago, like in the EU⁷, consider the need to maintain stable prices as the most significant factor in this regard (Table 4). A disaggregation by sector reveals that price stability is of highest importance to firms in manufacturing and distribution. Perhaps not surprisingly given the nature of the service industry, firms in the other services category place the highest importance on the existence of written contracts while the most important factor for firms in construction is the fact that the next price adjustment can only occur after a certain period of time.

Table 4
Reasons to postpone price changes (Question 26)

Question	Factor	Total	Food. Manf.	Other Manf.	Const.	Dist.	Other Serv.	Small	Medium	Large
26.1	Coordination failure	2.39	3.00	2.63	2.67	1.70	2.33	2.52	2.60	2.19
26.2	Time between price adjustments	2.21	2.50	2.14	2.83	1.60	2.33	1.95	2.80	2.35
26.3	Risk of opposite price movement	2.15	1.71	1.86	2.33	2.50	2.44	2.10	2.20	2.20
26.4	Explicit contracts	2.70	1.50	2.15	3.71	2.20	3.40	2.21	2.80	3.16
26.5	Psychological price threshold	2.09	2.00	2.07	1.33	2.45	2.22	2.10	2.60	1.95
26.6	Menu costs	1.91	1.50	1.64	1.83	2.56	2.00	1.75	1.60	2.16
26.7	Implicit contracts	2.98	3.25	2.64	2.67	3.36	3.00	3.14	2.60	2.91
26.8	Costly information	1.84	1.67	1.93	1.83	1.70	2.00	1.84	1.60	1.90
26.9	Fixed costs	2.56	2.71	2.50	2.17	2.71	2.67	2.65	2.20	2.56
26.10	Judging quality by price	2.35	2.75	2.27	2.17	2.30	2.33	2.61	2.00	2.15
26.11	Stable variable costs	2.70	3.17	2.40	2.33	3.09	2.67	2.82	2.00	2.75

Note: Numbers represent the average responses of all the firms in the respective sector.

⁷Fabiani *et al* (2006).

The price of a good may be kept unchanged during its lifetime if the good's lifetime is relatively short. According to the survey, 13.5 per cent of respondents were involved with products of this nature and 78 per cent were not. The remaining 8.5 per cent did not respond. The products with a short lifetime tended to those related with the manufacturing and distribution of food items.

Less than half of the respondents answered the questions on price discrimination in international markets. Of those who did, however, half of them indicated that their price is different in each market. These firms were not limited to any particular size or sector. Additionally, a significant number of firms indicated that the local price differs from that of CARICOM. Firms also indicated that the most important factor in discriminating prices is exchange rate changes (Table 5). However, a sectoral disaggregation reveals that transportation costs, followed by structural market conditions, are foremost in the minds of firms in the construction sector while firms in food manufacturing consider structural market conditions as their most important factor. In terms of firm size, while both small and large firms consider exchange rate changes to be their most important factor in discriminating prices medium-sized firms have indicated that market rules and fluctuations in country demand are the main factors in price discrimination.

Table 5
Most important factors in price discrimination in international markets (Question 29)

Question	Factor	Total	Food. Manf.	Other Manf.	Const.	Dist.	Other Serv.	Small	Medium	Large
29.1	Exchange rates	2.81	2.25	2.45	2.00	3.40	3.50	2.67	2.50	3.25
29.2	Country tax system	2.38	2.00	2.00	3.00	3.00	2.60	2.15	2.25	2.86
29.3	Structural market conditions	2.38	2.80	2.22	3.00	2.00	2.50	1.92	2.50	3.14
29.4	Country demand fluctuations	2.28	2.50	2.10	2.00	2.33	2.50	2.00	3.00	2.50
29.5	Market rules	2.44	2.50	2.00	3.00	2.40	3.00	1.92	3.00	3.00
29.6	Transportation costs	2.52	2.00	2.40	3.50	2.83	2.40	2.44	2.50	2.71
29.7	Other	2.38	1.00	1.00	0.00	2.50	3.67	1.75	3.67	1.00

Note: Numbers represent the average responses of all the firms in the respective sector.

A small section of the survey was dedicated to collecting information on wage setting. Most firms indicated that they change wages once a year, with a substantial number indicating once every three years. This may be related to the practice of negotiating three year wage agreements in the domestic economy.

7. CONCLUSION

This study seeks to undertake seminal work in Trinidad and Tobago in regards to understanding the factors that influence firms in deciding whether or not to adjust their prices. A look at the characteristics of the respondents provides some insight into the type of firms operating within the domestic borders. One key feature is that for the majority of the firms Trinidad and Tobago is the main market for their goods or services, additionally the results suggest a high degree of specialization as the main product identified accounted for on average 75 per cent of a firm's total turnover. Importantly firms indicated that quality was the most important factor for competitiveness, with price only being the main factor in the construction industry. The market also seems to be characterized by a high degree of price discrimination, with a large number of firms indicating that the price a product is sold at is influenced by the quantity that a customer purchases. The results indicate that firms use some combination of state-dependent and time-dependent pricing strategies in determining when to change their prices. Thus firms use the current state of the economic environment as an indicator as to whether to change their prices, and they also tend to review their prices on a periodic basis. Firms identified increases in the price of raw materials as the main driver of price increases while several factors are brought to bear in deciding on a reduction in prices. Some of these include raw material price, demand, competitor's price and wage cost. The survey also revealed that firms will postpone price changes mainly because of the need to maintain a relatively stable price. Another important factor in this regard is the existence of written contracts which may prevent price adjustments. As it relates to price discrimination in international markets, most of the respondents indicated that their price is different in each market. In addition, firms consider changes in the exchange rate as the most important factor in discriminating prices. Some other important factors include transportation costs and structural market conditions. Surprisingly the results from this survey are consistent with those conducted in developed countries such as the UK, Canada, Portugal and Spain. This suggests that the principles of business remain consistent whether it is a developed or developing economy.

For the Central Bank of Trinidad and Tobago the results of this study can aid in the design of effective monetary policy, as now there is a clearer understanding of the factors which influence prices in the domestic economy. From the results it can be anticipated that increases in raw materials and wage costs will translate into higher prices. Thus as the international price of grains increase, and domestic wage negotiations conclude, increased levels of inflation should be expected. However the existence of implicit contracts may mean that there is a transmission lag. Thus the Central Bank should keep an eye on both international and domestic factors in order to anticipate the level of inflation and take the necessary policy decisions to keep inflation low.

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Appendix 1: Survey of Price Setting Decisions

General Information

1. What is your main product? _____

2. The percentage that your main product represents in the total sales is about:
 - 2.1. _____ %

3. What is your main market (choose only one option)?
 - 3.1. Trinidad and Tobago
 - 3.2. Other CARICOM countries
 - 3.3. United States
 - 3.4. United Kingdom
 - 3.5. Latin American Countries
 - 3.6. Other Countries

4. What percentage of your sales is due to exports?
 - 4.1. _____ %

5. What is the main destination of your sales (choose only one option)?
 - 5.1. Wholesalers
 - 5.2. Retailers
 - 5.3. Companies of your own group.....
 - 5.4. Other companies (private and public)
 - 5.5. Government
 - 5.6. Directly to consumers (via your own stores or through catalogues or Internet)
 - 5.7. Others channels, please specify _____

6. In the Trinidad and Tobago market, how many competitors do you have?
 - 6.1. We don't have any main competitor
 - 6.2. Less than 5
 - 6.3. Between 5 and 10
 - 6.4. More than 10.....

7. What is the market share of your main product (to the nearest whole number) in Trinidad and Tobago (choose only one option)?
 - 7.1. Less than 5%.....
 - 7.2. 6%-20%
 - 7.3. 21%-50% ...
 - 7.4. 51%-99% .
 - 7.5. 100% .

8. The kind of relationship that you have with your customers is essentially (choose only one option):
 - 8.1. Long-term (more than 1 year)
 - 8.2. Short-term (less than 1 year)

9. The percentage of your sales that goes to long-term customers is approximately: _____ %

10. What is the importance of the following factors for the competitiveness of your product?

[Use the following options: 1-unimportant; 2-of minor importance; 3-important; 4-very important; 0-I can't evaluate]

	1	2	3	4	0
10.1. The price	<input type="checkbox"/>				
10.2. The quality.....	<input type="checkbox"/>				
10.3. The degree your product is different from your competitors	<input type="checkbox"/>				
10.4. The delivery period	<input type="checkbox"/>				
10.5. The presence of a long-term relationship	<input type="checkbox"/>				
10.6. The after-sales service	<input type="checkbox"/>				
10.7. Other factors, please specify _____	<input type="checkbox"/>				

General information on price setting

11. The price of your main product (choose only one option):

11.1. Is the same for all customers	<input type="checkbox"/>
11.2. Depends on the quantity sold but according to a uniform price list	<input type="checkbox"/>
11.3. Is decided case by case.	<input type="checkbox"/>

12. Is there any particular month (or months) where the price of your main product is (are) most likely to change?

12.1. No.....	<input type="checkbox"/>
12.2. Yes. Which?.....	<input type="checkbox"/>

J F M A M J J A S O N D

13. How many times did the price of your main product change in 2008, 2009 and 2010?

13.1. Number of times	<input type="text" value="2008"/>	<input type="text" value="2009"/>	<input type="text" value="2010"/>
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14. Of the last 10 or so price changes, approximately what percentage of them were price increases:.....

%

15. Of the changes referred to in the previous question, indicate the most frequent size of your price changes:

<input type="text" value="Up to 2%"/>	<input type="text" value="2 to 5%"/>	<input type="text" value="5 to 8%"/>
---------------------------------------	--------------------------------------	--------------------------------------

15.1. For price increases [choose only one option].....	<input type="text"/>	<input type="text"/>	<input type="text"/>
15.2. For price reductions [choose only one option]... ..	<input type="text"/>	<input type="text"/>	<input type="text"/>

16. Which of the following situations is a better description of the way your price is normally set (choose only one option):

16.1. The price is set by our company.....	<input type="checkbox"/>
16.2. The price is set by an external entity (Government, regulatory body,).....	<input type="checkbox"/>
16.3. The price is set by our main customer(s)	<input type="checkbox"/>
16.4. The price is set by our main competitor(s).....	<input type="checkbox"/>
16.5. Other, please specify _____	<input type="checkbox"/>

17. Does your company usually set formal contracts that fix the price for a stated period (to the nearest whole number)?

17.1. No	<input type="checkbox"/>
----------------	--------------------------

- Yes. The percentage that these contracts represent in total sales is
- 17.2. Less than 10%.....
- 17.3. 11-25%
- 17.4. 26-50%
- 17.5. 51-90%.....
- 17.6. Almost all (>90%).....
18. The price in your company is reviewed, without necessarily being changed (choose only one option):
- 18.1. At a well-defined frequency (annually, quarterly...) (If yes, go to question 19).....
- 18.2. Generally at a defined frequency, but sometimes also in reaction to market conditions (changes in the price of raw materials or in demand conditions) (If yes, go to question 19)
- 18.3. Without any defined frequency, being reviewed in reaction to market conditions (changes in the price of raw materials or in demand conditions) (If yes, go to question 20)
- 18.4. None of these cases applies to my company (If yes, go to question 20)
19. [Answer to this question if you chose options 18.1 or 18.2 in the previous question]. At what frequency is the price in your company normally reviewed, without necessarily being changed? (Consider a price revision as an assessment of all information relevant for price determination)
- 19.1. Daily
- 19.2. Once a week
- 19.3. Once a month
- 19.4. Quarterly.....
- 19.5. Two times a year.....
- 19.6. Once a year.....
- 19.7. Less than once a year.....
20. On average, at what frequency is the price actually changed?
- 20.1. Daily.....
- 20.2. Once a week.....
- 20.3. Once a month
- 20.4. Quarterly.....
- 20.5. Two times a year.....
- 20.6. Once a year.....
- 20.7. Less than once a year.....
- 21. Which information do you most take into account when calculating the price of your main product (choose only one option)?**
- 21.1.** Information regarding the current and past behaviour of all variables relevant for profit maximization (demand, costs, the price of main competitors...)
- 21.2.** Information regarding the recent behaviour of all variables relevant for profit maximization as well as their future prospects
- 21.3.** We basically apply an indexation rule over one or more variables relevant for profit maximization(e.g. consumer price inflation, wage growth...).....
- 22. All other things being equal, including the price of your competitors, if you decide to increase the price of your main product for instance by 10% by what percentage (to the nearest whole number) do you think the quantities sold by your company would fall?**
- 22.1.** More than 20%.....
- 22.2.** Between 10 and 20%.....

- 22.3. About 10%
- 22.4. Less than 10%.....
- 22.5. Quantities would remain unchanged.....

Reasons for changing prices

23. What is the importance of the factors listed below in terms of a price increase decision?

[Use the following options: 1-unimportant; 2-of minor importance; 3-important; 4-very important; 0-I can't evaluate]

- | | 1 | 2 | 3 | 4 | 0 |
|---|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 23.1. An increase in the price of raw materials | <input type="checkbox"/> |
| 23.2. An increase in wage costs (including taxes) | <input type="checkbox"/> |
| 23.3. An increase in demand | <input type="checkbox"/> |
| 23.4. An increase in our competitors' price | <input type="checkbox"/> |
| 23.5. An increase in financing costs | <input type="checkbox"/> |
| 23.6. Other, please specify..... | <input type="checkbox"/> |

24. What is the importance of the factors listed below in terms of a price decrease decision?

[Use the following options: 1-unimportant; 2-of minor importance; 3-important; 4-very important; 0- I can't evaluate]

- | | 1 | 2 | 3 | 4 | 0 |
|---|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 24.1. A decrease in the price of raw materials..... | <input type="checkbox"/> |
| 24.2. A decrease in wage costs (including taxes)..... | <input type="checkbox"/> |
| 24.3. A decrease in demand..... | <input type="checkbox"/> |
| 24.4. A decrease in our competitors' price..... | <input type="checkbox"/> |
| 24.5. A decrease in financing costs..... | <input type="checkbox"/> |
| 24.6. Other, please specify _____ | <input type="checkbox"/> |

25. Companies sometimes differ in the speed their prices respond to changes in demand and costs: [Use

the following options: 1 - Less than 1 week; 2 - From 1 week to 1 month; 3 - From 1 to 3 months; 4 - From 3 to 6 months; 5 - From 6 months to 1 year; 6 - The price remains unchanged]

- | | 1 | 2 | 3 | 4 | 5 | 6 |
|--|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 25.1. After a significant increase in demand, how much time on average elapses before you raise your prices?..... | <input type="checkbox"/> |
| 25.2. After a significant increase in production costs, how much time on average elapses before you raise your prices? | <input type="checkbox"/> |
| 25.3. After a significant fall in demand, how much time on average elapses before you reduce your prices? | <input type="checkbox"/> |
| 25.4. After a significant decline in production costs, how much time on average elapses before you reduce your prices? | <input type="checkbox"/> |

Reasons to postpone price changes

26. Companies sometimes decide to postpone price changes or to change their price only slightly. There is often a variety of reasons for this. Some of them are listed below. Please indicate their importance in your company. [Use the following options: 1-unimportant; 2-of minor importance; 3-important; 4-very important; 0- I can't evaluate]

	1	2	3	4	0
26.1. The risk that our competitors do not change their prices.....	<input type="checkbox"/>				
26.2. The fact that the next price adjustment can only occur after a certain period of time..	<input type="checkbox"/>				
26.3. The risk that we subsequently have to readjust our prices in the opposite direction....	<input type="checkbox"/>				
26.4. The existence of written contracts specifying that prices can only be changed when the contract is renegotiated	<input type="checkbox"/>				
26.5. The preference for maintaining prices at a certain psychological threshold (eg TT\$19.99)	<input type="checkbox"/>				
26.6. The costs implied by price changes (eg. changing price lists).....	<input type="checkbox"/>				
26.7. The preference of our customers for stable prices. Changing prices frequently could threaten customer relations.....	<input type="checkbox"/>				
26.8. The costs involved in collecting the relevant information for price decisions.....	<input type="checkbox"/>				
26.9. An important part of our costs is fixed hampering price decreases when, for instance, market conditions are less favourable.	<input type="checkbox"/>				
26.10. There is a risk that customers may interpret a reduction in price as a reduction in quality	<input type="checkbox"/>				
26.11. The variable costs in our company do not change by much with market conditions, making our price quite stable.....	<input type="checkbox"/>				

27. Some products are characterised by having a short life (sometimes less than 1 year), for example products that change collections seasonally, such as clothing or footwear, or products that change their models regularly, such as house appliances or computers. For some of these products the price may be kept unchanged during the (relatively short) lifetime of each collection or model. Is this situation valid for your main product?

27.1. Yes

27.2. No

Price behaviour in international markets

(only to be filled out by companies operating in international markets)

28. Price of goods in markets outside of Trinidad and Tobago may differ, please indicate which of the following statements best describe your product/service.

29.1. The price is the same for all countries/markets

29.2. The price in the domestic market differs from the price in other CARICOM markets

29.3. The price is the same in all CARICOM markets but differs in other markets

29.4. The price is different in each market

29. What is the importance of the following factors in discriminating your price between markets? [Use the following options: 1-unimportant; 2-of minor importance; 3-important; 4-very important; 0-I can't evaluate]

	1	2	3	4	0
29.1. Exchange rate changes	<input type="checkbox"/>				
29.2. The country tax system	<input type="checkbox"/>				
29.3. Structural market conditions (tastes, standard of living, ..)	<input type="checkbox"/>				
29.4. Fluctuations in country demand	<input type="checkbox"/>				
29.5. Market rules	<input type="checkbox"/>				
29.6. Transportation costs	<input type="checkbox"/>				
29.7. Other factors, please specify	<input type="checkbox"/>				

Information on wage setting

30. On average, at what frequency wages are normally changed in your company?

30.1. Twice a year.....	<input type="checkbox"/>
30.2. Once a year.....	<input type="checkbox"/>
30.3. Once every three years	<input type="checkbox"/>
30.4. Other.....	<input type="checkbox"/>

31. Is there any particular month (or months) where the wages are most likely changed?

31.1. No.....	<input type="checkbox"/>										
31.2. Yes. Which one?	<input type="checkbox"/>										
<input type="checkbox"/> J	<input type="checkbox"/> F	<input type="checkbox"/> M	<input type="checkbox"/> A	<input type="checkbox"/> M	<input type="checkbox"/> J	<input type="checkbox"/> J	<input type="checkbox"/> A	<input type="checkbox"/> S	<input type="checkbox"/> O	<input type="checkbox"/> N	<input type="checkbox"/> D

Source: Adapted from Martins (2005).