Trade and Poverty Project
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Trade and Poverty in South Africa:

The Relationship between Trade and Poverty for Household Consumables Products

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TRADE AND POVERTY IN SOUTH AFRICA
THE RELATIONSHIP BETWEEN TRADE AND POVERTY FOR HOUSEHOLD CONSUMABLES PRODUCTS

By Reena Das Nair and Ryan Hawthorne[1]

1. Introduction

The markets for many household care products, such as cleaning materials, washing powder and soap, are substantially concentrated and dominated by usually one or at most two or three international FMCG firms.[2] In addition to these firms, there is also at least one local firm producing detergents and washing powder for retailers, to be sold as retailer-branded products. There are a growing number of smaller firms that supply detergents to the informal sector and to the independent wholesalers. These smaller players usually produce non-branded products and sell them at low prices. There are also some imports of products whose brands are not particularly strong SA, which have been successful in the low-income market.

In the context of market power and commodities that are largely non-traded, we expect the relationship between household consumables prices to be largely unaffected by increased trade. Our analysis of market power relates mainly to barriers to entry, which include technology, large sunk costs in the form of capital investments and branding. We assess these aspects through telephonic interviews with major retailers, as well as supply-side stakeholders. We used secondary research by NALEDI[3] and NEDLAC[4], and decisions in recent cases by the Competition Tribunal.

We test the hypothesis that household consumables pricing is unrelated to trade through Ordinary Least Squares (OLS) regression analysis, using a price index for a basket of household consumables products as our dependent variable, and difference proxies for costs, including PPI for the other compounded chemicals sector and the overall CPI, and import penetration in the other chemicals sector, as our independent variables.

We first explore the relationship between trade and poverty by assessing the extent to which low-income households are exposed to prices for household consumables products. This is followed by an analysis of market structure and dominance, including a qualitative analysis of barriers to entry and a quantitative analysis of the relationship between prices and costs. A quantitative analysis of the relationship between trade and prices is provided next, and a section outlining limitations of our data follows. We present in a final section our conclusions.

2. Exposure of low-income households to household consumer goods prices

A key question for this study is whether indeed prices of final goods in the sector being analysed matter for poor people (see Table 1). Low income households spend approximately four per cent of their incomes on household consumables.

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[1] The authors are also affiliates of the Corporate Strategy and Industrial Development research project at the University of the Witwatersrand.

[2] Source: Staff in the buying section of at least two large retailers. Leading companies in South Africa include Lever Brothers (Unilever), Reckitt Benckiser South Africa, Colgate-Palmolive, and SC Johnson & Son South Africa. Private label brands are also growing in South Africa.

[3] NALEDI Study- Company Monitor- Case study of Unilever and Akzo Nobel, by Claire Horton, January 2003.

[4] GHS study. Part 1: Situation Analysis, December 2003-2 socio-economic profile of the chemical sector (www.nedlac.org.za)

Although four per cent of income is not substantial in absolute terms, when viewed in terms of the marginal utility of money, which increases as income declines, then this level of expenditure is substantial. Prices of these household consumables therefore matter for low income households. Additionally, although many lower income consumers do not have the means and income to purchase and use these products to the same extent as the middle and high income groups currently, as housing quality improves and indoor plumbing and running water are extended to the poor, this is expected to change. [5]

Table 1: Proportion of post-tax income spent on household operation (household consumables)

Income decile	Income per month (R)	% expenditure on household operation
1	1902	4
2	2898	4
3	4319	3
4	5076	3
5	7675	2
6	7779	2
7	11039	2
8	18513	1
9	21187	1
10	377505	1

Source: Income and expenditure survey, 2000, Statistics South Africa

We note that a number of products purchased by consumers other than household consumables are supplied by Fast Moving Consumer Goods (FMCG) firms in similar markets to that of the household consumables markets in South Africa. The implications of this study therefore affect a wider group of products than household consumables, and therefore affect a greater proportion of income of low-income households than the proportion of income spent on household consumables alone.

3. Market structure

3.1. Barriers to entry

There are substantial barriers to entry to the markets for washing powder and detergents, both for imports and for new start-ups. This is less the case for low quality products, however, where barriers to entry relate more to access to distribution networks and retail outlets.

Barriers to entry include new product innovation, substantial sunk costs in marketing and brand development, merchandising and advertising as well as packaging innovations[6], as well as large fixed capital investments that are subject to economies of scale.

In a case study of the European detergent market, two companies were seen as dominating the detergent retail market - Unilever and Procter & Gamble. This industry is characterised by high barriers to entry due to superior brand loyalty, absolute cost advantage (due to the 'secret' processes and access to funding) as well as economies of scale. The European market is oligopolistic in nature and both these firms engaged in non-price competition to earn super- normal profits. There is a high level of interdependence between the two firms.[7]

[5] Source: Euromonitor Report summary available at http://www.euromonitor.com/reportsummary.aspx?folder=Household_Care_in_South_Africa&industryfolder=Household_care

[6] In areas like laundry care, surface care and dishwashing products, all of these factors have a significant impact on the volume and value growth of fast moving consumer goods in general. Source: Euromonitor Report

[7] Ibid.

Additionally, these firms receive significant media discounts globally due to the large volumes of advertising and sales that it engages in. This reduces the printing, mailing, and other costs for each product. It also uses its multi-product advantage to purchases network programs. This allows the firm to reduce the cost per product significantly, compared to a new firm that has a smaller range of products[8].

Cartel activity has been identified in the US for the manufacture of soaps and detergents, cleaning and polishing preparations, and perfume and toilet preparations.[9] This coordinated behaviour further creates barriers to entry.

Patented products as well as patented chemical inputs also make it difficult for new entrants to enter the market. Technological development also plays a role in that constant innovation of new inputs and new methods of production make existing products obsolete quickly.[10] In turn, quality is highly dependent on the technology used and chemical composition of products.
Along with entry barriers, exit barriers are also a big competitive threat in the face of falling demand and low returns. This arises when large plants with investments in highly specialised assets with high fixed costs cannot be easily shut down if they cannot compete with the existing companies.[11]

Many of these barriers to entry are applicable in the South African context. In addition to these barriers, South Africa's financial markets are not as well developed markets as these countries, and access to capital is not as equal. Access to capital is an important barrier to entry in this market; we understand that it costs approximately R300 million to set up a washing powder plant and quality standards need to be carefully maintained. Additionally, suppliers of raw materials are to some extent vertically integrated into existing incumbent sellers of FMCGs; this makes it difficult for new entrants to source their material inputs or outsource their packaging and marketing.

Additionally, transport costs from overseas markets are also high for these products, as they are relatively low value and are relatively bulky. South Africa, due to its distance from large markets and poor transport infrastructure, is particularly naturally protected from imports. There are substantial tariffs on washing powder and detergents in general, which further dampens competition from imports. The only other import restriction in is a port health inspection. However, we understand that P&G imports mostly higher-income personal care products into South Africa, and not detergents and washing powders. [12]

Despite these barriers to entry, importers have had some success and there has been at least one new start-up plant in South Africa in the last few years. Importers note that their product is largely taken up by the low-income market, and that it took some six months to penetrate this market, despite their product being priced at approximately one-third of the price of other local products.[13]

There may therefore be two distinct markets for detergents; one with relatively high barriers to entry in the branded market and one with somewhat lower barriers to entry in the non-branded market. The key question is: do poor people shop on price or are they brand loyal? The evidence on this is not clear. One survey on the Kellogg's brand (a luxury 'ready to eat cereal') found that people in the lower LSM categories responded well to a marketing campaign, and Kellogg's Corn Flakes increased its market shares substantially[14]. At the same time, there is some price sensitivity among lower income

[8] FTC vs. Procter and Gamble Co. 386 U.S. 568 (1967) http://www.ripon.edu/faculty/bowenj/antitrust/p&g-clor.htm
[9] Sonderegger and Grout, March 2005- Office of Fair Trading - Predicting cartels, Economic discussion paper, OFT773
[10] Chapter 3- External Analysis: the identification of industry opportunities and threats, Houghton Mifflin Company - http://students.washington.edu/rushika/ind%20analysis.doc
[11] Chapter 3- External Analysis: the identification of industry opportunities and threats, Houghton Mifflin Company, http://students.washington.edu/rushika/ind%20analysis.doc
[12] According to an industry source.
[13] Note that this price difference does not take into account differences in quality, which appear to be substantial (where poor quality cleaning products can have half of the active detergents in good quality products).
[14] Matlala, S, 2006, Market research can deliver business results – is it rewarded as such? The case for the 'original and best' breakfast cereal, http://www.samra.co.za/2006papers, accessed on 1 June 2006

earners, according to AC Nielsen; food sales in this income category fell sharply due to food price inflation when the Rand depreciated heavily in 2001 and 2002[15].

We therefore consider branding to be something of a barrier to entry for a new start-up or a new imported product, although the very poor in all likelihood do shop to some extent on price. Because the data does not distinguish between import penetration for the low-income market and higher-income markets, and prices of household consumables markets, our quantitative results should be read with caution.

3.2. Countervailing power

In the case of the detergent industry in South Africa, retailers such as Pick 'n Pay, Shoprite Checkers and Spar have some buyer power over major brands. They can use this power to force down prices, demand higher quality and service as well as more favourable payment and credit terms from the manufacturers. These buyers operate in markets that are largely competitive, and lower prices would therefore be passed on[16].

However, the retailers interviewed claimed that substantial mark-ups over costs are achieved by the FMCG companies; buyer power, to the extent that it exists, is therefore somewhat limited.

3.3. Dominance

The market is characterised by few competitors for the supply of household consumables, who compete to some extent on price and set prices partially according to costs but compete to a large extent on branding and advertising. This seems reasonable, in the context of the substantial barriers to entry in this market.

The market power of large FMCG companies is somewhat mitigated by countervailing power of retailers.

There are a few marginal players that supply the low end of the market, at substantially lower prices (although lower quality products), which do not compete on brand and are able to pass on lower costs. This has been limited, however, due to the impact of branding of products produced by incumbent producers.

4. Prices and costs

4.1. Model of price-setting behaviour and data

In light of barriers to entry and the limited number of firms present in the market we expect firms in the household consumables industry to have some market power.

To test this hypothesis, we test whether competitive firms in the household consumables industry set prices according to costs and to international prices of the same goods; to the extent that prices are set independently of these variables, we assume that firms have some market power. In a competitive market where there is little trade, prices would fall to the average total costs of production.[17] Material costs are approximately ten per cent of the selling price in the case of detergents, and up to 40 per cent in the case of washing powder. Production costs are approximately ten per cent of the selling price. Distribution costs are large, and make-up approximately 20 per cent of the selling price.

[15] ACNielsen: "Impacts on the Basket from Price Increases - Insights on FMCG Purchasing". – 2003, quoted in Matlala 2006

[16] See the Competition Tribunal decision in the Shoprite / Foodworld matter, case number 47/LM/Jun05.

[17] Classical microeconomic economic shows that prices in a competitive market will fall to marginal costs; in reality, not many firms would enter or indeed remain in markets with substantial fixed costs if this were the case. Certainly, the test in competition policy, only prices that are above average total costs are considered 'excessive'. See, for instance, Bishop & Walker (2002: 6.17 – 6.20) and the EC commission's recent decision in Scandlines Sverige AB v Port of Helsingborg in Case COMP/A.36.568/D3

We therefore assume a price function as follows:

$p_d = f(p_f, c_d)$, where p_d is domestic prices, p_f is international prices and c_d is domestic costs.

We expect local prices to be positively related to both variables.

There is a time series that approximates much of these costs: the producer price index (PPI) for all 'other compounded products', which we understand from Statistics South Africa (StatsSA) resembles most closely the production costs of soaps and detergents. [18]

In order to measure pricing for a basket of household consumables, we used the consumer price index (CPI) of household consumables for metropolitan areas from Statistics South Africa (SSA) (see Table 2). Detergents (cleaning materials), washing powder, soap, bars and cakes, other cleaners, polishes as well as scouring agents constitute over 60 per cent of this index and hence this index broadly serve as representative of the general movement of prices in detergents and washing powder given the lack of more specific time series data. The index also however includes brushes and brooms, fertilizer and lime, matches, disinfectants and swimming pool chemicals, which makes up the balance of the index. This household consumable CPI was compared to general movement of all prices in the economy (CPI, metropolitan, all items).

Table 2: Product weightings in household consumables CPI

Product	Weighting in index (%)
Soap, bars and cakes	0.1
Washing powder	2.9
Liquid detergents and bleaches	40.1
Brushes and brooms	1.8
Polish	13.6
Scouring agents	3.2
Matches and candles	6.3
Fertilizer and lime	3.3
Disinfectants and swimming pool chemicals	8.6
Other cleaners	8.8
Other (Including plastic storage packets etc.)	11.9

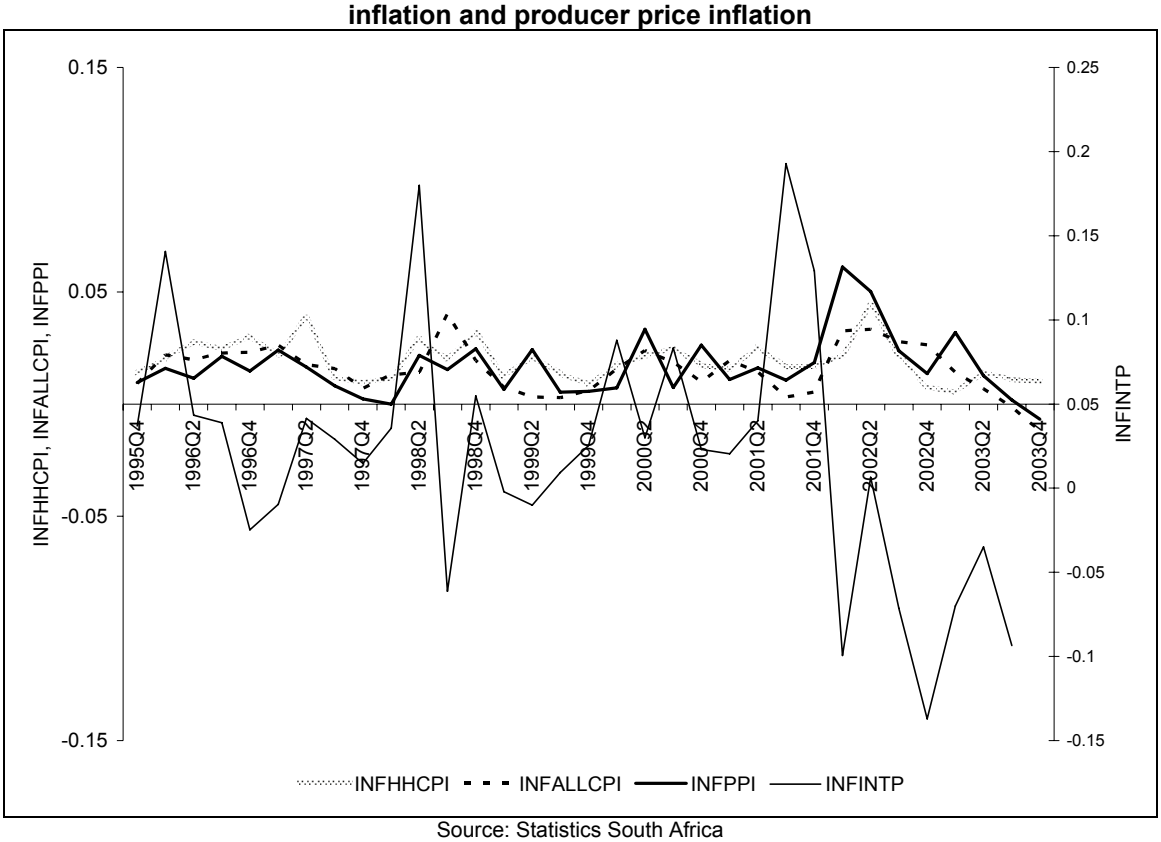
Source: Statistics South Africa

As long as capital costs do not change over time, we can ignore the fixed cost element in average total costs by testing whether price changes broadly reflect changes in the PPI. Of course, real interest rates (one measure of capital or fixed costs) do change over time to some extent; the overall Consumer Price Index (CPI) goes some way to estimating how these changes take place over time. We note that suppliers relate their pricing to some extent to the Consumer Price Index for all goods and services (CPI).[19]

Household consumables CPI, overall CPI, international price inflation, and local producer price inflation for household consumables data are plotted graphically on the figure below. While international prices do not appear to vary in the same way that the local variables vary, the local variables seem to move together to some extent.

[18] We compared this data with PPI data on 'other chemicals' products, and our results did not change substantially, although import penetration had a greater impact, holding cost factors constant.
[19] According to at least one industry source.

Figure 1: Relationship between household consumables inflation, overall consumer price inflation and producer price inflation



Source: Statistics South Africa

Key:
1. INFHHCPI: Household consumables inflation
2. INFALLCPI: Overall consumer price inflation
3. INFPPI: Producer price inflation
4. INFINTP: International prices inflation

4.2. Results: Ability of firms to set prices independently of costs

Our results show that household consumables inflation (INFHHCPI) is related separately to both overall consumer price inflation (INFALLCPI) and producer price inflation (INFPPI) for other compounded chemical products but, once these local cost factors have been accounted for, local inflation is unrelated to international prices data(see tables Table 8 and Table 9 in appendix 3).

The fact that the relationship between INFHHCPI and INFALLCPI, once INFPPI is taken into account, is not statistically significant is due to the fact that there is multi-collinearity between the latter two independent variables, and the relatively small sample sizes used in our regressions with 32 observations (quarterly data between Q1 1996 and Q4 2003) (see Table 6 and discussion in appendix 1).

It is interesting to note that a somewhat small proportion of producer inflation is passed through into household consumables inflation; for a 1 percentage point increase in PPI inflation, only a 0.31 percentage point increase in household consumables CPI inflation is felt.

The relationship between household consumables CPI and overall CPI is similar; for a 1 percentage point increase in overall CPI inflation, only a 0.41 percentage point increase in household consumables CPI inflation is felt. Note that overall CPI contains non-traded products. We would therefore expect a relatively low coefficient between traded goods prices and the overall CPI.

There is no relationship between household consumables inflation and international price inflation once either overall CPI or PPI for household consumables is taken into account.

This provides some evidence that firms set prices independently of costs, and that firms therefore have some market power.

We test the impact of trade on the pricing behaviour of firms next.

5. The impact of trade on pricing behaviour

5.1. Testing for the impact of trade on price-setting behaviour

In light of barriers to entry and significant concentration in the supply of household consumables, both locally and abroad, high transport costs relative to the substantial weight and low value of household consumables products, we would not expect trade to discipline the pricing of local producers.

This is borne out in the trade and output data, which shows that import penetration is low in the sector. The share of imports of household consumables, as a percentage of total demand increased from 6.3 per cent in 1994 to 11.5 per cent in 2001, according to a NEDLAC study[20]. The wider 'other chemicals sector' saw import penetration increase from 25 per cent in 1995 to 31 per cent in 2003. The *change* in import penetration is therefore somewhat more muted for overall 'other chemicals' (an increase of 50 per cent) than the change for household consumables (almost 100 per cent), although the two are roughly in line with one another.

We note, however, that Unilever, one of the largest suppliers in these markets, does not import large volumes of material[21]. While Unilever and Colgate – Palmolive (two of the main FMCG companies) were present in South Africa over the whole period, Procter & Gamble re-entered in the 1990s, initially with nappies and skin care products only, and mainly imported these products. This would suggest that increased imports are largely taking place by non-FMCG companies, probably in the industrial detergents sector[22]; therefore, the actual increase in import-penetration is probably more muted than that presented in the NEDLAC study.

Notwithstanding these issues, we test whether trade has an impact on local pricing using tariffs data and import penetration.
To some extent the effect of trade on local pricing behaviour is captured by the foreign prices (p_f) variable above. To the extent that the underlying data used for this variable does not reflect prices of household consumables accurately, we use several other trade variables here to further test the relationship between local prices and international trade. [23]

We use import penetration and tariffs data, and we estimate two separate equations:

$p_d = f(t\ , c_d)$, where p_d is domestic prices, t is tariffs and c_d is domestic costs.

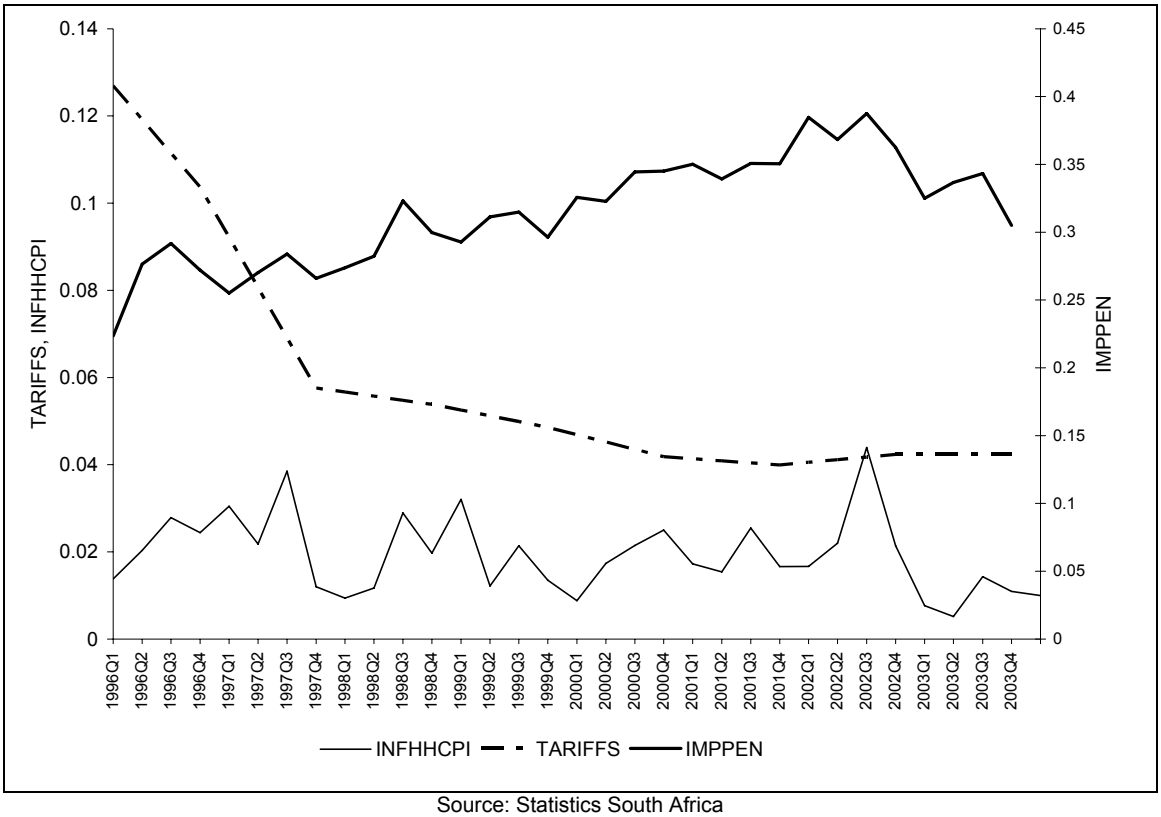
$p_d = f(q_i, c_d)$, where p_d is domestic prices, q_i is quantity of imports and c_d is domestic costs.

We expect that trade would discipline pricing behaviour, and we would thus expect local prices to be negatively related to imports and positively related to domestic tariffs; price increases would be more muted as imports increase and as tariffs decrease.

The data used for the analysis are depicted on Figure 2 below. There does not appear to be any relationship between household consumables price inflation and tariffs or import penetration.

[20] GHS study. Part 1: Situation Analysis, December 2003-2 socio-economic profile of the chemical sector (www.nedlac.org.za)
[21] Source: Industry stakeholder.
[22] This was confirmed by firm interviews.
[23] We were not able to test whether international prices for 'other chemicals' are a good proxy for the same prices for household consumables prices. Given that the other 'other chemicals variables are good proxies, we assume that this is the case for international prices too.

Figure 2 : Import penetration data, international price inflation, tariffs



Source: Statistics South Africa

5.2. Results: The impact of import penetration levels and tariff liberalisation on household consumables pricing

Our results show that there is no relationship between import-penetration and household consumables pricing. Import-penetration is not statistically significantly related to pricing (see tables Table 10 and Table 11 in appendix 3). While the co-efficient on tariffs is statistically significant and has the correct sign, it is almost zero, and therefore does not have a significant impact.

There is therefore very little evidence of an impact of international trade on the pricing behaviour of local firms. There are several caveats that need to be presented to these results. These are discussed next.

6. Limitations of our analysis

6.1. Data limitations

We note that the import-penetration, international price, and tariff data used in our analysis were at a highly aggregate level and may not accurately reflect import penetration and international prices in the households consumables sector specifically, which may give rise to the lack of a relationship. Nonetheless, in our view, the aggregate data used in our analysis provides a good proxy for import penetration in household consumables (see appendix 2).

The sample we used for our regression analysis was also relatively small, with 32 observations (quarterly data between Q1 1996 and Q4 2003). There are relatively few degrees of freedom left for hypothesis testing, therefore, we may accept the null hypothesis incorrectly that there is no relationship between the variables measured.

Additionally, there has been relatively little trade liberalisation in the sector, and import-penetration levels have remained consistently low. We discuss these issues in more detail next.

Notes on import penetration data

We used import, export and output data for 'other chemicals' (SIC 335/336), from the Quantec database and StatsSA, in order to develop our import penetration time series. We calculated local consumption by subtracting exports from output, and adding back imports. We then calculated import-penetration by dividing imports by local consumption.

The use of this aggregate 'overall chemicals' data captures not only the effects of greater imports of household consumables products but also imports of unrelated products, like fertilisers, pharmaceutical products, tanning and dying extracts, explosives, and albuminoids.

However, as long as the share of household imports, exports and output present in the overall 'other chemicals' data remains roughly equal over time and their variability is similar, 'other chemicals' data is a useful proxy for household consumables data. It turns out that this is indeed the case.

Imports and exports

Household consumables products account for a relatively small proportion of between two and four per cent of total imports of 'other chemicals' (see Figure 3).[24] Nevertheless, this proportion has remained roughly constant over time, although there have been fluctuations within this range. The result of a covariance test is substantially greater than zero, the correlation co-efficient was 0.965. Therefore the more aggregate data is broadly a reliable proxy for household consumables.

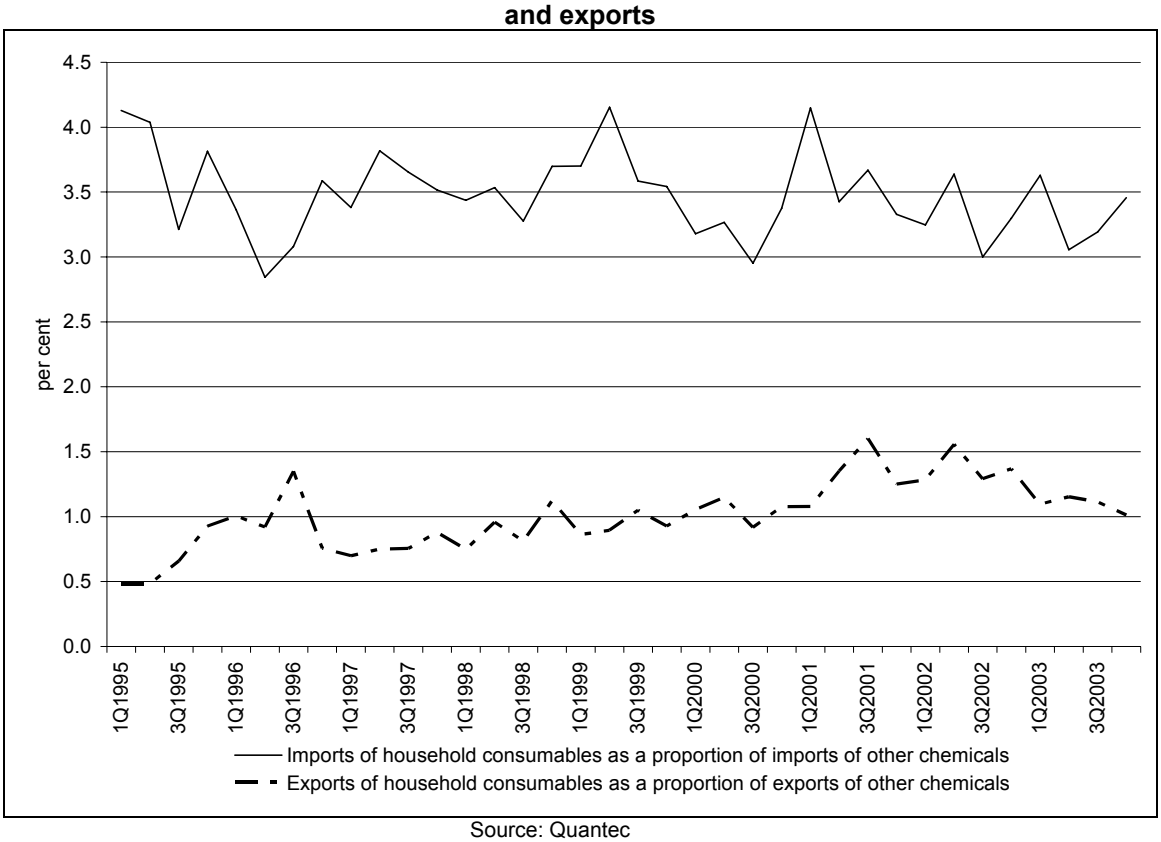
The same is true for export data for the same variables; household consumables account for between 0.5 per cent and 1.5 per cent of total exports, and this proportion does not vary substantially over time. The result of a covariance test is too substantially greater than zero, the correlation co-efficient was 0.92.

Import penetration (value of imports divided by total sales) over all in 'other chemicals', increased from approximately 23 per cent in 1995 to 34 per cent in 2003.

The relationship between household consumables, and all 'other chemical' products data, for imports and exports, is shown on Figure 3 below.

[24] Household consumables in the trade data approximately comprise soaps (H3401), organic surface active agents and preparations (H3402) and polishes, creams, scouring pastes (H3405).

Figure 3: Household consumables as a percentage of 'other chemical' products for imports and exports



Source: Quantec

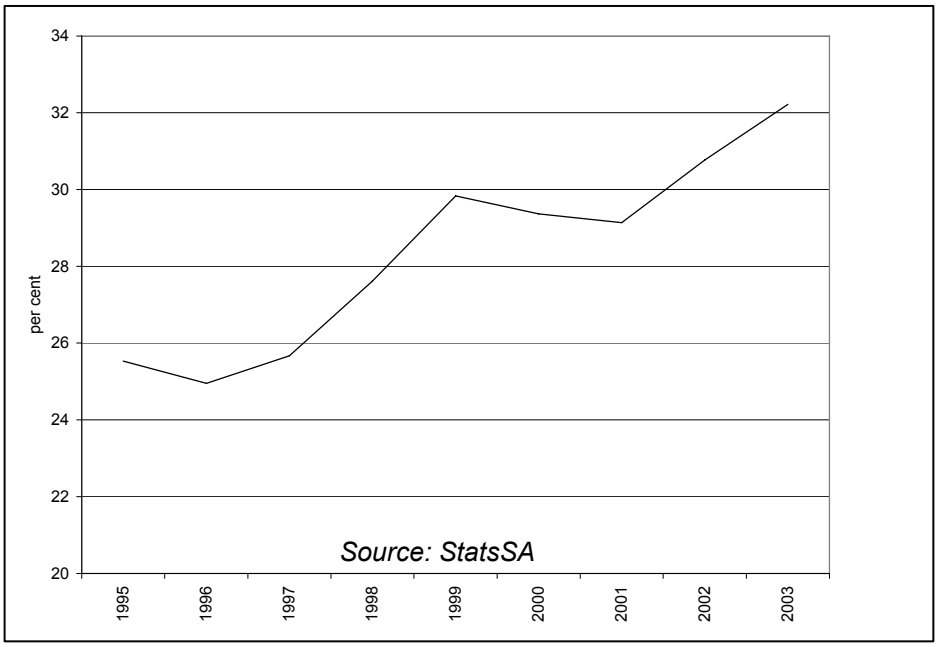
Note: We subtracted imports of inorganic chemicals, precious metal compound, isotopes and organic chemicals to arrive at our 'other chemical' product figures.

Output data

We understand from StatsSA that between fifteen and twenty per cent of 'other chemicals' output consists of household consumables products. Again, household consumables output is highly correlated with output of 'other chemicals' (see Figure 4 below).[25] The result of correlation co-efficient on annual data between 1995 and 2003 is 0.967 and covariance is substantially above zero.

[25] Output data from StatsSA is not particularly reliable over the period in question, due to their switching from a 1996 manufacturing census sample of firms to the SARS sample of firms. We understand, however, that firms in Stratum 1 of the sample, firms currently selling more than R112m worth of goods have been consistently included throughout; in this sector, this should have provided the bulk of sales. The StatsSA data example does not correspond to Quantec data; for example, in 2003, the StatsSA data is greater in value terms by a factor of approximately 10.

Figure 4: Soap, cleaning compounds, perfumes and cosmetics' sales value as a proportion of output of other chemicals and man-made fibres



Tariff data

Average tariffs overall on 'other chemicals' declined from approximately twenty per cent in 1990 to just over four per cent in 2004. Over the period of our analysis, average tariffs declined from just over ten per cent in 1996 to just over four per cent in 2003.[26]

Table 3: Average annual tariffs for 'other chemicals' (SIC 335/336) - 1990 to 2004

Year	Average tariff	Year	Average tariff
1990	19.4	1998	5.4
1991	17.6	1999	4.9
1992	17.6	2000	4.2
1993	17.7	2001	4
1994	16.9	2002	4.2
1995	13.5	2003	4.2
1996	10.4	2004	4.2
1997	5.8		

Source: Edwards (2006)
Note: We used average tariffs including surcharges.

However, tariffs on household consumable products in general (HS 34, with some exceptions) decreased from between 19 and 28 per cent in 1996 to between 15 and 20 per cent[27]; this is largely

[26] We used average annual tariffs, including surcharges for the 'other chemicals' sector (SIC 335/336) between 1995 and 2003 for our analysis. We converted the annual data to quarterly data by assuming that average tariffs for each year were the same for all four quarters.

[27] The tariff data used for 1996 and 2004 was sourced from Trade and Industrial Policy Strategies (TIPS). For 2004, MFN tariffs were used. The tariff declines discussed here are on two sub-classes of products: (1) Products of organic surface-active agents, and (2) surface active preparations, washing and cleaning preparations (including auxiliary washing preparations) whether or not containing soap; tariffs on the first product fell from 28 per cent on EU imports in 1996 to 20 per cent in 2004 and tariffs on the second product fell from 19 per cent in 1996 to 15 per cent in 2004. Both these products constitute a significant proportion of total imports of general washing preparations. A weighted average per cent tariff was calculated (weighted by value of imports) for the two years in consideration for products at the HS8 level, and we found that on a weighted average basis average tariffs had not declined significantly.

consistent with the findings of Edwards (2005), who shows that liberalisation for most manufacturing sectors has been somewhat limited[28]. Liberalisation has therefore been more limited in the household consumables market. Table 4 below shows tariffs for different household consumables products in 1996 and 2004; while some tariffs declined somewhat, many did not. We expect there to be a similar lack of variability in the household consumables data, and since it is variability that matters for regression analysis, the other chemicals tariffs is an acceptable proxy for household consumables tariffs.

Table 4: Tariffs on household consumables products at the HS8 level for 2004

	HS Code	1996 (%)	2004 (%)	% change in tariff
HS3401: Soaps				
Soaps for toilet use	34011120	28	20	-28.6
Soaps for purposes other than toilet soap, solid	34011920	28	20	-28.6
Soaps nes	34012000	20	20	0.0
HS3402: Organic surface active agent, preparation, except soap				
Anionic surface-active agents	34021110	28	20	-28.6
Cationic surface-active agents	34021210	28	28	0.0
Non-ionic surface active agents	34021310	28	28	0.0
Organic surface-active agents, nes	34021910	28	28	0.0
Washing and cleaning preparations, retail	34022010	28	20	-28.6
Organic surfactant washing, cleaning preparations nes	34029010	28	28	0.0
HS3404: Artificial waxes and prepared waxes				
Artificial & prepared waxes, of modified lignite	34041000	15	15	0.0
Artificial and prepared waxes, of polyethylene glycol	34042000	15	15	0.0
Artificial and prepared waxes, nes	34049000	15	15	0.0
HS3405: Polishes, creams, scouring pastes, etc				
Polishes, creams etc. for footwear or leather	34051000	19	15	-21.1
Polishes, creams etc. for maintenance of woodwork	34052000	19	15	-21.1
Polishes etc. for coachwork, except metal polishes	34053000	19	15	-21.1
Scouring pastes and powders and other scouring preps	34054000	19	15	-21.1
Polishes, creams and similar preparations, nes	34059010	0	15	0.0
Polishes, creams and similar preparations, nes	34059090	19	15	-21.1

Source: Quantec and Trade and Industrial Policy Strategies

Summary of data limitations

In our view, the variables we used are reasonable proxies for the variables we would like to examine. However, the limited sample size combined with a lack of variability in some of the variables used means that we may be accepting the null hypothesis of no relationship between the variables incorrectly.

6.2. Asymmetric impact of international trade on low-income households

There may be a stronger relationship between international trade and prices charged by local firms for products that low-income households buy, than our regression results show, which captures the relationship (or lack thereof) for all households.

This is because data on consumer prices from StatsSA conflates prices for household consumables that the poor buy (more likely to be unbranded goods) and goods that wealthier households buy. Similarly, data on imports and output conflates products bought by low-income households and products bought by wealthier households. However, increased import penetration impacts on prices for products sold to low-income households more than products sold to higher income households[29],

[28] Edwards, 2005, 'Has South Africa liberalised its trade?', available at: http://www.saldru.uct.ac.za/saldru_trade&poverty.html

[29] Source: Interviews with industry stakeholders.

as new products are more likely to be imported, and are adopted more easily by low-income households, which are more price sensitive.

7. Conclusions

There is both qualitative and quantitative evidence that FMCG firms supplying household consumables products have market power. In the context of firms having market power, and goods that have low value relative to weight (thus not cheaply transportable), we would not expect trade to have a substantial impact on local prices.

We tested this hypothesis using several proxies for international trade, and household consumables price inflation data, and we found that there is very little evidence of a relationship between trade and local pricing. There are problems with the data used, however, that mean that our results may understate the effects of increased trade on local pricing, particularly in relation to products consumed by the poor; in particular there appear to be lower barriers to entry for imported products sold to consumers that mean that lower trade barriers may disproportionately benefit the poor.

However, tariffs are not redundant, as large firms currently producing in SA could decide to move production overseas, which would have a negative effect on employment, without any positive effects from lower prices.

The key implication of our results is that trade policy on its own is unlikely to be effective in limiting the pricing power of suppliers in markets where suppliers have substantial market power and where barriers to new entry, including entry to imports, are high. Thus competition policy interventions may be needed as a precursor to further trade liberalisation to maximise its benefits, particularly in light of the fact that liberalisation in the absence of this may cause the relocation of some manufacturing jobs in the household consumables sector without achieving lower prices for consumers.

8. References

Books and journal articles

Bishop, S & Walker, M., 2002, *The economics of EC competition law*, Sweet & Maxwell: London

Chapter 3- External Analysis: the identification of industry opportunities and threats, Houghton Mifflin Company, available at:
http://students.washington.edu/rushika/ind%20analysis.doc

Edwards, 2005, 'Has South Africa liberalised its trade?', available at:
http://www.cssr.uct.ac.za/saldru_trade&poverty.html

Edwards, 2006, Tariff database, unpublished

Euromonitor Report summary available at
http://www.euromonitor.com/reportsummary.aspx?folder=Household_Care_in_South_Africa&industryfolder=Household_care

GHS study. Part 1: Situation Analysis, December 2003-2 socio-economic profile of the chemical sector, available at: www.nedlac.org.za

Gujurati, D, 1995, 3rd Ed., *Basic Econometrics*, Mcgraw-Hill

Krugman, P. and M. Obstfeld, 2003, 6th Ed., *International Economics: Theory and Policy*, Addison-Wesley

Matlala, S, 2006, Market research can deliver business results – is it rewarded as such? The case for the 'original and best' breakfast cereal, http://www.samra.co.za/2006papers, accessed on 1 June 2006

McCulloch, N., A. Winters and X. Cirera, 2001, "Trade Liberalisation and Poverty: A Handbook", Centre for Economic Policy Research and Department for International Development, London

Morris, M. and R. Kaplinsky, 2001, *A Handbook for Value Chain Research*, School of Development Studies, University of Natal

Motta, M, 2004, *Competition policy: Theory and practice*, Cambridge University Press

NALEDI Study- Company Monitor- Case study of Unilever and Akzo Nobel, by Claire Horton, January 2003

Pesaran, M & Pesaran, B, 1997, *Working with Microfit 4.0: Interactive Econometric Analysis*, Oxford University Press

Sonderegger and Grout, March 2005- Office of Fair Trading - Predicting cartels, Economic discussion paper, OFT773

Van Seventer, D., 2005, 'Impact of competition law-policy on South Africa's investment climate and competitiveness', draft report for World Bank/DTI Study on the effectiveness of South African competition policy

Van Seventer, D., 2005, Tariff database, unpublished

SA Competition Tribunal cases (available at www.comptrib.co.za)

Shoprite / Foodworld large merger, Case number 47/LM/Jun05

Bid Industrial Holdings (Pty) Ltd and G. Fox and Company (Pty) Ltd large merger, Case number: 58/LM/Aug04

International cases

FTC vs. Procter and Gamble Co. 386 U.S. 568 (1967) http://www.ripon.edu/faculty/bowenj/antitrust/p&g-clor.htm

Scandlines Sverige AB v Port of Helsingborg in Case COMP/A.36.568/D3

Appendix 1: Unit root and multicollinearity tests for inflation variables[30]

The unit root tests for household consumables price inflation (INFHHCPI) show that the variable is stationary (see Table 5). However, the unit root test for overall CPI inflation (INFALLCPI) and PPI for compounded chemicals (INFPPI) shows that these variables are not stationary at the 5% level, although the absolute value of the ADF test statistics are not substantially lower than the critical level, and we would probably reject the null hypothesis of a unit root at the ten per cent level of significance. There is therefore little risk of spurious correlation when employed in our regression analysis.

Table 5: Unit root tests for INFHHCPI, INFPPI, INFALLCPI

Unit root tests for variable INFHHCPI

The Dickey-Fuller regressions include an intercept but not a trend

28 observations used in the estimation of all ADF regressions
Sample period from 1997Q1 to 2003Q4

Test Statistic	LL	AIC	SBC	HQC
DF	-4.3446	92.5556	90.5556	89.2234	90.1483
ADF(1)	-3.4440	92.6121	89.6121	87.6138	89.0012
ADF(2)	-3.6161	93.5576	89.5576	86.8932	88.7431
ADF(3)	-2.1481	93.9731	88.9731	85.6426	87.9549
ADF(4)	-2.7617	95.5852	89.5852	85.5885	88.3634

95% critical value for the augmented Dickey-Fuller statistic = -2.9706
LL = Maximized log-likelihood AIC = Akaike Information Criterion
SBC = Schwarz Bayesian Criterion HQC = Hannan-Quinn Criterion

Unit root tests for variable INFPPI

The Dickey-Fuller regressions include an intercept but not a trend

28 observations used in the estimation of all ADF regressions.
Sample period from 1997Q1 to 2003Q4

Test Statistic	LL	AIC	SBC	HQC
DF	-3.3500	80.3979	78.3979	77.0657	77.9907
ADF(1)	-2.6330	80.4001	77.4001	75.4018	76.7892
ADF(2)	-2.7732	80.9900	76.9900	74.3256	76.1754
ADF(3)	-1.9082	81.5110	76.5110	73.1805	75.4929
ADF(4)	-2.4126	82.9309	76.9309	72.9343	75.7091

95% critical value for the augmented Dickey-Fuller statistic = -2.9706
LL = Maximized log-likelihood AIC = Akaike Information Criterion
SBC = Schwarz Bayesian Criterion HQC = Hannan-Quinn Criterion

Unit root tests for variable INFALLCPI

The Dickey-Fuller regressions include an intercept but not a trend

28 observations used in the estimation of all ADF regressions.
Sample period from 1997Q1 to 2003Q4

Test Statistic	LL	AIC	SBC	HQC
DF	-2.2286	90.1043	88.1043	86.7721	87.6971
ADF(1)	-2.8181	91.5230	88.5230	86.5246	87.9121
ADF(2)	-2.8957	92.1957	88.1957	85.5313	87.3812
ADF(3)	-2.7946	92.6457	87.6457	84.3152	86.6275
ADF(4)	-3.3912	94.4732	88.4732	84.4766	87.2514

95% critical value for the augmented Dickey-Fuller statistic = -2.9706
LL = Maximized log-likelihood AIC = Akaike Information Criterion
SBC = Schwarz Bayesian Criterion HQC = Hannan-Quinn Criterion

Source: JHB Economics analysis using Microfit 4.1

[30] Both the Akaike Information Criterion (AIC) and the Schwarz Bayesian Criterion (SBC) suggest that the correct order of the ADF test is 1 for all three variables. Note that we use inflation data here rather than the index in levels, as price index time series in levels are non-stationary and may give rise to the problem of spurious correlation (See, for instance, Gujurati (1995), ch. 21). We take the difference of the log of the price index to work out inflation for the price index variables

Multicollinearity tests for inflation data

There is evidence of multicollinearity between INFPPI and INFALLCPI as individually these variables are statistically insignificant at even the ten per cent level, but are collectively significant. This may to some extent be due to the small sample used in our analysis (32 observations). We note that the sample correlation of INFPPI and INFALLCPI is 0.60.

Table 6: Test for multicollinearity between INFPPI and INFALLCPI

```
                    Ordinary Least Squares Estimation
*******************************************************************************
                      Dependent variable is INFHHCPI
          32 observations used for estimation from 1996Q1 to 2003Q4
*******************************************************************************
 Regressor              Coefficient       Standard Error         T-Ratio[Prob]
 INT                       .012360           .0024828             4.9783[.000]
 INFPPI                    .19669              .12636             1.5565[.130]
 INFALLCPI                 .24678              .15711             1.5707[.127]
*******************************************************************************
 R-Squared                    .29584   R-Bar-Squared                    .24727
 S.E. of Regression         .0078089   F-stat.    F(  2,  29)    6.0918[.006]
 Mean of Dependent Variable  .019493   S.D. of Dependent Variable    .0090006
 Residual Sum of Squares    .0017684   Equation Log-likelihood       111.4489
 Akaike Info. Criterion     108.4489   Schwarz Bayesian Criterion    106.2503
 DW-statistic                 2.1773
*******************************************************************************
                            Diagnostic Tests
*******************************************************************************
*    Test Statistics  *        LM Version        *          F Version          *
*******************************************************************************
*                     *                          *                             *
* A:Serial Correlation*CHSQ(   4)=   3.6583[.454]*F(   4,  25)=   .80675[.533]*
*                     *                          *                             *
* B:Functional Form   *CHSQ(   1)=   .25007[.617]*F(   1,  28)=   .22054[.642]*
*                     *                          *                             *
* C:Normality         *CHSQ(   2)=   .39173[.822]*       Not applicable        *
*                     *                          *                             *
* D:Heteroscedasticity*CHSQ(   1)=   4.1358[.042]*F(   1,  30)=   4.4529[.043]*
*******************************************************************************
   A:Lagrange multiplier test of residual serial correlation
   B:Ramsey's RESET test using the square of the fitted values
   C:Based on a test of skewness and kurtosis of residuals
   D:Based on the regression of squared residuals on squared fitted values
```

Source: JHB Economics analysis using Microfit 4.1

Appendix 2: Unit root tests for trade variables[31]

The variable 'import-penetration' is first-difference stationary and INTPFD while the variable 'tariffs' is stationary in levels (Table 7). International prices are non-stationary although the absolute value of the ADF test statistic is not substantially lower than the critical level, and we would probably reject the null hypothesis of a unit root at the ten per cent level of significance.

Table 7: Unit root tests for IMPPENFD, INTPFD and TARIFFS

Unit root tests for variable IMPPENFD

The Dickey-Fuller regressions include an intercept but not a trend

28 observations used in the estimation of all ADF regressions.
Sample period from 1997Q1 to 2003Q4

	Test Statistic	LL	AIC	SBC	HQC
DF	-6.2621	70.6658	68.6658	67.3336	68.2585
ADF(1)	-4.6844	71.3070	68.3070	66.3087	67.6961
ADF(2)	-3.8248	71.4923	67.4923	64.8279	66.6778
ADF(3)	-2.2236	72.0610	67.0610	63.7305	66.0428
ADF(4)	-1.5146	72.1501	66.1501	62.1535	64.9283

95% critical value for the augmented Dickey-Fuller statistic = -2.9706
LL = Maximized log-likelihood AIC = Akaike Information Criterion
SBC = Schwarz Bayesian Criterion HQC = Hannan-Quinn Criterion

Unit root tests for variable INTPFD

The Dickey-Fuller regressions include an intercept but not a trend

28 observations used in the estimation of all ADF regressions.
Sample period from 1997Q1 to 2003Q4

	Test Statistic	LL	AIC	SBC	HQC
DF	-3.5807	-154.6374	-156.6374	-157.9696	-157.0447
ADF(1)	-2.6842	-154.6132	-157.6132	-159.6115	-158.2241
ADF(2)	-1.8620	-154.2877	-158.2877	-160.9521	-159.1023
ADF(3)	-1.9640	-153.9431	-158.9431	-162.2736	-159.9613
ADF(4)	-2.0442	-153.5238	-159.5238	-163.5204	-160.7456

95% critical value for the augmented Dickey-Fuller statistic = -2.9706
LL = Maximized log-likelihood AIC = Akaike Information Criterion
SBC = Schwarz Bayesian Criterion HQC = Hannan-Quinn Criterion

Unit root tests for variable TARIFFS

The Dickey-Fuller regressions include an intercept but not a trend

29 observations used in the estimation of all ADF regressions.
Sample period from 1996Q4 to 2003Q4

	Test Statistic	LL	AIC	SBC	HQC
DF	-4.3510	-28.7252	-30.7252	-32.0925	-31.1534
ADF(1)	-4.3472	-28.4522	-31.4522	-33.5031	-32.0945
ADF(2)	-4.3517	-28.1338	-32.1338	-34.8684	-32.9903
ADF(3)	-6.0228	-22.8379	-27.8379	-31.2562	-28.9085
ADF(4)	-4.3547	-21.2947	-27.2947	-31.3965	-28.5793

95% critical value for the augmented Dickey-Fuller statistic = -2.9665
LL = Maximized log-likelihood AIC = Akaike Information Criterion
SBC = Schwarz Bayesian Criterion HQC = Hannan-Quinn Criterion

Source: JHB Economics analysis using Microfit 4.1

[31] Both the Akaike Information Criterion (AIC) and the Schwarz Bayesian Criterion (SBC) suggest that the correct order of the ADF test is 1 for all three variables.

Appendix 3: Regression results

Table 8: Regression results for the effect of international prices inflation and local producer price inflation on household consumables price inflation

```
                        Ordinary Least Squares Estimation
*******************************************************************************
 Dependent variable is INFHHCPI
 33 observations used for estimation from 1995Q4 to 2003Q4
*******************************************************************************
 Regressor              Coefficient       Standard Error         T-Ratio[Prob]
 INT                       .013958           .0022188             6.2907[.000]
 INFPPI                     .31698             .10363             3.0586[.005]
 INFINTP                 .0062501            .019084             .32750[.746]
*******************************************************************************
 R-Squared                   .24365   R-Bar-Squared                    .19322
 S.E. of Regression         .0080068   F-stat.    F(  2,  30)    4.8320[.015]
 Mean of Dependent Variable  .019320   S.D. of Dependent Variable    .0089142
 Residual Sum of Squares    .0019233   Equation Log-likelihood       114.0540
 Akaike Info. Criterion     111.0540   Schwarz Bayesian Criterion    108.8092
 DW-statistic                1.9681
*******************************************************************************

                              Diagnostic Tests
*******************************************************************************
*    Test Statistics  *        LM Version        *         F Version          *
*******************************************************************************
*                     *                          *                            *
* A:Serial Correlation*CHSQ(   4)=   3.1777[.529]*F(   4,  26)=   .69261[.604]*
*                     *                          *                            *
* B:Functional Form   *CHSQ(   1)=   2.1514[.142]*F(   1,  29)=   2.0224[.166]*
*                     *                          *                            *
* C:Normality         *CHSQ(   2)=   1.0559[.590]*       Not applicable       *
*                     *                          *                            *
* D:Heteroscedasticity*CHSQ(   1)=   4.7530[.029]*F(   1,  31)=   5.2162[.029]*
*******************************************************************************
   A:Lagrange multiplier test of residual serial correlation
   B:Ramsey's RESET test using the square of the fitted values
   C:Based on a test of skewness and kurtosis of residuals
   D:Based on the regression of squared residuals on squared fitted values
```

Table 9: Regression results for the effect of international prices inflation and local consumer price inflation on household consumables price inflation

```
                          Ordinary Least Squares Estimation
*******************************************************************************
 Dependent variable is INFHHCPI
 33 observations used for estimation from 1995Q4 to 2003Q4
*******************************************************************************
 Regressor              Coefficient       Standard Error         T-Ratio[Prob]
 INT                       .013179           .0024169             5.4531[.000]
 INFALLCPI                  .40509             .13238             3.0600[.005]
 INFINTP                 -.0041289             .019627            -.21036[.835]
*******************************************************************************
 R-Squared                      .24381   R-Bar-Squared                    .19340
 S.E. of Regression           .0080059   F-stat.    F(  2,  30)     4.8362[.015]
 Mean of Dependent Variable    .019320   S.D. of Dependent Variable     .0089142
 Residual Sum of Squares      .0019229   Equation Log-likelihood        114.0575
 Akaike Info. Criterion       111.0575   Schwarz Bayesian Criterion     108.8128
 DW-statistic                   2.2143
*******************************************************************************

                               Diagnostic Tests
*******************************************************************************
*    Test Statistics  *        LM Version        *         F Version           *
*******************************************************************************
*                     *                          *                             *
* A:Serial Correlation*CHSQ(   4)=   3.5271[.474]*F(   4,  26)=   .77786[.550]*
*                     *                          *                             *
* B:Functional Form   *CHSQ(   1)=  .052919[.818]*F(   1,  29)=  .046579[.831]*
*                     *                          *                             *
* C:Normality         *CHSQ(   2)=   .68274[.711]*       Not applicable        *
*                     *                          *                             *
* D:Heteroscedasticity*CHSQ(   1)=   4.5042[.034]*F(   1,  31)=   4.9001[.034]*
*******************************************************************************
   A:Lagrange multiplier test of residual serial correlation
   B:Ramsey's RESET test using the square of the fitted values
   C:Based on a test of skewness and kurtosis of residuals
   D:Based on the regression of squared residuals on squared fitted values
```

Source: JHB Economics analysis using Microfit 4.1

Table 10: Regression results for the effect of import penetration and international price inflation on household consumables price inflation, holding local producer prices constant

```
                        Ordinary Least Squares Estimation
*******************************************************************************
 Dependent variable is INFHHCPI
 33 observations used for estimation from 1995Q4 to 2003Q4
*******************************************************************************
 Regressor              Coefficient       Standard Error         T-Ratio[Prob]
 INT                       .014425           .0022380             6.4452[.000]
 INFPPI                     .30631             .10331             2.9650[.006]
 IMPPENFD                  .068410            .057427             1.1912[.243]
 INFINTP                -.0065644            .021793            -.30122[.765]
*******************************************************************************
 R-Squared                      .27893   R-Bar-Squared                    .20434
 S.E. of Regression           .0079515   F-stat.    F(  3,  29)    3.7393[.022]
 Mean of Dependent Variable    .019320   S.D. of Dependent Variable    .0089142
 Residual Sum of Squares      .0018335   Equation Log-likelihood       114.8422
 Akaike Info. Criterion       110.8422   Schwarz Bayesian Criterion    107.8492
 DW-statistic                   1.9411
*******************************************************************************


                                Diagnostic Tests
*******************************************************************************
*    Test Statistics  *        LM Version        *          F Version          *
*******************************************************************************
*                     *                          *                             *
* A:Serial Correlation*CHSQ(   4)=   4.3921[.356]*F(   4,  25)=   .95955[.447]*
*                     *                          *                             *
* B:Functional Form   *CHSQ(   1)=   1.3960[.237]*F(   1,  28)=   1.2368[.276]*
*                     *                          *                             *
* C:Normality         *CHSQ(   2)=   .87534[.646]*       Not applicable        *
*                     *                          *                             *
* D:Heteroscedasticity*CHSQ(   1)=   5.4508[.020]*F(   1,  31)=   6.1336[.019]*
*******************************************************************************
   A:Lagrange multiplier test of residual serial correlation
   B:Ramsey's RESET test using the square of the fitted values
   C:Based on a test of skewness and kurtosis of residuals
   D:Based on the regression of squared residuals on squared fitted values
```

Source: JHB Economics analysis using Microfit 4.1

Table 11: Regression results for the effect of tariffs and international price inflation on household consumables price inflation, holding local prices constant

```
                        Ordinary Least Squares Estimation
*******************************************************************************
 Dependent variable is INFHHCPI
 30 observations used for estimation from 1996Q3 to 2003Q4
*******************************************************************************
 Regressor              Coefficient       Standard Error         T-Ratio[Prob]
 INT                      .0045919           .0044925             1.0221[.316]
 INFPPI                     .33925             .10544             3.2173[.003]
 INFINTP                 -.0038168            .019307            -.19769[.845]
 TARIFFS                  .0016545           .6532E-3             2.5329[.018]
*******************************************************************************
 R-Squared                      .36681   R-Bar-Squared                   .29375
 S.E. of Regression           .0076741   F-stat.    F(  3,  26)    5.0207[.007]
 Mean of Dependent Variable    .019781   S.D. of Dependent Variable    .0091317
 Residual Sum of Squares      .0015312   Equation Log-likelihood       105.6753
 Akaike Info. Criterion       101.6753   Schwarz Bayesian Criterion     98.8729
 DW-statistic                   2.2545
*******************************************************************************


                                Diagnostic Tests
*******************************************************************************
*    Test Statistics  *        LM Version        *          F Version          *
*******************************************************************************
*                     *                          *                             *
* A:Serial Correlation*CHSQ(   4)=   4.2208[.377]*F(   4,  22)=   .90052[.481]*
*                     *                          *                             *
* B:Functional Form   *CHSQ(   1)=   .87578[.349]*F(   1,  25)=   .75176[.394]*
*                     *                          *                             *
* C:Normality         *CHSQ(   2)=   .27308[.872]*       Not applicable        *
*                     *                          *                             *
* D:Heteroscedasticity*CHSQ(   1)=   3.2989[.069]*F(   1,  28)=   3.4594[.073]*
*******************************************************************************
   A:Lagrange multiplier test of residual serial correlation
   B:Ramsey's RESET test using the square of the fitted values
   C:Based on a test of skewness and kurtosis of residuals
   D:Based on the regression of squared residuals on squared fitted values
```

Source: JHB Economics analysis using Microfit 4.1