

# The Impact Of Price Changes On Demand Among Poor Households In A South African Township

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## ABSTRACT

*The study reported in this article used household level data to analyse the impact of recent price changes on the demand for food and non-food items among households of different poverty statuses in a township of Bophelong, Gauteng Province, South Africa. The unprecedented rises in prices prompt households to make adjustments on their consumption patterns as real income declines. In this paper, the poor are separated from the non-poor by means of an income poverty line and their responsiveness to price changes compared. Of the sampled population, 56% were found to be poor of which 26% of the participants were categorised as moderately poor, with 30% extremely poor. Changes in demand patterns of households are estimated by computing the demand elasticities that explain the level of demand by a household given the structure of relative prices faced and household income. The study reports that households respond differently to rising prices depending on their poverty levels.*

**Keywords:** Demand; Elasticity; Income; Expenditure; Poor; South Africa

## 1. INTRODUCTION

Knowledge of demand patterns during rising prices is essential for improvement of nutritional programs, poverty reduction, demand planning, macroeconomic policy analysis, and food security (Haq et al., 2011). An analysis of consumption patterns and how households are likely to change their consumption tendencies with fluctuations in relative prices allows for an understanding of the type of commodities deemed necessities and luxuries among certain consumers. Recently, there has been a serious concern about the food and nutrition situation of poor people in developing countries (Abubakar et al., 2012). There is however, a dearth of information about the way households allocate their budgets across different types of goods and services (Levell & Oldfield, 2011). According to Schnepf (2012) this allocation can depend on the household's demographic characteristic like household size, income group, and prices. Recent years has seen a rise in prices particularly for food which make up a large share of the budget of low-income households (Levell & Oldfield, 2011). These increasing prices lower the purchasing power of a given nominal income and further affect expenditure decisions of households. This prompts the need for immediate policy response to attenuate the effects of price changes, protect the more vulnerable, avert poverty and hunger, and strengthen food security. Food insecurity further poses a complex challenge to the UN's first Millennium Development Goal of halving the people in extreme poverty by 2015 (UN, 2012). Rising food prices lead to distress, food riots, declining purchasing power, and aggravate chronic poverty (FAO, 2008). The short run response may include reduction in food consumption, increases in labour supply through piece jobs and dissaving. This disinvestment results in retardation of future economic growth (World Bank, 2008).

Increasing prices have uneven impact across population groups and prompts different responses (Wodon & Zaman, 2008). The poor respond by limiting food consumption and shift to less-balanced diets, causing short and long run harm in their health status. The non-poor do not necessarily reduce food consumption but cut their expenditure on durables. With rising prices, the issue is not just action but the application of a relevant policy which

according to Wodon and Zaman (2008) should have three dimensions; to reduce domestic prices, boost nutrition and food production, and also enlarge social protection. In most cases, an attempt to mitigate the price effects by some governments results in policies that distort savings incentives, are costly for the economy and do not reach the targeted individuals. The poor spend a greater part of their income on food, making them worse off than the non-poor when food prices go up (Regmi et al., 2001; UN, 2012). With more money spent on food, less is then spent on education and healthcare. This negative impact on education severely limits opportunities for social and economic development and undermines the ability of the poor to break out of poverty (Braun, 2008).

Household consumption patterns are affected by increasing prices in two ways. Firstly through the percentage of the household's expenditure dedicated to consumption, and secondly through the consumer basket mix of goods usually purchased. Households that dedicate a higher percentage of their total income on food experience higher food inflation since an increase in the price of a consumer basket will mean more money spent on consumption compared to those households whose proportion of money spent on food is small (Capehart & Richardson, 2008; McGranahan, 2008). The way households are affected also depends on the magnitude of the price increases in their consumer basket since the prices of goods and services rise at different rates. This means that different households can face very different inflation rates. Households spending a large portion of their budget on items whose prices rise rapidly generally have higher inflation than households spending a smaller share on these items (McGranahan, 2008; Fabrizio, 2012). The World Bank (2003) noted that the urban poor are typically most affected while many of the rural households at least get some of their food needs from their gardens through subsistence farming. At household level, alternative consumption patterns are adopted where poor families frequently respond to higher food prices by eating cheaper foods with lower nutritional value, consuming less food in meals and skipping meals (Compton et al., 2010).

Volatile commodity prices continue to threaten food security, survival, nutritional status, and livelihoods of the poor. Furthermore, research indicates that the poor spend more than 50% of their income on food, yet these households continue to suffer malnutrition (Braun, 2008). Additionally, price movements limit the economic recovery and consign the majority of the population into poverty, inducing inequality and social instability which results in riots and protests (Ortiz et al., 2011, p. 1). The impact is compounded as more people lose purchasing power and are thrust into poverty. Rising prices are also a threat to the Millennium Development Goal (MDG) of cutting the proportion of people who suffer from hunger by half by 2015. With all these challenges caused by rising prices, researchers have attempted to address the impact of rising prices on households' consumption (Asian Development Bank, 2008). These studies have been mainly carried out in Asian countries and the results cannot be assumed in a South African context. In South Africa, a number of researchers have conducted studies on the subject of poverty, of which some have been done in the townships within the Vaal Triangle area. Slabbert (2009) investigated poverty levels in Bophelong, Sekatane (2006) looked at the measurement of poverty in Sharpeville, and Masoka (2005) focused on poverty alleviation strategies in Sicelo. High poverty levels have been highlighted by these studies and much less or no effort has been made to understand demand patterns of the poor at a township level during rising prices. This prompts the need to carry out this study that will focus on the poor's demand patterns in a township in South Africa.

This paper therefore seeks to analyse the demand patterns of households of different economic status when prices rise. By dividing the households into non-poor, poor, and very poor, the study seeks to find out the economic groups most affected by rising food and non-food prices, the products that are less responsive to price changes in households of different economic groups and the possible substitution effects. The rest of the article is organised as follows; Section 2 provides a brief overview of price changes in South Africa, followed by an explanation of the research methods in Section 3. Section 4 provides the results and discussion of the study; then Section 5 brings the conclusion based on the results. Section 6 are the recommendations while Section 7 deals with the implications.

## **2. PRICE CHANGES IN SOUTH AFRICA**

Prices in South Africa continue to escalate due to both external and internal forces. External factors include the global economic crisis which originated from USA at the end of 2007 and affected virtually all world economies. Although the recovery process from this crisis has been felt in most economies, UN (2010) commented that this recovery has been uneven and biased towards developed economies. Internal factors include pressure for wage

increases, firms' profit motive and rising input costs. In South Africa, inflation has been unstable even long before the democratic government. According to Rangasamy (2009) inflation was within a single digit territory for much of the period up until the 1970s. It then rose in the 1970s and 1980s to double digit levels averaging 10% in the 1970s and 16.6% in the 1980s due to the oil crisis and sanctions against the country. Aron and Muellbauer (2007) note three distinct monetary policy regimes targeting at inflation in South Africa from 1980. The first period covers 1980 to 1989 where inflation was high ranging from 11.5% to 18.6% and monetary policy was not successful in containing inflation. The average inflation rate for the decade was 14.7%. The second period, 1990 to 2000, saw a significant progress in the pursuit of a lower inflation rate. Inflation fell significantly in the early part of the 1990s to beneath 10% further decreasing to 5.2% in 1999. The third period covers 2000 till present where the SARB pursues an official and clearly stated inflation target. The recent year to year inflation trend is shown below. The table gives the trends on the CPI and the food on a year to year basis in South Africa.

**Table 1: Annual Inflation Rates for Selected Price Categories**

	Jul 12	Aug-12	Sep-12	Oct-12	Nov-12	Dec-12	Jan-13	Feb-13
CPI	4.9%	5.0%	5.5%	5.6%	5.6%	5.7%	5.4%	5.9%
Food	5.4%	5.1%	6.1%	6.7%	7.5%	7.0%	6.4%	6.3%
Transport	4.6%	4.9%	6.6%	6.1%	5.5%	5.5%	5.1%	5.5%
Public transport	15.3%	14.9%	14.8%	13.9%	15.1%	15.5%	16.1%	15.8%

Source: Stats SA, 2013, p. 1

Throughout the period, the food inflation was higher than the headline CPI meaning that the rise in food prices was more than the rise in other components of the CPI. The headline Consumer Price Index for all urban areas annual inflation rate was highest in February 2013 during the period reviewed where it was 5.9%. This rate was 0.5% higher than the annual corresponding annual rate of 5.4% in January 2013 and approaching the Reserve Bank 6% target ceiling. The lowest rate was 4.9% in July 2012. The food index on the other hand was above 6% for the greater part of the period and more volatile, ranging from 5.1% to 7.5%. Public transport was most affected by rising prices where the lowest year to year inflation was 13.9% incurred in October 2012 and the highest was 16.1% incurred in January 2013. A deeper analysis revealed that the following components in the food and non-alcoholic beverages index increased: milk, eggs, and cheese (1.3%), sugar, sweets, and desserts (1.2%), oils and fats (1.1%), hot beverages (0.8%), fish (0.3%) and cold beverages (0.2%). The following components decreased: fruit (-1.9%), meat (-1.7%), vegetables (-1.2%), bread and cereals (-0.9%) and other food (-0.2%) (Stats SA, 2013).

### 3. METHODS

#### 3.1 Survey

The results discussed in this paper are based on cross-sectional data collected through in-house personal interviews by means of questionnaires in a township of Bophelong in South Africa. The term township in South Africa usually refers to underdeveloped urban areas that, from the late 19th century until the end of Apartheid, were reserved for Non-Whites, thus Blacks, Coloureds, and Indians. These townships were usually built on the periphery of towns and cities. Bophelong, lies near Vanderbijlpark Town in the Southern part of Gauteng Province and like all townships in South Africa, is characterised by high population density. The population in Bophelong is approximately 37,779 and the number of households is estimated at 12,352. The average household size in Bophelong, calculated from Statistics SA data (2007), is three persons per household. Bophelong is approximately 9 square kilometers in size. Its residents are mainly employed as domestic or industrial workers in the nearby town of Vanderbijlpark (Kimopax, 2010).

A pilot study was conducted on a sample of 25 respondents. This was done in order to test validity, reliability, and applicability of the research instrument; particularly to ensure that the questionnaire meet the researcher's expectations in terms of the information obtained (Aaker et al., 2004). Necessary adjustments were made on the questionnaire after which a total of 316 household questionnaires were administered. The survey took place in July 2012. The questionnaires were administered by the principal authors with the assistance of four trained interviewers. Ethical considerations such as the respondents' right to confidentiality and privacy, protection from harm, anonymity, and informed consent were strictly adhered to (Nunnally, 1978). Correctly completed questionnaires were 301 and were considered reasonable for data analysis and were in line with previous researchers

in the township, Slabbert (2009) used 286 questionnaires. The questionnaire was adopted from Slabbert (2009) then edited to suit the research focus. The questionnaire used a Likert format scales and open ended questions to capture the households' wider perceptions about rising prices.

### **3.2 Determination of Poverty**

South Africa has not adopted a national poverty line yet and various poverty researchers adopt different poverty lines. In the calculation of national poverty lines as a statistical measure, the most common approach is to estimate the cost of a minimum basket of goods that would satisfy the necessary daily energy requirement per person over a period of a month. The South African Medical Research Council (SAMRC) recommends a daily energy requirement of 2261 kilocalories per person (Bhorat & Westhuizen, 2010). Using the 2000 Income and Expenditure Survey data, Stats SA estimated that when consuming this kind of foodstuff usually available to low-income South Africans, it costs R211 per person every month to satisfy a daily energy requirement of 2261 kilocalories. A further consideration is the need for other goods and services beyond food in order to meet basic needs by households. This includes accommodation, energy, clothing, transport and medical services, amongst other things. SAMRC estimates such essential non-food items to be R111 per capita per month. Adding these figures together (R 211 and R111) gives an estimate of the minimum cost of essential food and non-food consumption per capita per month of R322, thus poverty line of R322 per capita per month in 2000 prices. Hoogeveen and Özler (2004) noted the same poverty line of R322 as a lower poverty line, further proposing the an upper poverty line of R593 per capita per month using the year 2000 prices. These two poverty lines were later supported by other researchers (Mabugu & Chitiga, 2007; Stats SA, 2007). This study adopted this lower poverty line (R322 per capita per month using 2000 prices). When increased with inflation, the lower threshold amounted to R570 in 2010 (Stats SA, 2011). For this study the lower poverty line was adjusted for inflation up to July 2012 and calculated at R584 per capita per month.

The poor households were extracted from the sample and divided into two categories. The first category consists of the households termed moderately poor (households whose income was between 50% and 99% of their poverty line) in the survey. The second group comprised of households categorised as very poor (households whose income was between 0% and 49% of their respective poverty line). In the result presentation the term moderately poor will be used to refer to households whose income is between 50% and 99% of their poverty line, while poor refers to all households below their poverty line.

### **3.3 Analysis Model**

Demand patterns were done for all the three economic groups (non-poor, moderately poor, and very poor) to enable investigation on households of different economic status. The responsiveness was calculated using the exponential regression model. The model adopted is of the manner of Wiens (1998) as follows:

$$Y_i^* = \alpha + \beta_1 X_i^* + \epsilon_i \quad (1)$$

Where:

$Y_i^*$  = ln of Y where Y is the quantity demanded of good Y

$X_i^*$  = ln X where X is the price of good Y

$\alpha$  = a constant and

$\beta$  = the elasticity coefficient

$\epsilon$  = an error term

ln = natural log (i.e., log to the base e and where  $e = 2.718$ ).

This model is linear in the parameters  $\alpha$  and  $\beta_1$ , linear in the logarithms of the variables Y and X, and can be estimated by OLS regression. This log model has been used by many researchers due to its simplicity in that the slope coefficient  $\beta$  measures the elasticity of Y with respect to X. This is the percentage change in Y for a given (small) percentage change in X (Gujarati, 2004).

**4. EMPIRICAL FINDINGS AND DISCUSSION**

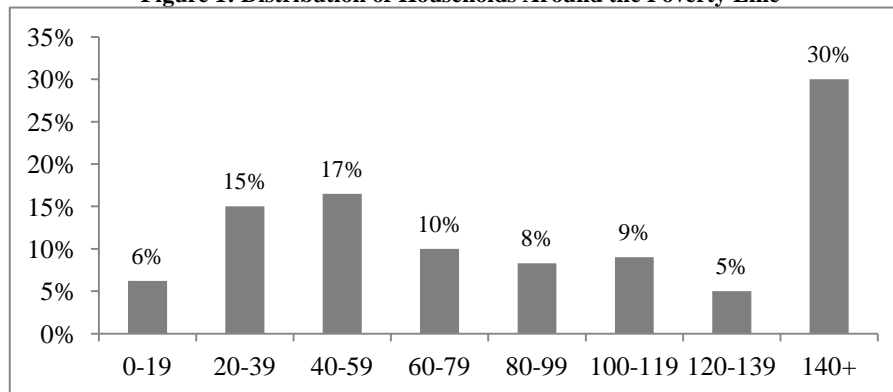
**4.1 Demographic Characteristics**

In the survey, 43% of the interviewed households were headed by male and 57% by female indicating that the female-headed households were more than the male-headed in the sample. Of the sampled households, 25% of household members were married. The percentage of adults not married was 24% and the children (never married) 32% of the sampled population. The divorced and the separated constituted 3% and 1% respectively, while those living together was 6%. The age’s composition of the household showed that the economically inactive population was 31%, being the population below the age of 15 years and that above 65 years.

**4.2 Poverty Rate of the Sample**

Poverty rate calculated was based on the study poverty line of R584 per individual per month and showed that 56% of households were poor, and of the poor 26% were categorised as moderately poor and 30% very poor. The poverty gap index measures the extent of the shortfall of incomes below the poverty line and was calculated to be 0.48 in this study, meaning that on average, the poor needed 48% of their incomes to reach their respective poverty lines. In monetary terms, the average monthly income shortfall was calculated to be R1290.18 per household per month. In the moderately poor households, the poverty gap ratio was 29% and in the very poor household 68%. Figure 1 shows the distribution of poor households around their poverty line. This is an indication of the depth of poverty in the township where the further away the household is from its poverty line, the greater the poverty incidence. The poor are those who fall below 100% of the poverty line. The figure depicts that the majority of the households fall below their poverty line. Among the poor households, the majority (17%) earn between 40% and 59% of their poverty line. The figure also shows that 6% of the poor are earning income between 0 and 19% of their poverty line. These are the household which are deep in poverty.

**Figure 1: Distribution of Households Around the Poverty Line**



**4.3 Price Elasticity of Demand**

This section utilises household level data on consumption, prices, and household economic status to estimate demand parameters for various commodity groups. The rise in food prices in South Africa prompted the interest in this empirical analysis. The effect of increasing food prices on households largely depend on their demand patterns and the possible substitution effects in consumption. This study does not assume uniform price-effect to all households but decomposes the effect to non-poor, moderately poor, and very poor households. Demand sensitivity to price changes is measured using elasticities, defined as the percentage change in a good’s consumption caused by a percentage change in the price of that good. A negative sign of the elasticity indicates the effect is opposite from the cause. Table 3 below shows price elasticities on food items based on the households’ monthly expenditure patterns. The food items considered for analysis were found to be common in the consumption basket of most households. Also the choice of the food items is in line with the studies by Raju (2011) and Andreyeve, Long and Bronwell (2010). During the period under review, the households indicated that though they had experienced



rapid price increases, the items which had the most severe price increases were cooking oil, sugar, and milk. According to micro economic theory, price elasticity of demand is negative in line with the law of demand, except in situations of conspicuous consumption. In Table 3, most food items have a negative elasticity of demand in all the economic groups. The table is interpreted in line with the traditional theory on elasticity. This theory ignores the negative sign in price elasticity of demand and states that if elasticity is less than one, demand is inelastic (Parkin et al., 2010).

**Table 3: Food Price Elasticities**

Food Item	Non-Poor	Moderately Poor	Very Poor
Maize	-0.82948	-0.7367	-0.21837
Bread	-0.09321	-0.04828	+0.18577
Chicken	-0.67709	-0.23373	-0.00930
Beef	-0.28693	-0.91424	-1.02541
Vegetables	-0.94331	-0.86778	-0.80933
Cooking oil	-0.89349	-0.80403	-0.80933
Sugar	-0.01939	-1.29929	-1.3480
Milk	-1.37087	-1.61510	-1.03782
Rice	-1.04527	-1.25544	-1.59112

The elasticity for maize-meal is less than one for all the household groups, at -0.82948, -0.7367, and -0.21837 respectively for the non-poor, the moderately poor, and the very poor households. This means that a percentage change in the price of maize-meal leads to a less than proportionate change in the quantity demanded for maize in the opposite direction. Maize-meal elasticity was found high among the non-poor and low among the very poor households. This indicates that this is a staple food for the very poor households and is difficult to substitute due to the high cost of other substitutes. The non-poor can however substitute it for other items like rice. The results for the demand for bread might show some deviations from literature. Extreme poverty in some of the households in the sample makes the law of demand usually taken for granted in literature questionable. The very poor households' demand for bread violates the law of demand where the consumption goes up even when the price rises. This commodity can be classified as a giffen good. A giffen good is a good whose demand rises with the increase in its price. Though there is controversy in literature as to the existence of such goods in reality, results of this study indicate that households who suffer extreme poverty can experience giffen goods in their consumption basket. This is however, not the first study to suggest bread as a likely candidate for giffen behaviour. Dwyer and Lindsay (1984, p. 191) propose this possibility for Singapore, and Chen (1994) suggested evidence of positively sloped demand for rice in Taiwan. Bread is however inelastic in the non-poor and the moderately poor households meaning that households do not respond much to changes in the price of bread, though their demand is negatively related to the price movement.

Chicken follows an inelastic demand in all the economic groups and the elasticity coefficient falls with the rise in poverty. In the very poor households, the demand for chicken is almost irresponsive to its price variations. This could be because beef, a substitute for chicken, is more expensive. Beef seems to be price elastic among the very poor households with the coefficient of -1.02541. The elasticity coefficient for beef rises with the rise in poverty levels meaning that as households become poor, they substitute beef for other cheap meat products like chicken or other low grade meat cuts. The elasticities for vegetables and cooking oil do not have a great disparity for all the households. Sugar is price elastic among the moderately poor and the very poor households but not among the non-poor households with price elasticity of demand of -1.29929 and -1.3480 in the moderately poor and very poor households respectively. Milk and rice are price elastic in all the households in Bophelong indicating that households can do without these products if their prices continue rising. The price elasticity of demand for rice rises with the poverty level in these household; indicated by the elasticities of -1.04527, -1.25544, and -1.59112 in the non-poor, moderately poor, and very poor households respectively.

The price elasticities for non-food items are shown in Table 4. Households indicated that transport cost experienced the most escalating cost during the interview. The selection of these items was based on that they were common expenditure items among households, also studied as part of household expenditure by Slabbert (2009). High elasticities may indicate the availability of close substitutes for the commodity. In this case, rise in price will result in a large fall in quantity demanded since consumers can shift to a substitute commodity with ease. Coal

seems to have the highest price elasticity due to the availability of substitute commodities. Its price elasticity of demand seems to be greater than one in the non-poor (-1.01287) and the moderately poor households (-1.00237). Effectively, a marginal increase in the price of coal will lead to a substantial decline in its consumption in these households. Among the very poor, demand for coal is inelastic at -0.85345. Paraffin, a substitute of coal reports relatively high price elasticity of 0.74067, 0.99592, and 1.0147 for the non-poor, moderately poor, and the very poor households respectively. The very poor households face an elastic demand for paraffin due to the availability of substitutes. For this study, beer, wine, and spirits together with cigarettes and tobacco were considered to be non-food items. Beer, wine, and spirit reported relatively higher price elasticity than tobacco and cigarettes. The low price elasticity for cigarettes and tobacco can be explained by the addictive nature of the commodity and therefore consumers do not respond much to price changes. In the same vein, washing powder is inelastic in all the households owing to its necessity nature. Among the very poor households, price elasticity for cigarettes and tobacco is nearly zero (-0.00302). Commuting is more elastic among the very poor households. These households indicated that due to rising commuting cost, they sometimes walk to the nearest town.

**Table 4: Non-Food Items Price Elasticities**

Commodity Item	Non-Poor	Moderately Poor	Very Poor
Electricity	-0.69759	-0.79375	-0.87635
Coal	-1.01287	-1.00237	-0.85345
Paraffin	-0.74067	-0.99592	-1.0147
Commuting	-0.36577	-0.56530	-0.96182
Beer/wine/spirit	-0.50683	-0.46961	-0.30661
Cigarettes/Tobacco	-0.26789	-0.1031	-0.00302
Washing powder	-0.14761	-0.11188	-0.06234

Source: Survey Data

## 5. CONCLUSION

The study aimed at analysing the demand patterns of poor households during rising prices. Households were divided into three categories, non-poor, moderately poor, and very poor households according to how far they were from their poverty lines. Categorising households according to how far they are from their poverty lines was made in order to understand how these different households substitute one good for another in times of rising prices. In attempting to target the poor, the size of the elasticity coefficient should be considered for subsidy in order to improve poor households' nutritional status. Some commodities indeed can overall be luxuries if the data is grouped, yet to the poor, the good can turn out to be a necessity. In designing anti-poverty policies that attempt to help the poor during inflation, it is necessary to take a closer look at the magnitude of the elasticity coefficient and how it changes as households' income increases. In the study, the case of rice can be an eye opener.

## 6. RECOMMENDATIONS

The government policy aimed at fighting malnutrition and boosting demand for basic commodities among the poor during inflation should consider the poor households' demand patterns together with their poverty levels. Considering poverty and demand in isolation might misdirect the policy to a wrong population group where the poorest households might fail to benefit. If the aim is to improve nutrition there is need for government policy to target at the poorest households instead of the all poor in general. This can assist in mitigating the impact of price rises on the poorest by focusing on malnutrition control and broader social protection networks. Finding out a certain percentage of the population which is poor is not good enough, there is need to investigate how deep the poor are in poverty. This is because policy implications for these two household types are bound to differ. For the very poor households, food subsidy is very essential while for the moderately poor, the government can extend the subsidy to other non-food items. Governments should also assess their performance in responding to the food crisis.

## 7. IMPLICATIONS FOR FURTHER STUDIES

While there is an increased recognition of studies in poverty and rising prices, the extant literature is replete with empirical evidence suggesting that rising prices increase poverty. However, the current study was set to depart from these long held conventional attempts to find out the effect of rising prices on poverty by dividing the poor according to their depth in poverty. Although this study makes significant contributions to both academia and policy

makers, it was limited in some ways, and therefore some future research avenues are suggested. First, the data used was cross sectional gathered from a township in the Gauteng Province of South Africa. Perhaps, the results would be more informative if panel data was used and data gathered from the other eight provinces of the country. Secondly, future studies should not be limited to South Africa, but rather consider extending this research to other African countries such as Zimbabwe for results comparison and also consider varying the households' consumer basket. Above and beyond, this will immensely contribute new knowledge to the existing body on demand and rising prices in the African setting – a research context which happens needs further research.

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#### **REFERENCES**

1. Aaker, D. A., Kumar, V., & Day, G. S. (2007). *Marketing research* (8th Ed.). New Jersey: John Wiley & Sons.
2. Aaker, A., Fournier, S., & Brasel, S. A. (2004). When good brand do bad. *Journal of Consumer Research*, 31, 1-17.
3. Abubakah, A., Uriyo, J., Msuya, S. E., Swai, M., & Stray-Perdersen, B. (2012). Prevalence and risk factors for poor nutritional status among children in the Kilimanjaro Region of Tanzania. *International Journal of Environmental Research and Public Health*, 9, 3506-3518.
4. Andreyeva, T., Long, M. W., & Bronwell, K. D. (2010). The impact of food prices on consumption: A systematic review of research on the price elasticity of demand for food. *American Journal of Public Health*, 100(2), 216-222.
5. Aron, J., & Muellbauer, J. (2007). Review of monetary policy in South Africa since 1994. In J. Aron & G.lola Kingdon. (Guest Editors), Special issue on South African economic policy under democracy. *Journal of African Economies*, 16(5), 705-744.
6. Asian Development Bank (ADB). (2008). *Food prices and inflation in developing Asia. Is poverty reduction coming to an end?* (Special report). Beijing: Asian Development Bank.
7. Austings, N. (2008). *Thought for food: Rising food prices, poverty and safety nets in developing countries*. Retrieved from <http://www.voxeu.org/index.php?q=node/2467>
8. Bhorat, H., & Westhuizen, C. (2010). *Estimating a poverty line: An application to free basic and municipal services in South Africa*. Cape Town: Development Policy Research Unit.
9. Braun, J. V. (2008). *Rising food prices. What should be done?* Washington D.C.: International Food Policy Research Institute.
10. Burger, P., & Marinkov, M. (2009). *Inflation targeting and inflation performance in South Africa*. Bloemfontein: University of Free State.
11. Capehart, T., & Richardson, J. (2008). *Food price inflation: Causes and impacts*. Retrieved from <http://asserts.opencrs.com/rpts/R22859-20080410.pdf>
12. Chen, J. R. (1994). The effects of land reform on the rice sector and economic development in Taiwan. *World Development*, 22(11), 1759-70.
13. Compton, J., Wiggins, S., & Keats, S. (2011). *Impact of the global food crisis on the poor: What is the evidence?* London: Overseas Development Institute.
14. Dwyer, G. R., & Lindsay C. M. (1984). Robert Giffen and the Irish potato. *American Economic Review*, 74(1), 188-192.
15. Fabrizio, S. (2012). *Managing global growth risks and commodity price shocks: Vulnerabilities and policy challenges for low income countries*. Washington D.C.: IMF.
16. Food and Agricultural Organisation (FAO). (2008). *Nutrition and consumer protection*. Rome: FAO.
17. Gujarati, D. N. (2004). *Basic econometrics*. New York: McGraw Hill.



18. Haq, Z. U., Nazli, H., Meike, K., Ishaq, M., Khattak, A., Hashmi, A. H., & Rehman, F. U. (2011). Food demand patterns in Pakistani Punjab. *Sarhad Journal of Agriculture*, 27(2), 305-311.
19. Hoogeveen, J. G., & Özler, B. (2004). *Not separate, not equal: Poverty and inequality in post apartheid South Africa*. Washington D.C.: World Bank.
20. Ivanic, M., & Martins, W. (2008). *Implications of higher global food prices on poverty in low income countries*. Washington D.C.: World Bank.
21. Kimopax. (2010). *Environmental management plan for the proposed establishment of a cemetery in Bophelong community*. Chloorokop: Kimopax.
22. Levell, P., & Oldfield, Z. (2011). *The spending patterns and inflation experience of low-income households over the past decade*. London: Institute for Fiscal Studies.
23. Mabugu, R., & Chitiga, M. (2007). *Poverty and inequality impacts on trade policy reforms in South Africa*. Pretoria: University of Pretoria.
24. Masoka, M. (2005). *The role of education and training in job creation and poverty alleviation in the Sicelo Township in Midvaal municipality*. (M-com dissertation). Vanderbijlpark: North West University.
25. McGranahan, L. (2008). *Food inflation and the consumption patterns of the United States households*. Chicago: Federal Reserve Bank.
26. Nunnally, J. (1978). *Psychometric theory* (2nd ed.). New York: McGraw-Hill.
27. Ortiz, I., Chai, J., & Cimmings, M. (2011). *Escalating food prices*. New York: UNICEF.
28. Parkin, M., Kohler, M., Lakay, L., Rhodes, B., Saayman, A., Schöer, V., Scholtz, F., & Thompson, K. (2010). *Economics: Global and Southern African perspectives*. Pinelands: Philippa van Aardt.
29. Raju, S. S. (2011). Estimation of demand elasticity for food commodities in India. *Agricultural Economics and Research Review*, 24, 1-14.
30. Rangasamy, L. (2009). Inflation persistence and core inflation: The case of South Africa. *South African Journal of Economics*, 77(3), 430-444.
31. Regmi, A., Deepak, J., Seale, J. L., & Bernstein, J. (2001). *Cross country analysis of food consumption patterns*. New York: USDA.
32. Schnepf, R. (2012). *Consumers and food price inflation: Congress Research Service*. Retrieved from <http://www.fas.org/spp/crs/misc/R40545.pdf>
33. Sekatane, M. B. (2006). *An analysis and application of different methodologies for measuring poverty in Sharpeville*. (PhD Thesis). Vanderbijlpark: North West University.
34. Slabbert, T. J. C. (2009). *Unpublished results of Bophelong household survey*. Vanderbijlpark: Vaal Research Group.
35. Statistics South Africa (STATS SA). (2007). *Quarterly labour force survey*. (Statistical release number P0318). Pretoria: Government Printer.
36. Statistics South Africa (STATS SA). (2013). *Consumer price index*. (Statistical release number P0141). Pretoria: Government Printers.
37. UNAIDS. (2012). *Impact of the global economic crisis on women, girls and gender equality*. Geneva: UNAIDS.
38. United Nations (UN). (2012). *Global economic outlook. Prospectus for the World Economy, 2012-2013*.
39. United Nations Children's Emergency Fund (UNICEF). (2005). *Child poverty in rich countries*. (Innocenti Report card no. 6). Florence: UNICEF.
40. United Nations (UN). (2010). *The secretary general's high level task force on the global food security*. Washington D.C.: United Nations.
41. Victora, C. G., Adair, L., Fall, C., Hallal, P. C., Martorell, R., Richter, L., & Sachdev, H. S. (2008). Maternal and child under nutrition study group. *Maternal and child under nutrition: Consequences for adult health and human capital*. Pelotas: National Institute of Health.
42. Wahl, P. (2009). *Food speculation. The main factor of the price bubble in 2008*. Berlin: WEED.
43. Wiens, D. P. (1998). Minimax robust designs and weights for approximately specified regression models with heteroscedastic errors. *Journal of the American Statistical Association*, 93, 1440-1450.
44. Wodon, Q., & Zaman, H. (2008). *Rising food prices in Sub-Saharan Africa: Poverty impact and policy responses*. (Policy Research Working Paper 4738). The World Bank.
45. World Bank. (2008). *World development indicators. Poverty data supplement to world development indicators*. Washington D.C.: World Bank.
46. World Bank. (2003). *Poverty manual*. Washington: World Bank Institute.

## ANNEXTURE: HOUSEHOLD QUESTIONNAIRE: JULY 2012

Please note that this information will be treated with strict confidence

BOPHELONG	QUESTIONNAIRE #	Date	
HOUSE number		Interviewer	

Please note that the Head of the Household should preferably answer the questionnaire

A BACKGROUND INFORMATION						
1	What is the position of the respondent in the Household?	Head (1)	Spouse (2)	Child (3)	Extended family member (4)	
2	Gender of the head of the household			Male (1)	Female (2)	
3	How many housing units are on the site					
4	How many people stay permanently on the site					
5	Type of a dwelling structure	(1)RDP	(2)Shack	(3)Brick	4(Other)	
6	How long have you (respondent) stayed in the Bophelong (years)					
B HOUSEHOLD COMPOSITION						
<i>Please provide the following information about your households</i>						
1	Number of people in the household					
2	Composition of members (code list 1)					
3	Age of each member in years					
4	Sex (Male = 1; female = 2)					
5	Marital Status (code list 2)					
6	Highest qualifications (still at school) (code list 3)					
7	Qualifications (not at school) (code list 4)					
8	Employment Status (code list 5)					
9	Sector of employment (code list 6)					
10	(10 – 13 for <b>unemployed only</b> ) Skills of unemployed (code list 7)					
11	Duration of unemployment in years					
12	What is the Unemployed doing presently (code list 8)					
13	Minimum wage required to take a job					
<b>INCOME (Take home pay per month)</b>						
14	Wages/salaries (Formal)					
15	Old Age Pension					
16	Child Grant from Government					
17	Other Grants from Government					
18	Help (family/relatives/help in kind)					
20	Informal activities					
21	Subsidies (e.g. Housing)					
22	Other (Specify)					
C HOUSEHOLD EXPENDITURE						
<i>How does your household spend their income per month?</i>						
	ITEM	Weight per week	Weight per month	Rands per week	Rands per month	
1	Housing					
2	Water					
3	Energy					
	Electricity					
	Coal					
	Paraffin					
4	Other					
	Food					
	Maize					

	Bread				
	Meat				
	Meat - Chicken				
	Meat - Beef				
	Meat - Other				
	Vegetables				
	Cooking Oil				
	Sugar				
	Tea/Coffee				
	Milk				
	Rice				
	Other food Items				
5	Cleaning Material				
	Washing powder				
	Other				
6	Cigarettes & Tobacco				
7	Beer, wine & spirits				
8	Transport				
	Taxi				
	Car				
	Other				
9	Clothing				
10	Furniture				
11	School				
12	Entertainment (Movies etc)				
13	Medical Expenses				
14	Insurance e.g. funeral scheme				
15	Gambling				
	Lotto				
	Horseracing				
	Cards/Mshaina				
	Other				
16	Savings				
17	Licenses (e.g. TV, Vehicle)				
18	Housekeeping Services (e.g. Garden)				
19	Communication				
	Telephone				
	Cellphone				
20	Car Repayment				
21	Loan repayments				
22	Other: Specify				

**D POVERTY PERCEPTIONS**

1	Do you have enough income to support your family?	YES	NO
2	Is the household head employed?	YES	NO
3	Do you normally have three meals a day?	YES	NO
4	Do your neighbours lend you food; e.g., a cup of sugar?	YES	NO
5	If so, do you normally return the food?	YES	NO
6	Have you had to ask for financial help from family/friends	YES	NO
7	Has there been days in the last three months you did not have food	YES	NO
8	Do you consider yourself poor?	YES	NO
9	Define poverty		

**E PERCEPTIONS ABOUT RISING PRICES**

1	How has the increases in prices affected your family?	1. Severely	2. Moderately	3. Slightly	4. Not affected
2	Rank the impact of the rising in prices on the following item				
	Item	1. Severely	2. Moderately	3. Slightly	4. Not affected
	Electricity				

	Food					
	Basic					
	General					
	Meat/Chicken					
	Commuting; e.g., Taxi					
	Overall cost of living					
3	How important are the following items to your livelihood?					
	<b>Item</b>	<b>1. Very important</b>	<b>2. Moderately important</b>	<b>3. Indifferent</b>	<b>4. Less important</b>	<b>5. Not Important</b>
	Maize					
	Bread					
	Meat/Chicken					
	Vegetables					
	Milk					
	Cooking Oil					
	Tea/Coffee					
Sugar						
4	Have you acquire any of the following items in the last 12 months					
	Radio (Hifi system)					
	Furniture					
	Cell phone					
	Car					
	Television					
	Other specify (sewing, welding machine, etc)					
5	Does someone in your household have a vegetable garden, or carry any food production activities?				YES	NO
6	Is any of your household member engaged in activities to generate additional income				YES	NO
7	Have you adopted any of the following means in response to rising prices (tick)					
	Rely on less expensive commodities					
	Buy on credit					
	Skip meals					
	Resort to eating porridge					
	Buy necessities					
	Stick to budget					
	Maintain a food garden					
	Do odd jobs in the neighbourhood					
Sell productive assets						
Other (describe)						

*Thank you for your time*