

# BASKET OF NEEDS INDEX: A PRICE INDEX FOR THE POOR

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*The lowest-income group (the bottom 20%) has experienced worse inflation than that reflected by the Consumer Price Index (CPI) between January and August 2014. While the standard measures of inflation in South Africa, the CPI and Headline CPI, are valuable indicators of national inflation, they do not represent the experience of the lowest-income group. This article introduces the Basket of Needs Index (BNI) developed by Acentric Marketing Research for the Justice & Peace Department of the SA Catholic Bishops Conference (SACBC).*

## Is the CPI a suitable inflation indicator for use by organisations tasked with the alleviation of poverty?

Statistics South Africa performs a valuable service collecting vast quantities of data. One of the useful statistics produced from this data is the CPI. The CPI is a weighted index, that in theory should reflect the experiences of the average person in terms of price inflation. A basket of goods is monitored month by month to track changes in price, and in order to more accurately reflect the impact of price changes on the average person, each type of product or service is weighted (Statistics South Africa, 2013). The weights are calculated based on estimated expenditures by households on each product and service type. Those items that absorb a greater share of expenditure receive larger weights than those that absorb less.

These weights differ depending on the region and degree of urbanisation, as well as the level of income. Households that spend less also tend to spend in a different way, with a differing distribution of spend across the different product and service types. As a result the CPI includes different item weights depending on the expenditure quintile. For instance the bottom 20% of households in terms of expenditure (quintile 1) allocate a far greater proportion of their monthly expenditure to food and beverages, and as a result, these items have larger weights.

### Quintile weights geared to guide economic policy not charity

Each quintile in turn has a weight. As Morton & Blair (2014) point out, the weight for the highest quintile is much larger than the weights for each of the lower quintiles, separately and combined (quintile 1 = 66.47% in June 2014). This means that the weights used to weight each product and service item within the highest quintile, have far more impact on the final CPI than the weights for the items in the lower quintiles.

In essence, the spending patterns of the wealthy have a greater impact on CPI than the spending patterns of the poor. To illustrate with a simple example: since households in the highest expenditure quintile spend a smaller proportion of their income on bread than the lowest quintile (a weight of 0.97 vs. 5.97 in February 2013), but spend a greater proportion on health insurance (10.42

vs. 0.09), then a 5% increase in medical insurance prices would have a greater impact on CPI than a 5% increase in bread prices.

### Palma Ratio highlights inequality more clearly than Gini

The CPI weighting bias toward the higher expenditure brackets makes perfect sense from an economic viewpoint, given South Africa's startlingly high income gap, expenditure obviously skews toward the highest income brackets, not only on a per capita basis but in terms of total income share.

A new measure of inequality called the 'Palma Ratio' (simply the total income share of the top 10% versus the bottom 40%) makes the true size of the gap clearer than does the traditional Gini Coefficient. The ratio highlights just how much of a statistical outlier South Africa is, and hints at the ongoing existence of two separate economies and cultures, one indigenous and the other with imported skills and resources dating from the colonial era. The success of the government will depend on its skill in reducing antagonism and encouraging the successful cooperation and combination of different cultures.

Indeed South Africa has the highest Palma Ratio of all the countries measured; the top 10% having an approximately **seven** times greater share of total income than the bottom 40% combined (Cobham & Sumner, 2014).

Given that the highest income brackets have such a profound impact on the economy, the CPI's relatively higher weighting of the top expenditure quintiles is sensible from an economic standpoint. However, it is clearly misleading to consider CPI a true reflection of the price inflation experienced by the poor.

**Table 1: Income disparity by country**

| Country      | Gini | Palma |
|--------------|------|-------|
| Bangladesh   | 0.33 | 1.27  |
| Brazil       | 0.54 | 2.23  |
| Denmark      | 0.24 | 0.92  |
| Honduras     | 0.57 | 5.21  |
| India        | 0.34 | 1.39  |
| Morocco      | 0.41 | 1.96  |
| Nepal        | 0.32 | 1.3   |
| Nigeria      | 0.44 | 1.84  |
| Russia       | 0.42 | 1.88  |
| South Africa | 0.63 | 7.05  |
| Tanzania     | 0.38 | 1.65  |
| UK           | 0.34 | 1.62  |
| US           | 0.45 | 1.85  |

**Adapted from:** Cobham & Sumner (2014), Significance Magazine, February, Royal Statistical Society, London.

**Note:** The Palma Ratio is the ratio of the income share of the top 10% versus the income share of the bottom 40%.

## Focusing on the most essential needs

While the CPI is an extremely valuable indicator of the overall national exposure to price inflation, charities and other non-governmental organisations are more concerned with the plight of lower-income households. While Statistics South Africa does have CPI data for the lowest quintiles, it includes some items that are not concerned with the most pressing needs of the poor. Even though these may have very small weights, disaggregation to the item level may prove confusing to some stakeholders, given the number of items. Any organisation devoted to alleviating the suffering of the lowest-income brackets requires a measure that also provides detail when required. It is our hope that this measure will provide actionable information to these organisations on a limited basket of essential needs.

## A price index for the poor

The 'Basket of Needs Index' (BNI) is a simple statistic<sup>1</sup> derived from Statistics South Africa data and calculated by Acentric Marketing Research (Pty) LTD on behalf of the Justice and Peace Commission of the Catholic Bishops of SA. One of the goals of the BNI is to focus attention on the plight of the poor by including only the most essential products and services. Additionally, the weights used reflect the bottom 20% (quintile 1) of the South African population in terms of expenditures (see table 1). The data is provided by Statistics South Africa.

**Table 2: Items included in the BNI**

| Row labels                  | Weights (lowest expenditure quintile) |
|-----------------------------|---------------------------------------|
| Bread and cereals           | 14.7                                  |
| Cold beverages              | 1.35                                  |
| Electricity and other fuels | 5.7                                   |
| Fish                        | 0.96                                  |
| Fruit                       | 0.24                                  |
| Health                      | 1.28                                  |
| Hot beverages               | 0.71                                  |
| Meat                        | 9.13                                  |
| Milk, eggs and cheese       | 3.22                                  |
| Oils and fats               | 1.99                                  |
| Vegetables                  | 4.91                                  |
| Water and other services    | 0.67                                  |

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<sup>1</sup> Out of necessity, this is simply an approximation of the Laspeyres index. The basket item indices are used as a proxy for actual price data, and weights as a proxy for expenditure data.

In total, the items included make up 44.86% of total expenditure by the bottom 20% of households. While this might beg the question, ‘Why not include all expenditure?’, there are two reasons to avoid this. **Firstly**, the aim of the index is to focus on those items most essential to survival. So even though these households may spend a certain proportion of their income on other items, such as confectionary, these are not the most essential to survival. **Secondly**, by ignoring less essential items, the upward bias of the Laspeyres index should be partially suppressed as the items within the BNI should be less substitutable (than would be the case when one includes all of the items outside the BNI basket).

As the BNI shows (Table 3: BNI versus CPI), over a relatively brief eight month period - running from January to August 2014 - the prices of these essential ‘survival’ items increased at a rate higher than that for the complete basket included in the CPI. In total the BNI changed by 5.6 index points compared to an increase of 4.8 index points for the CPI.

This clearly indicates that inflation over the period under review affected essential items more severely than the total basket; which includes non-essentials such as hotel prices.

While the weights were last revised in 2012 (the index reference period) one could at least speculate that if the price of basic items increases relative to non-essential items - so that the lowest-income group is forced to shift expenditure from less essential items in order to survive - the total weight of the Basket of Needs may have increased over the period under review beyond the 44.86% assumed. However, since food makes up a large component of this index, and food prices are more volatile they could just easily change direction of this trend in the next period, allowing greater expenditure on non-food items once more.

**Table 3: BNI versus CPI**

| Index        | Jan   | Feb   | Mar   | Apr   | May   | Jun   | Jul   | Aug   | Change |
|--------------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| BNI          | 105.8 | 106.6 | 108.0 | 109.3 | 110.1 | 110.1 | 110.9 | 111.4 | 5.6    |
| CPI          | 106.1 | 107.2 | 108.6 | 109.1 | 109.4 | 109.8 | 110.6 | 110.9 | 4.8    |
| CPI Headline | 106.1 | 107.3 | 108.7 | 109.2 | 109.4 | 109.7 | 110.6 | 111   | 4.9    |

**Note:** CPI Headline is included since this is often reported in the media, although a comparison to CPI is preferable to Headline CPI since the Basket of Needs aims to track national increases, rather than just urban increases.

If we unpack the index into its component parts it becomes fairly obvious that certain items experienced far greater inflation than others (Table 4: Price indices by item – January to August 2014). ‘Milk, eggs and cheese’ experienced the largest increase in their price index, growing 11.2 points since January this year, to 119.2 index points. This means that the price of these items has increased 10.4% since January; and by 19.2% since the reference period of December 2012. It seems fairly clear then that inflation for ‘milk, eggs and cheese’ is likely to outpace CPI in the 2013 period.

The ‘water and other services’ basket item experienced the next largest increase, growing 9.1 points since January of this year.

**Table 4: Price indices by item – January to August 2014**

| Basket items                | Jan   | Feb   | Mar   | Apr   | May   | Jun   | Jul   | Aug   | Change |
|-----------------------------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| Bread and cereals           | 105.2 | 107.3 | 108.9 | 110.8 | 111.2 | 111.5 | 110.6 | 110.8 | 5.6    |
| Cold beverages              | 105.3 | 104.6 | 105.3 | 105   | 105.9 | 106   | 106.5 | 107.3 | 2      |
| Electricity and other fuels | 107.3 | 107.3 | 107.3 | 107.3 | 107.3 | 107.3 | 114.7 | 114.9 | 7.6    |
| Fish                        | 108.2 | 109.6 | 109.3 | 111.4 | 112.3 | 112.9 | 113   | 111.8 | 3.6    |
| Fruit                       | 102.5 | 102.1 | 104.6 | 102.9 | 102.4 | 98.7  | 97.7  | 97.7  | -4.8   |
| Health                      | 104.5 | 108   | 108.1 | 108.9 | 109.1 | 109.7 | 110.1 | 109.9 | 5.4    |
| Hot beverages               | 108   | 108.3 | 107.9 | 108.6 | 109.4 | 111.6 | 113.9 | 116.2 | 8.2    |
| Meat                        | 103.4 | 103.1 | 104.2 | 106   | 107.4 | 107.7 | 107.4 | 108.4 | 5      |
| Milk, eggs and cheese       | 108   | 109   | 111.2 | 113.1 | 114.5 | 115.8 | 117.6 | 119.2 | 11.2   |
| Oils and fats               | 102.6 | 103.1 | 105.1 | 105.5 | 103.4 | 103.7 | 101.5 | 101.9 | -0.7   |
| Vegetables                  | 109.6 | 109.7 | 113.2 | 113.8 | 116.3 | 114.1 | 113.9 | 114.1 | 4.5    |
| Water and other services    | 108   | 108   | 108   | 108   | 108   | 108   | 117   | 117.1 | 9.1    |

## Social grants – are they sufficient given the level of inflation?

While South Africa has one of the most generous social welfare systems in the world – expressed as a proportion of Gross Domestic Product (GDP) – it is burdened by a relatively large population relative to the size of the economy (GDP per capita). In short, South Africa’s population is surplus to the economy’s requirements. This means that per capita, the size of social grants allocated to those who truly need them (i.e. the elderly and the disabled) are watered down in order to enable grants to the able bodied, to soften the impact of unemployment.

In particular, the SACBC is concerned with two grants in particular; 1.) the old age pension grant and 2.) the disability grant. In both cases it is argued that the grants are not keeping pace with price inflation, and that qualifying criteria are onerous.

### The grants in brief:

- Disability grant. The ‘maximum’ is R1 350 per month. *Citizens may only apply for the grant between the ages of 18 and 59 years old.*
- Old age pension = R1 350 per month (R1 370 if over 75). *Paid to pensioners earning less than R61 800 per year (R5 150 per month).*

## The impact of the price increases between January and August 2014

One hardly needs to conduct an advanced economic analysis to realise that these grants are insufficient as the sole source of income. While in absolute terms the grants are above the World Bank's (2014) absurd poverty line of \$1.25 a day (approximately R13.32 per day as of August – without regard for purchasing power parity) in relative terms inflation in the first 8 months of the year has severely eroded the purchasing power of the grants. The 5.6 point shift in the BNI within the short 8 months under review (January to August) effectively means a 5.3% increase in prices of essential items (according to the traditional CPI, it would only be 4.5%) and an 11.4% increase over the 20 months since the reference period of the index - December 2012. In effect the buying power of a R1 350 disability grant has shrunk to R1 279 (a loss of R71 per month) in the short space of 8 months. That equates to approximately 7 loaves of bread per month.

## Long term future trends that may negatively impact food prices

### The impact of population growth and water supply in SA

Within the next 10 years, it is argued that food prices will come under increasing pressure as South Africa's growing population exceeds the available water supply. The government will be forced to choose between agricultural and industrial uses of water and human consumption. Even though the long term trend is towards **decreasing** fertility, it seems likely that population growth will not abate in time, making the decision to place restrictions on water use in the agricultural sector unavoidable. As a result it is expected that South African food prices will take on a different trajectory as imported food becomes more important.

While safety nets such as social grants are important, it is also clear that unless population growth is brought under control South Africa is likely to face increasing water shortages and spiralling food price inflation.

### Global population growth and food prices

Approximately **1 million** more people are added to the global population *every four days*. The world population grew by 1 billion between 2000 and 2014. Projections of staggering growth have worried scientists ever since Malthus 1798 essay on population growth, and of late the concern seems to have entered popular culture with books such as 'Inferno' by Dan Brown while also being area of concern of thinkers such as Stephen Hawking (The Guardian, 2010). Population growth is outstripping the available supply of global resources and putting pressure on food prices. As South Africa becomes increasingly dependent on imported food, food prices will be subjected to increasing pressures and the vagaries of the exchange rate.

### The rise of China and India

The rise of China and India economically means increasing competition for scarce resources. South Africa's poor economic performance places us in a weak position when it comes to securing food resources, especially as the middle class in these countries grows.

## Climate change

Increasing climate change globally is resulting in increasingly erratic weather patterns, with extreme events occurring more frequently. These extreme events are having a devastating impact on the food supply. Current examples include a drought in California and another in China, both of which are affecting food production.

## References

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