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The impact of inflation on the poor

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Abstract

The empirical evidence shows that poor South Africans experience higher and more volatile inflation than other households. Inflation has increased poverty in South Africa. By measuring real income with the inflation rate experienced by the poor, rather than total inflation, the poverty head count rate goes up by 4.5 percentage points over the period 2005 to 2010.Trying to inflate asset values (or deflate debt) will have limited pro-poor redistributive effect as the poor have few assets and liabilities and experience higher inflation than other groups. Allowing inflation to increase would not generate the employment effects required to increase the purchasing power of the poor. Rather reforms need to focus on increasing the potential growth of the economy, while inflation remains low and stable.

INTRODUCTION[1]

In this note, we assess the impact of inflation on the poor, which we define as the bottom three deciles of the income distribution. Inflation affects the poor directly by reducing their purchasing power. These direct effects are much larger than any gain coming from higher economic growth and job gains. Moreover, the bottom three deciles of South Africans hold few assets and liabilities. This means that the distributional effects from higher inflation for them is small and that inequality rises quickly when inflation is high.

We also show that the poor generally experience higher inflation than other groups, which implies that the choice of inflation target matters directly for their well-being. We turn to this issue in the next section. This is followed by an assessment of the direct and indirect impacts of inflation on the poor.

A generally higher inflation rate for the poor

The empirical evidence shows that poor South Africans experience higher inflation than other households. It is also more volatile, in the sense that it is higher when inflation is high and lower when it is generally low (Oosthuizen, 2013).[2] Low inflation generally coincides with low food inflation, which is a large component of poorer households' consumption. In a more recent study, Kelly et al. (2018)[3] also find the mean and median measures for poor households are higher (see table 1). Solomons and Sing (2018) calculate the plutocratic gap, and find that it is volatile but also mostly negative in the period post 2008.[4] This indicates that poor households have generally experienced higher inflation. [5]

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[1] Many thanks to David Fowkes and Witness Simbanegavi for valuable comments.

[2] Oosthuizen (2013) generates inflation indices according to nine specific groups of households. The groupings are based on labour market characteristics, receipts of income from grants and presence of children in the household.

[3] In their study they split households according to four categories, which aim to distinguish between different poverty lines, grant recipients and those that would benefit from the introduction of a national minimum wage.

[4] The plutocratic gap is defined as the official, expenditure-weighted inflation measure (plutocratic) and the headcount-weighted inflation (democratic) measure.

[5] Adjusting social grants for the inflation that the poor experienced rather than headline inflation would have increased social grants substantially but also the stock of government debt.

Table 1: Inflation for different groups (2008 to 2017)

Reference group	Mean	Median
Food poverty line	8.49	8.09
Lower-bound poverty line	8.32	7.78
Upper-bound poverty line	8.25	7.69
Social grant households	7.97	7.48
Social grant (MSOI)	8.11	7.58
Minimum wage households	8.23	7.61
Median expenditure househol	8.21	7.59
Democratic CPI	7.3	7.05
Headline CPI (total country)	7.63	7.32

Source: Kelly et al. (2018)

Figure 1: Inflation rates and Plutocratic Gap (2009-2017)
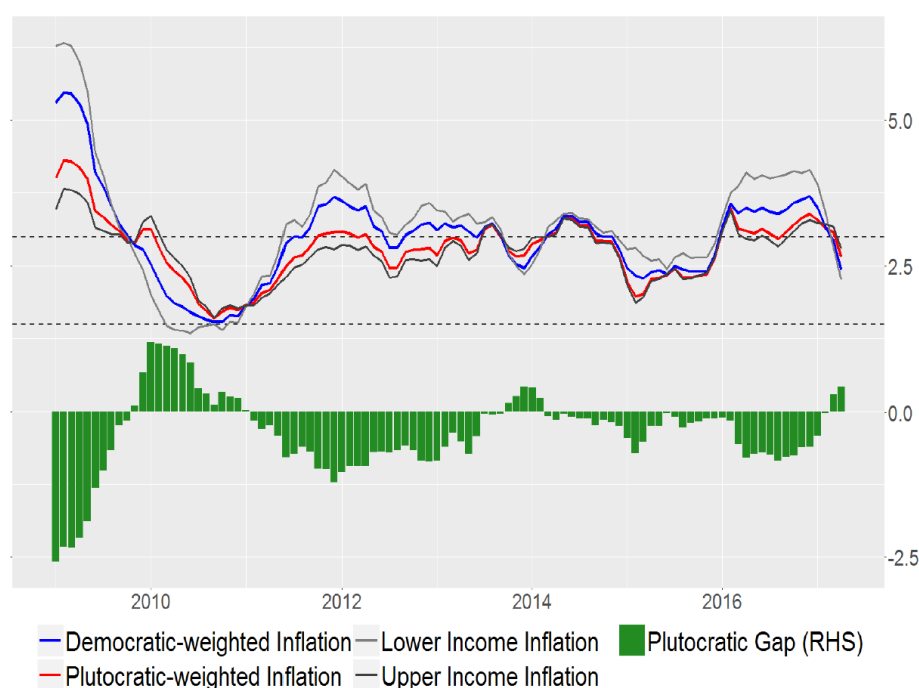
Source: Solomons and Sing (2018)

What is the impact of inflation on the poor?

For our analysis, we start by setting out the transmission channels of how inflation impacts the poor. There are three main channels: direct impacts, which are described as the inflation tax; distributive impacts; and indirect impacts linked to Phillips curve dynamics.

Direct impacts

Inflation is considered to be an inefficient excise tax, which results in social welfare losses and has redistributive impacts only if inflation changes are unexpected (Kahn 1984). If the tax cannot be passed on to some other economic agent, then inflation directly reduces purchasing power and increases poverty. The size of the tax is directly linked to the money demand function. Higher demand to hold cash will lead to a higher inflation tax as the real value of cash holdings is eroded (Cardoso 1992).

Finn, Leibbrandt, and Oosthuizen (2014) find that inflation has *increased* poverty in South Africa. By measuring real income with the inflation rate experienced by the poor, rather than total inflation, the poverty head count rate[6] goes up by 4.5 percentage points over the period 2005 to 2010. Koch and Bosch (2009) also show a strong negative impact on the poor particularly from food inflation.[7]

The impact of food inflation on the poor is large and directly impoverishing. To counter the impact on poverty of a 20 per cent increase in food prices over three years, requires about 1 per cent of GDP in financial transfers (Dessus, Herrera, and De Hoyos (2008)). The cost increases to 2 per cent of GDP if food prices increase by 30 per cent.[8,9]

Burger et al. (2017) use a linear expenditure system and the 2010 income and expenditure survey to calculate income and price elasticities in South Africa. Their results show that the bottom 25 per cent of households have near negative unity price elasticities for all food items. This suggests that the poor have no means to cushion against higher inflation or inflation volatility and high food inflation can easily translate into malnutrition. The latter imposes significant economic costs through various channels including higher disease burden, and loss in human capital and productivity (Schonfeldt et al. 2009). Productivity can also decrease in response to higher inflation as poor households spend more time shopping in order to reduce the cost of inflation (Cysne, Maldonado, and Monteiro 2005).

Distribution

Keynes observed in the *Economic Consequences of the Peace* (1919) that inflation has seemingly "random" redistributive effects. The inflation effects on the distribution of income are nowadays more fully understood.

Bach and Ando (1957) identify four channels through which inflation leads to redistribution of income:

1. From households experiencing higher inflation to those with lower inflation (adjusting both for nominal income growth).

2. From households whose net asset values increase slowly to those with faster asset price inflation (such as from bondholders to equity investors).

3. From households that are net creditors to those that are net debtors (the so called 'Fischer channel').

The redistribution effects are slowed when inflation expectations match realised inflation rates.

Daniels and Khan (2018) calculate the (self-reported) assets and liabilities of the poor using data from the 2017/18 National Income Dynamics Study. Table 2 and Table 3 show the distribution of debt and assets

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[6] The poverty head count rate is the percentage of the population below the poverty line. Finn, Leibbrandt, and Oosthuizen (2014) find a poverty head count rate of 54 per cent at a poverty line of ZAR573 per person per month in real 2010 prices and close to 70 per cent if the poverty line is ZAR1056 per person per month.

[7] Koch and Bosch (2009) also illustrate the impact of inflation on the poor using a demand system methodology estimated for 10 different commodity groups.

[8] At a poverty line of USD2.5 per day. The results also show that the direct inflationary impact is negative across countries.

[9] Arndt, McKay, and Tarp (2016) provide comprehensive review of the impact of inflation on poverty in several African economies. Their conclusion is that inflation and in particular food inflation has been a major obstacle to addressing poverty on the African continent.

according to deciles.[10] The poor hold a small share of total assets and liabilities. In addition many are unemployed and have no constant income. The grants that poorer households receive are also subject to partial inflation indexation (Kelly et al. 2018) and their coverage is also incomplete. This suggests that trying to inflate asset values (or deflate debt) will have limited pro-poor redistributive effect.

Table 2: Asset shares and values by income decile

Decile	Share(%)	Median Value (Rands)
1	0.07	5,100
2	0.2	13,397
3	0.45	25,678
4	0.93	49,769
5	1.61	78,949
6	2.16	122,983
7	3.58	202,659
8	5.88	396,892
9	12.4	852,668
10	72.71	2,534,540

Source: Daniels and Khan (2018)

Table 3: Debt Shares and values by income decile

Decile	Share	Median Value (Rands)
1	0.03	66,942
2	0.13	69,673
3	0.23	71,054
4	0.39	108,977
5	0.64	101,367
6	1.06	124,598
7	1.86	170,200
8	5.18	303,265
9	13.5	756,129
10	76.97	1,851,596

Source: Daniels and Khan (2018)

Indirect impacts

One of the more important potential effects of higher inflation on the distribution of income operates through the relationship between inflation and economic growth or employment (the Phillips curve relationship). These are indirect impacts, and are usually thought of as being different in the short-run and the long-run.

In the short-run, higher *unanticipated* inflation increases economic growth. This can create jobs, and if more jobs for less-skilled workers are created, then poorer households benefit more and poverty can also be reduced. The absolute poverty of poor households declines when jobs are created for people in such

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[10] The calculation of assets and liabilities includes financial and non-financial assets and liabilities.

households. As a longer-term poverty reduction strategy, however, exploiting the Philips Curve generally fails. This is because the long-term effects of higher unanticipated inflation do the opposite of the short-run – inflation rises further and firms cut the jobs previously created.

The net effects, in the short-run and the long-run, are estimated by the slope of the trade-off between inflation and growth or employment. When small changes in inflation result in large numbers of jobs gains or losses, then the Philips curve is thought of as being flatter. On a global level, Blanchard (2016) and Blanchard, Cerutti, and Summers (2015) provide evidence of a flatter Phillips curve for the global economy and especially the US and Europe.

The relationship between inflation and output, however, can be different. When price changes do *not* respond to downward economic pressures (like falling demand) but do rise with higher demand, then changes to growth and job creation are minimal. For South Africa, Dadam and Viegi (2015) find that wage inflation dynamics are not affected by the level of unemployment, and respond strongly to the level of inflation expectations (held by unions). This means that real wages adjust quickly to inflation increases and are not responsive to changes in unemployment. Under these conditions, higher inflation is not effective in stimulating economic activity and generating employment gains even in the short-run. [11]

Another indirect channel for inflation to impact on the income levels of poorer households is through job creation and income growth occurring from long-term economic growth. To get this right, economies usually need low and stable inflation (Romer and Romer 1998). High and volatile inflation creates uncertainty, discouraging investment and consumption. Inflation can drive a wedge between real and financial capital and thus distort production incentives, while also decreasing the returns to real capital (Agénor 2002; O'Reilly 1998). Studies estimating the optimal inflation rate for economic growth nearly always estimate a low and stable inflation rate (see for example Billi and Kahn (2008)).

These results are important because the relationship *between growth and employment* can be quite strong, and this seems to be true for South Africa. Bhorat et al. (2015) estimate growth elasticity of employment of 0.64 over the period 2004 and 2013, meaning that 1 per cent increase in GDP leads to 0.64 per cent increase in employment. They note, however, that economic growth tends to result in jobs for skilled and semi-skilled workers, in line with global trends and rising capital intensity. This weakens the transmission of growth to low-skilled workers and hence the growth impact on poverty.

In table 4 we provide simple estimates of the likely impact of *1 per cent increase in inflation* on the bottom 3 deciles of the income distribution, under three different growth scenarios. Our approach is simple and it is presented in the annexure.[12] We assume that every new employee receives R36 000 per year. The results show that a growth rate of below 5 per cent would not be able to offset the negative effects associated with 1 per cent higher inflation. A growth rate of 5 per cent also does not cover the income loss from inflation, even with the nearly 50 000 new jobs a year.

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[11] For other Phillips curve estimates for South Africa, see Phiri (2016), Kabundi, Schaling, and Some (2016), Malikane (2014) and Malikane and Mokoka (2014) Malikane (2014). These studies find that the Phillips curve is flatter. See also Kumar and Orrenius (2016) for a review of the literature and estimates for the US

[12] Our data is based on the 2015 Social Accounting matrix produced by Davies et al. (2019).

Table 4: Net impacts on the poor

Inflation increase (per cent)	1.0
Growth-employment elasticity	0.5
Low skilled workers	1,974,000
Income of the bottom decile (ZAR million)	263,425
Expenditure of the bottom deciles(ZAR million)	263,425
Number of individuals in the bottom three deciles)	23,604,338
Average income/expenditure(ZAR)	11,160
Annual salary for low skilled person (ZAR)	36,000

Growth impact		
2	3.5	5
Employment gains		
19,740	34,545	49,350
Income Gains (ZAR Million)		
711	1,244	1,777
Average consumption gain per person (ZAR)		
30.11	52.69	75.27
Average inflation costs per person (ZAR)		
111.6	111.6	111.6
Net benefit/loss (ZAR)		
-81.49	-58.91	-36.33

Source: own calculations

Those that have new jobs are better off, but most unemployed people do not get jobs. With their income not subject to inflation indexation, they are faced with higher inflation and are worse off. For a growth rate of 3.5 per cent, almost 35 000 jobs are created and R1.2bn of income is generated. This is equivalent to R52.7 rand per person in the bottom three deciles. At the same time, the 1 per cent higher inflation decreases real expenditure per person by R112.

The growth elasticity of employment will have to increase to 0.8 per cent for the inflationary impacts to become positive at 5 per cent growth. These results are static. Using our simple model, we estimate that it will take at least 3 years for the impact to become positive at growth rates of 2.5 per cent. This is an optimistic estimate as we assume that nominal interest rates remain unchanged. This impact is somewhat offset by our assumption that income of the poor, other than from new employment, is not subject to inflation indexation.

There are four additional caveats. The first one is that the starting point matters. At higher levels of inflation, the negative impacts of a permanent increase in inflation are higher. The second caveat is that while the bottom deciles have limited bargaining power, the other deciles have very strong bargaining power and hence their wage growth will adjust to the higher levels of inflation, slowing down the growth effects. The third caveat is that the level of potential growth cannot instantaneously increase by 2.5 or 3.5 per cent. This suggest that permanently higher inflation will be associated with growth rates well below 2.5 per cent. Finally, our results present the average gain and cost per person. In reality, the gains and losses will be unequally distributed.

The optimal outcome for maximum job creation at any compensation level is keeping inflation low and stable.

Conclusion

Our analysis show that inflation generates large negative effects for the poor. Addressing the current employment and poverty problem requires strong growth and low and stable inflation. Allowing inflation to increase would *not* generate the employment effects required to increase the purchasing power of the poor. Rather reforms need to focus on increasing the potential growth of the economy, while inflation remains low and stable.

Annexure

Our approach

We model the impact of higher growth on employment. We assume that all workers with primary schooling fall within the bottom decile. In reality, some of these workers are also in deciles higher than the bottom three deciles. We apply a growth elasticity of employment of 0.5, which is lower than the average elasticity of 0.64 achieved over the period 2004 and 2013. Demand for low skilled workers is lower than for other skills in line with the more skill intensive growth of the economy. We use data from the 2015 Social Accounting Matrix (SAM) presented in Davies et al. (2019). The number of individuals in the bottom three deciles is 23.6 million. Their annual average expenditure is R11 160. The overall income and expenditure of the bottom three deciles according to the SAM is R263.4bn. The number of workers with primary education are close to 2 million. We provide the impact on real expenditure of the poor under 1 per cent increase in inflation and three possible growth rates i.e 2 per cent growth rate, 3.5 per cent growth rate and 5 per cent. Each of these growth rates is associated with employment growth impacts through the growth employment elasticity. For example, the growth rate of 3.5 per cent is associated with growth in low skilled employment of 1.75 per cent. This generates 34 545 jobs. To each new job we assign annual income of R36 000. For the growth rate of 3.5 per cent, this leads to R1.2bn in income gains. We divide the gains by the number of poor to calculate the consumption gains per person. At the same time we calculate the loss in purchasing power by deflating the total income (old and new income due employment) by the new inflation rate to calculate the average inflation cost per person. The difference between the consumption gain and the inflation cost is the net benefit. For the dynamic results we use the first year simulation results as a base for the second year simulation results. We grow the population by 1 per cent per year.

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