

Some Benefits of Reducing Inflation in South Africa

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Objectives

- To evaluate the welfare gain of reducing inflation permanently from two percent to price stability;
- Compare it with the cost of transition;
- Emphasize on distortions caused by the interaction of inflation and non indexed tax system. (Feldstein; 1997,1999);
- Specifically looking at saving distortions, housing distortions, money market distortions and the real cost of servicing government debt;
- The gain and indirect revenue effect are calculated using welfare triangles.

Motivation

- Recent study done by Gupta and Uwilingiye (2008b) found that the welfare cost in South Africa ranges between 0.15 percent and 0.45 percent of GDP, for a band of 3 to 6 percent of inflation;
- Possible high welfare cost of inflation looking at three other areas (over and above the money market).

Inflation and inter-Temporal consumption

Consider over-lapping generations model,

- saving are invested at the rate of r ;
- Therefore, consumption in old age is related to savings by the following equation: $c = s(1 + r)^T$
- The price of retirement consumption can be defined as: $P = \frac{1}{(1 + r)^T}$

Direct effect

- Tax effect on rate of return on saving.

$$\begin{aligned}r_a &= (1 - \tau)i - \pi \\ &= (1 - \tau)r - \tau\pi\end{aligned}$$

- With inflation rate of 2 percent in place, tax on income reduce the after tax real rate of return on saving and hence increase the price of retirement consumption;
- Reduction of inflation from 2 percent to Zero
 - The reduction of inflation from 2 percent to zero with current tax system in place raises real rate of return on saving and hence decreases the price of retirement consumption.

Inflation and inter-Temporal consumption

Indirect revenue effect

With 2 percent reduction in inflation,

- Lower price of retirement results in a loss in revenue;
 - Lower effective tax rate
- Lower price of retirement consumption stimulates higher consumption.
 - Broadening tax base

Net welfare gain

- The sum of direct effect of reduced distortions due to reduction of inflation and Indirect effect through change in government revenue.

The gain from reducing distortion in Housing Demand

Direct effect

- Tax effect on implicit rental cost
 - Reduction in implicit rental cost
- The reduction of inflation from 2 percent to 0
 - Increase in implicit rental cost

Indirect revenue effects

- Zero inflation would result in an increase in tax revenue by shifting capital from owner occupied housing to business capital;
- Increase in tax revenue is partly offset by a loss in the revenue from property taxes due to reduction in capital stock .

Seignorage and distortion of Money demand

Direct effect

- An increase in inflation raises the cost of holding non-interest bearing money balances and reduces the money balances below the optimal level ;
- Reduction from 2 percent inflation to zero leads to welfare gain associated with a fall in the opportunity cost of money balances.

Indirect revenue effect

- Revenue loss due to loss in seignorage;
- Shifting capital to money;
- Lower cost of government debt servicing.

Debt servicing and the government budget constraint

- Lower inflation reduces the nominal interest rate on government debt and reduce the nominal interest payment to individuals;
- The reduction in revenue followed by higher real cost of servicing government debt will results into higher level of other distortionary taxes.

Results

- Most of the data used are annual from 1990 - 2007 (SARB, IMF publications and different web sources).

	Welfare gain as % of GDP	
Welfare effect	South Africa	Feldstein (USA)
Inter-temporal	0.37	0.926
Housing Demand	0.005	0.22
Money Market	-0.04	-0.034
Debt servicing	-0.08	-0.100
Total	0.255	1.012

Conclusion

- Welfare estimate gains in SA is 4 times lesser compared US study.
- The present value of 17 percent of GDP is substantial multiple of the annual welfare gain;
- Given the sacrifice ratio of 0.017 in South Africa (Tunali, 2008), the benefit outweighs the cost as the one time cumulative loss is equal to 0.034 percent of GDP following the reduction in the inflation from 2 percent to zero;
- The benefits for moving from an inflation of two percent to zero percent in South Africa (0.255 percent of GDP) is more than twice the size of the estimates (0.098) obtained by Gupta and Uwilingiye(2008a);
- Narrower and Lower target band(??).

Further research

- General equilibrium, Dotsey and Ireland (1996).