

IS INFLATION IN SOUTH AFRICA A STRUCTURAL OR MONETARY PHENOMENON?

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Abstract

The paper explores the determinants of inflation in South Africa. The findings suggest that in the short run, nominal exchange rate, nominal prime lending rate, consumer price index in the USA, broad money supply and government spending are not likely to influence prices in South Africa. Contrary to the position of the quantity theory of money, income has been found to be positively related to prices in South Africa in the short run but insignificantly, negatively related to prices in the long run, suggesting a little or no competitive business environment in South Africa. In the long run, whereas nominal exchange rate, consumer price index in the USA, and size of government are positively related to inflation, broad money supply is negatively related to inflation. The study, therefore, contends that inflation in South Africa is more of structural phenomenon than monetary phenomenon. Evidence also supports the conclusion that South Africa is import-dependent, resulting in about 42% of her inflation explained by inflation in the USA.

JEL: E30, E31, E51, E52, O55

Keywords: Inflation, South Africa, Exchange rate, GDP, Size of government

36 INTRODUCTION

37 Ability to maintain inflation rate in an economy at significantly low levels is one of the
 38 trumpeted achievements of every incumbent government especially in Africa. This is because
 39 high inflation in an economy accounts for exchange rate and interest rate instability and an
 40 erosion of international competitiveness of the economy which undermines standards of living.
 41 However, the effect of inflation on economic growth and development has generated a great deal
 42 of controversy. Three schools of thought have emerged. Structuralist school of thought maintains
 43 that inflation is growth-promoting because it results in forced savings (Darrat, 1988; Taylor,
 44 1979; Wächter, 1976; Wallich, 1969). They argue that inflation, when anticipated could induce
 45 portfolio substitution favoring capital assets over less productive monetary assets. The
 46 distortionist school asserts that higher inflation undermines growth by distorting investment
 47 patterns and hampering propensities to save and invest (Bruno and Easterly, 1998; Fischer, 1993;
 48 McKinnon, 1973; Johnson, 1967). McKinnon (1973), in particular, has long argued that money
 49 balances and capital goods are complementary (rather than substitutable) in developing
 50 countries. Thus, with the anticipation of higher inflation, money balances become less attractive
 51 to hold which discourages capital formation. The macro-rational expectationist school of thought
 52 maintains that inflation, when anticipated, has no effects on the real side of the economy (Lucas,
 53 1973; Sargent, 1975). The proponents of this school of thought argue that economic agents form
 54 their inflationary expectations rationally and thus only can make unsystematic forecasting errors.
 55 As a result, systematic (anticipated) changes in the inflation rates cannot stimulate real responses
 56 because they are taken into account already by rational economic agents.

57 Just as the impact of inflation on economic growth has been caught in the web of academic
 58 controversy so are the determinants of inflation in an economy. Theoretically, whereas
 59 monetarists argue that inflation is a monetary phenomenon, structuralists maintain that structural
 60 bottlenecks such as inelastic supply of foodstuffs cause price increases. Empirically, a lot of
 61 studies have been done on the causes of inflation in many countries with mixed findings (Domaç
 62 and Yücel; 2005; Ho and McCauley 2003; Loungani and Swagel, 2001; Durevall and Ndung'u,
 63 1999; Sowa and Kwakye, 1993).

64
 65 In South Africa, the determinants of inflation have been studied with mixed results (Akinboade
 66 *et al.*, 2004; Pretorius and Smal, 1994; De Wet and Associates, 1987; Moore and Smit, 1986; De
 67 Kock Commission, 1985). Whereas some of the studies argue that inflation in the country is a
 68 structural phenomenon (Akinboade *et al.*, 2004), others argue that it is a monetary phenomenon
 69 (De Kock Commission, 1985). This presupposes that revisiting the determinants of inflation in
 70 South Africa is tenable.

71
 72 South Africa is endowed with an enviable natural resources; well developed financial, legal,
 73 communications, energy, and transport sectors; a stock market that is counted among the 10
 74 largest stock markets in the world; and a modern
 75 infrastructure (www.umsi.edu/services/govdocs/wofact2006/geos/sf.html#Econ). Therefore, the
 76 determinants of her inflation may serve as a guide for monetary and fiscal policy formulation in
 77 other African countries that have been grappling with inflation phenomenon. Besides, South

African economic policy is fiscally conservative, but pragmatic, focusing on targeting inflation and liberalizing trade as a means of increasing job growth and household income, a policy orientation that pertains in most African countries. Thus, delving into factors accounting for her inflation may be representative of determinants of inflation in most African countries.

Country-specific studies are usually preferred to cross-sectional studies because it is now established that the cross-sectional studies in which countries that are at different stages of financial and economic development are lumped up may not satisfactorily address the country-specific effects in econometric analysis (Odhiambo, 2010; Arestis and Demetriades, 1997). Thus, studying South Africa as a single country will help us account for country-specific effects in the determinants of inflation analysis which may inspire similar studies in other African countries.

The main value of the current study is its contribution that prices in the USA exert a considerable positive influence on prices in South Africa which gives South African economy away as an import-dependent economy. About 42% of the variance of inflation in South Africa is explained by prices in the USA. Another contribution of the current study is that it provides evidence in support of the hypothesis that inflation in South Africa is a structural phenomenon.

The rest of the paper is sectionalized as follows. The next section reviews the empirical literature followed by the methodology section. Estimation results section is the penultimate section followed by the conclusions, recommendations and limitations of the study section.

Empirical Evidence

One of the major factors that have been found to determine domestic inflation is exchange rate. Exchange rate depreciation directly affects the prices (domestic currency units) of tradable goods and also indirectly affects the general price level if pricing decisions are influenced by the cost of imported inputs. Besides, when nominal wages are explicitly or impliedly indexed to a foreign currency, exchange rate depreciation may cause higher nominal wages (Akinboade *et al.*, 2004). Agenor and Montiel (1996) report that exchange rate may have short-term impact on inflation in small, open developing countries. Ho and McCauley (2003) provide evidence which suggests that the significance of the exchange rate in the evolution of domestic inflation tends to be greater in Emerging Market Economies (EMEs) compared to advanced economies. Loungani and Swagel (2001) employs vector autoregressions (VARs) to study the experience of 53 developing countries between 1964 and 1998 and report that either money growth or exchange rate movements (depending on the ordering) account for two-thirds of the variance of inflation at both short and long horizons. Closely related to exchange rate theory is the purchasing power parity (PPP) theory which suggests that in a common currency arrangement, the rate of inflation of the dominant country should influence the inflation rates of smaller countries. Holmes (2000) confirms PPP theory in 27 African less developed countries using quarterly data for the period 1974-1997.

Sowa and Kwakye (1993) study inflationary trends and control in Ghana and find that supply factors constitute a much stronger inflationary force than monetary factors in Ghana and that the

influence of exchange rate adjustments is not strong. However, in Kenya, Durevall and Ndung'u (1999) find that exchange rate, foreign prices and terms of trade have long-run effects on inflation whilst money supply and interest rate only have short-run effects on inflation.

Another factor that has been found to influence inflation is expectation. Loungani and Swagel (2001) report that inflation expectations also play an important role in the inflation process in developing countries. They find that past realizations of inflation explain between 10 and 20 percent of inflation movements.

Employing pooled probit analysis, Domaç and Yücel (2005) investigate the factors associated with the start of 24 inflation episodes in 15 EMEs between 1980 and 2001 and find that increases in the output gap, agricultural shocks, and expansionary fiscal policy raise the probability of inflation starts in EMEs. Their findings also indicate that a more democratic environment and an increase in capital flows relative to GDP reduce the probability of inflation start. However, the findings of Loungani and Swagel (2001) suggest that cost shocks or the output gap are not significant factors affecting the evolution of inflation in 53 developing countries.

Rwegasira (1977) adduces evidence to suggest that the characterization of inflation as a monetary phenomenon is unsatisfactory in the case of Tanzania. Applying post-Keynesian models to study African economies, Greene (1989) reports that inflation is caused by exogenous shocks such as a sudden rise of imports, wage hikes over and above price rises, and a sudden increase in fiscal deficits or other cost-increasing factors. However, the final report of De Kock Commission (1985) makes a case for monetary causes of inflation in South Africa. Alternative causes of inflation such as salary and wage increases in excess of productivity growth, inadequate competition, tax increases, and imported inflation are found by the Commission to have less impact on inflation in South Africa. In a sharp critique of the Commission's report, Moore and Smit (1986) report that wage increases have had a powerful impact on inflation in South Africa. De Wet and Associates (1987) have also found that wage increases contribute to structural acceleration and cyclical upward movements of the inflation rate in South Africa. Their study finds that fiscal and monetary factors have contributed to cyclical movements in inflation but have not been major determinants of the secular upward trend in inflation. Pretorius and Smal (1994) have identified that changes in labour costs as well as the cost of imported goods influence prices in South Africa. Using quarterly data covering 1970.1 to 2000.2, Akinboade et al. (2004) develop a model that relates domestic inflation in South Africa to money market, labour market and foreign exchange market conditions. They demonstrate that inflation is largely a structural phenomenon. They report a positive correlation between labour costs, broad money supply, and domestic inflation. An increase in the rand or an increase in the normal effective exchange rate will lower domestic inflation in South Africa. In the long run, rising labour costs contribute significantly to inflation. Nominal interest rate is not a significant determinant of inflation in South Africa in the short run but in the long run it slightly reduces inflation. An increase in the broad money supply will contribute to domestic inflation in the long run (Akinboade et al., 2004).

METHODOLOGY

MODEL AND DATA

The dependent variable in the model is domestic inflation in South Africa (LSINFL) and it is defined as the natural logarithm of consumer price index. From the extant literature, the study has chosen the following explanatory variables: nominal exchange rate, income (GDP), prime lending rate (PLR), US inflation (USINFL), broad money supply as a percentage of GDP (M3), and government spending on goods and services as a percentage of GDP (GS). In line with previous studies (Akinboade *et al.*, 2004), PLR has been used to represent nominal interest rates. USINFL has been used to proxy PPP theory. According to Akinboade *et al.* (2004) the major trading partners of South Africa are Germany, United Kingdom, Japan and United States of America (USA). However, inflation data from Germany, United Kingdom and Japan contain negative figures making them inappropriate for analysis. The study can only use the inflation data from the USA because of their completeness. M3, PLR and GDP have been used to proxy quantity theory of money. GS has been used to proxy size of government. In line with the work of Akinboade *et al.* (2004), one dummy variable (Dmd) is included to capture the structural breaks associated with the 1987 stock market crash and the 1998 Asian crisis. The dummy variable takes the value of 1 in 1987 and 1998 onwards and 0 from 1965 to 1986 and from 1988 to 1997. Summary of the variables in the model and their definitions have been provided in Table 1.

In line with the suggestion of Sarel (1996) we use the natural logarithm of all data. The log-linear functional form of the model is given as follows:

$$LSINFL = \delta_1 + \delta_2 LXRATE + \delta_3 LGDP + \delta_4 PLR + \delta_5 LUSINFL + \delta_6 \text{Log of } M3 + \delta_7 LGS + \delta_8 Dmd + \mu_t \quad (1)$$

Where

LSINFL = Log of inflation

LXRATE = Log of exchange rate

LGDP = Log of GDP

LPLR = Log of prime lending rate

LUSINFL = Log of US inflation

LM3 = Log of M3

LGS = Log of Government Final Consumption Expenditure as a Share of GDP (Size of government)

Dmd = Dummy variable for effect of 1987 stock market crash and the 1998 Asian crisis.

μ_t = stochastic error term

Annual time-series data covering the period of 1965-2010 gathered from World Development Indicators (WDI) (<http://www.worldbank.org>) have been used. The use of time series is tenable

because, as Jalil and Ma (2008) observe, time series analyses provide an opportunity to study the causality pattern.

Table 1: Definitions of Variables

Variable	Definition
LSINFL	Natural logarithm of annual consumer price index in South Africa
LXRATE	Natural logarithm of the annual average exchange rate between the rand and the US dollar based on monthly averages as determined by national authorities
LGDP	Natural logarithm of GDP (at current US\$)
LPLR	Natural logarithm of lending rate charged by financial institutions when they lend to their prime customers
LM3	Natural logarithm of broad money supply as a percentage of GDP
LUSINFL	Natural logarithm of annual consumer price index in the USA
LGS	Natural logarithm of general government consumption as a percentage of GDP.
Dummy for money demand relationship(Dmd)	Dummy variable for 1987 stock market crash and the 1998 Asian crisis. =1 in 1987 and 1998 onwards; =0 otherwise

ANALYTICAL FRAMEWORK

Fully Modified Ordinary Least Squares (FMOLS) and Error Correction Method (ECM) techniques have been employed to investigate the long-run and short-run relationships respectively.

FMOLS Estimation for Long-Run Relationship

The study uses FMOLS technique to investigate the long run relationships among the various variables specified in the model. The technique achieves asymptotic efficiency by modifying the least squares to account for serial correlation effects, and tests for the endogeneity in the regressors that results from the existence of cointegrating relationships (Phillip and Hansen, 1990; and Shahbaz, 2009). To utilize this technique to estimate long-run parameters, the condition that there exists a cointegration relation between a set of $I(1)$ variables must be satisfied. To satisfy this condition we must establish the presence of the unit root and then test the cointegrating relationship. To determine whether or not there is unit root, Augmented Dickey Fuller Test which is used to investigate the degree of integration of variables is employed. Engle and Granger (1987) suggest that when all the variables under investigation are non-stationary at level, but stationary at 1st difference, this permits the use of Johansen cointegration technique.

According to Pesaran et al. (2001), the Johansen (1991 and 1995)'s approach can also be applied to a set of variables containing possibly a mixture of $I(0)$ and $I(1)$ variables. The model to achieve this is called Error Correction Model (ECM) which is generally given as:

$$\Delta Z_t = \sum_{i=1}^{\rho-1} \psi_i \Delta Z_{t-i} + \alpha_0 + \eta_t \quad (2)$$

This can also be standardized as follows:

$$\Delta Z_t = \sum_{i=1}^{\rho-1} \Pi_i \Delta Z_{t-i} - \partial_1 Z_{t-1} + \alpha_1 + \varepsilon_t \quad (3)$$

Where,

$$\Pi_i = -I + \partial_1 + \partial_2 + \dots + \partial_i$$

$$I = 1, 2, 3, \dots, k-1 \text{ and } \partial = I - \partial_1 - \partial_2 - \dots - \partial_k$$

and p represents total number of variables considered in the model. The matrix Π captures the long-run relationship between the p variables (Shahbaz, 2009).

ESTIMATION RESULTS

The Augmented Dickey-Fuller (ADF) Unit Root testing technique has been used to test the order of integration of the individual variables. Tables 2 and 3 display the results of these tests. As can be seen the results reveal that all the variables are stationary at their 1st difference form.

TABLE 2: UNIT-ROOT ESTIMATION AT LEVEL			
	ADF Test at Level		
Variable	Trend and Intercept	Probability	Lags
LSINFL	-1.537144	0.7950	9
LXRATE	-2.746096	0.2248	1
LGDP	-0.133485	0.9925	0
LPLR	1.155361	0.9999	5
LUSINFL	-3.444391	0.0594	0
LM3	2.716108	1.0000	5
LGS	-1.644453	0.7574	0

TABLE 3: UNIT-ROOT ESTIMATION AT 1ST DIFFERENCE			
	ADF Test at 1 st Difference		
Variable	Trend and Intercept	Probability	Lags
LSINFL	-4.734526	0.0027**	3
LXRATE	-4.624101	0.0033	0
LGDP	-3.901564	0.0211	0
LPLR	-5.600004	0.0003	4
LUSINFL	-5.818559	0.0001	1
LM3	-4.840885	0.0019	0
LGS	-4.958634	0.0013	0

** implies McKinnon (1996) one-sided p-values

The results produced above lend credence to the use of FMOLS, the most advanced technique for the investigation of long-run relationships among the variables in our model (Shahbaz, 2009). Lag length of VAR model is selected at 3 on the basis of Akaike information criterion (AIC). The results of the Unit-Root estimations meet the condition for performing Johansen Cointegration Test. From Table 4 it can be seen that for the null hypothesis of no cointegration ($R=0$) among the variables in the model, the Trace Test statistic is obtained at 428.9632 which is above 1% and 5% critical values as shown by the reported probability values. This, therefore, rejects the null hypothesis of $R \leq 0$ in favor of the alternate hypothesis $R=1$. In the same vein, for the null hypothesis $R=1$, the Trace Test is obtained at 289.0712 which is above 1% and 5% critical values, thus rejecting the hypothesis $R \leq 1$ in favor of the alternate hypothesis $R=2$. This trend continues to the sixth hypothesis $R \leq 6$ which reports the Trace Test value of 5.591185 which is above 1% and 5% critical values. It is, therefore, empirically tenable for us to conclude that there are seven cointegrating relationships among inflation, exchange rate, GDP, interest rate, US inflation, broad money supply and size of government in South Africa. The Maximum Likelihood Test results also reported in Table 4 support the conclusion that there are seven

cointegration relationships among the seven variables in the model. The presence of cointegration relationships among the seven variables permits the estimation of our models.

TABLE 4: JOHANSEN AND MAXIMUM LIKELIHOOD TEST FOR COINTEGRATION

Hypotheses	Trace Test	5% critical value	Prob. Value **	Hypotheses	Max. Eigen Value	5% critical value	Prob. Value
R=0	428.9632	125.6154	0.0001	R=0	139.8920	46.23142	0.0000
R≤1	289.0712	95.75366	0.0000	R=1	95.91387	40.07757	0.0000
R≤2	193.1573	69.81889	0.0000	R=2	73.78214	33.87687	0.0000
R≤3	119.3752	47.85613	0.0000	R=3	58.26801	27.58434	0.0000
R≤4	61.10719	29.79707	0.0000	R=4	31.65890	21.13162	0.0000
R≤5	29.44829	15.49471	0.0002	R=5	23.85710	14.26460	0.0000
R≤6	5.591185	3.841466	0.0180	R=6	5.591185	3.841466	0.0180

Note: ** Implies McKinnon-Haug-Michelis (1999) p-values

Nominal exchange rate as well as GDP has been found to be negatively related to inflation in the long run. However, this is statistically insignificant. On the other hand, nominal prime lending rate has been found to have a positive, statistically significant relationship with inflation in the long run. This contradicts the work of Akinboade *et al.* (2004) who find a negative but statistically significant correlation between inflation and nominal prime lending rate in South Africa. The positive relationship between inflation and nominal lending rate may be explained in terms of cost-push inflation. As financial institutions become inefficient in their operations coupled with lack of confidence in the economy and tend to increase their lending rate to cushion themselves, firms who borrow funds and operate in less or no competitive environment tend to increase their prices which lead to price escalation in the economy. Again, an increase in the lending rate as a contractionary policy could also account for this. As the central bank raises its base rate as a way of reducing money supply, cost of capital rises which cripples entrepreneurship leading to price increases in the long run.

The results in Table 5 show that there is a strong influence of US prices on prices in South African. In the long run, about 42% of the increase in domestic prices is explained by increases in the US prices. The strong influence of US prices is not surprising given that US still remains one of South Africa's major trading partners (Akinboade *et al.*, 2004). Thus, the rate of annual

inflation in South Africa is largely determined by the developments of the US economy in view of the close trade relations between the two economies. This presupposes that total consumption in South Africa contains a high proportion of imports from the US.

Contrary to the quantity theory of money, broad money supply has a negative, statistically significant relationship with inflation. The negative relationship between inflation and broad money supply could be explained in terms of how additional supply of money is spent in the economy. If an additional increase in money supply is spent on productive ventures such as construction of roads and hospitals because such ventures have longer gestation periods, in the short run the economy will experience an appreciation in inflation. However, when such productive ventures begin to bear fruits these can bring inflation down. We are, therefore, inclined to believe that the monetarists' hypothesis that money supply accounts for inflation only holds in the short-run. In the long run, depending on how productively an additional supply of money is spent the economy could experience a dip in its inflation.

Size of government proxied by government spending on goods and services as a percentage of GDP has a statistically significant, positive relationship with inflation. This suggests that the bigger the government of South Africa becomes the more likely that the economy will experience price increases. The rise in prices may result from the tendency of the government to print more money to meet its increasing spending, which all things being equal, results in inflation.

The ECM results are presented in Table 6. All the diagnostic tests are satisfactory, and pass at both 5% significance level. The results of the LaGrange Multiplier Statistic (LM-tests) of no serial correlation and the Autogressive Conditional Heteroscedascity show that they could not be rejected at 5% as well. That is, the tests suggest that there is no serial correlation and that disturbances all have the same variance (they are homoscedastic). The disequilibrium error term is significant and negative confirming the already made assertion that the variables are cointegrated. The error term of -0.886219 indicates that there is about 89% feedback from the previous year disequilibrium into the short run dynamic process, and that errors or residuals within the estimated equation are corrected 89% in a year.

In Table 6 it can be observed that except GDP none of the variables has a significant short-run relationship with inflation. In the short run, GDP is positively related to inflation. This finding supports the view that in South Africa the effects of higher real income on raising the price level outweigh the impact that the increased supply of goods and services can have on curbing price rises. This is certainly plausible in a developing country like South Africa because a large proportion of output such as commercial agriculture and manufacturing in Africa is strongly geared towards production for export, and hence growth in these sectors in an African country like South Africa does not provide additional goods and services for the domestic economy. This finding lends credence to the initial Keynesian explanation of inflation that evolved from Keynes' analysis of effective demand. According to the theory, inflation occurs when demand exceeds the potential output of the economy. In Keynes' analysis, the difference between aggregate demand and potential level of output at full employment is termed the inflationary gap. The positive impact of real income on inflation smacks of oligopolistic or monopolistic

environment in South Africa. Imperfectly competitive firms tend to ask a higher price for their products than would have been the case in a competitive market. In other words, prices that are determined under imperfectly competitive conditions are less sensitive to changes in demand than prices determined in more competitive markets.

Table 5: FMOLS Regression Results

Dependent variable =LSINFL			
Variable	Coefficient	t-statistic	Prob.
Constant	6.028420	0.961883	0.3431
LXRATE	-0.228128	-0.543711	0.5903
LGDP	-0.208814	-0.902518	0.3733
LPLR	0.694321	2.014896	0.0521
LUSINFL	0.416106	2.015590	0.0520
LM3	-2.095060	-2.269857	0.0299
LGS	2.662190	2.618179	0.0132
DMD	0.234527	0.884526	0.3828
F-statistic (11.32976) Prob. 0.000000		Serial Correlation LM=2.672122(0.102120)	
R ² = 0.706166		ARCH Test =0.257479(0.611857)	
N=41			

Table 6: Results of ECM of version of FMOLS

Dependent variable = <i>ΔLSINFL</i>			
Variable	Coefficient	t-statistic	Prob.
Constant	-0.649944	-2.929155	0.0063
ΔLXRATE	-0.058162	-0.130238	0.8972
ΔLGDP	4.712252	2.976402	0.0056
ΔLPLR	0.206668	0.581649	0.5650
ΔLUSINFL	0.088013	0.551275	0.5854
ΔLM3	1.427352	0.872111	0.3899
ΔLGS	1.452531	1.326624	0.1943
ΔLSINFL(-1)	0.288380	1.802404	0.0812
CR (-1)	-0.886219	-4.855815	0.0000
F-statistic (4.047858) Prob. 0.002173		Serial Correlation LM= 3.690743(0.157967)	
R ² = 0.510909		ARCH Test = 0.908992(0.340382)	
N=40			

CONCLUSIONS, RECOMMENDATIONS AND LIMITATIONS OF THE STUDY

The paper employs Co-integration, Fully Modified Ordinary Least Squares (FMOLS) and Error Correction Model (ECM) techniques to investigate the determinants of inflation using annual

time series data (1965-2006) from South Africa. The findings suggest that in the short-run, nominal exchange rate, nominal prime lending rate, consumer price index in the USA, broad money supply and size of government are not likely to influence prices in South Africa. Contrary to the position of the quantity theory of money, income has been found to be positively related to prices in South Africa in the short run but insignificantly, negatively related to prices in the long run. In the long, whereas nominal exchange rate, consumer price index in the USA, and government spending are positively related to inflation, broad money supply is negatively related to inflation. The study, therefore, concludes that inflation in South Africa is more of structural phenomenon than monetary phenomenon. Evidence also supports the conclusion that South Africa is import-dependent, resulting in about 42% of her inflation explained by inflation in the USA. One policy recommendation is import substitution industrialization (ISI). The government of South Africa should embark upon ISI aimed at reducing the import dependence. As a short-run measure, subject to international treaties/accords to which South Africa is a signatory, the government can impose higher tariffs on those imports which the local industries have the capacity to produce. This may bring prices down. There appears to be monopolistic or oligopolistic markets in South Africa which make prices increase even in the midst of increases in goods and services. The government should break these markets by encouraging more firms into such markets to prevent price fixing.

One obvious weakness of this paper is that it has relied on the data from survey reports gathered by the World Bank (<http://www.worldbank.org>). Thus, the validity of our conclusions is limited to the extent to which these data are credible. We would, therefore, recommend a follow-up study using a different dataset. Another weakness of the paper which could be an agenda for future research is the failure of the study to establish the direction of causality between the explanatory variables and inflation.

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