Impacts of Inflation on Namibian Growth: An Empirical Study

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Abstract: The impact of inflation on growth performance through a case study of Namibia is analyzed in the article. The methodology involves estimating a general model, which provides for capturing the impact of inflation as well as imported inflation interactively with economic openness on economic growth. The sample period runs from 1991 to 2001. The research found that economic growth reacted in a predictable fashion to changes in the regressors employed in the study. The results obtained from the study also reflects the conventional thinking in the literature that, ceteris paribus, the growth impact of inflation can be counter productive, especially, if not controlled. The study recommends appropriate anti-inflationary measures for the Namibian economy. A further study on how to minimize the negative repercussion of inflation on the economy of Namibia is highly recommended.

Key words: Inflation, economic growth, imported inflation, regression models and time-series data

INTRODUCTION

Inflation is undeniably one of the leading macroeconomic issues confronting most, if not all modern economies of the world. It is therefore imperative that analysts as well as policy makers should be able to appreciate the dynamics of inflation as much as possible. It is a general opinion in the literature that there is a positive relationship between the rate of inflation and economic growth. This notion has increasingly gained wider acceptance among economic historians, monetarists, structuralists and the liberal economists of the capitalist-industrial countries[1]. Scholars have long recognised that inflation could lead to the redistribution of personal income to the corporate sector, the transfer from wages to profits, the rising relative importance of the public sector over the private sector and the general disincentive for money holding. In addition, they maintain that a moderate rate of inflation is not only an inevitable part of industrial growth but that indeed it should be seen as part and parcel of socio-cultural change. In considering the costs of inflation, it is important to distinguish between inflation that is perfectly anticipated and taken into account in economic transactions and imperfectly anticipated, or unexpected, inflation[2].

During the last three decades or so, macroeconomists have focussed attention on the role of inflation in the process of economic development. Studies have shown that development could be financed through inflationary processes. For instance Nwankwo[3] maintains that

inflation in Nigeria is the direct result of the policies of government to stimulate rapid economic growth and development. Namibia has only a few qualitative studies concerning the effects of inflation on the economy. The objectives of this study therefore, can be viewed from two angles.

Firstly, to establish a behavioural link between inflation, imports and economic growth. The import variable is used as a proxy to imported inflation. Secondly, determine the quantitative responsiveness of the dependent variables to changes in the explanatory variables. The sample period runs from 1991 to 2001.

Economists have over the years demonstrated the relationships between major macroeconomic variables such as inflation, exports, savings and imports; and economic growth using quantitative and qualitative techniques. Ogbokor[4] demonstrated the connection between oil exports and Nigerian growth using regression methods. He observed that increases in oil as well as non-oil exports are capable of leading to higher economic performance. In a similar fashion Ogbokor[5] also established the connection between exports, foreign capital inflows and economic growth using time-series data based on the economy of Angola. He observed that exports made more impact on the economy of Angola in relation to foreign capital inflows for the period 1978 to 2000.

Aboyade[6] and other supporters of inflationary development have long pointed out that, in addition to the fact that the relationship between inflation and

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development is not easy to pin down in the advanced industrial countries, it is open to even greater controversy in the context of underdeveloped countries. The basic conventional wisdom is that the condition of underdevelopment might be more tolerant of and indeed requires some fair dosage of inflation. Third world countries are dualistic in nature and they are also not completely monetised. The range of financial assets is continually expanding; selective deficit financing may open up particular sectors or regions to generate savings, which might match the increased investment expenditure. Also, many opportunities exist for demand expansion, especially in the rural areas and in labour-intensive projects. In addition, the speculative motive for holding money is not yet critical in the face of undeveloped financial markets.

Several models have demonstrated that in conditions of underdevelopment, economic stagnation may be the price for excessive pump priming. If the monetary expansion is judiciously accompanied by investment in high-yielding and quick gestation projects, supply can be almost as elastic as if resources are only underutilised in a Keynesian sense. Monetary expansion may also raise the average saving rate by redistributing income to profit-earners and to the government, as well as favorably altering the structure of capital to yield more output per unit investment. Given the interdependence of growth, savings and per capita income, there could be cumulative expansion of output and employment from an initial injection of inflationary finance. The proponents of inflationary development are of the general opinion that inflation can influence growth positively by changing the distribution of income in such a way as to raise the rate of savings and investment in the economy. Two main channels through which this can occur have been suggested.

Firstly, as a consequence of unanticipated inflation (or of anticipated inflation in which case some groups are unable to adjust leading to an increase in money income in order to maintain real incomes), there may be a shift of income between wage earners and profit earners. Secondly, even if inflation is fully anticipated, there may well be a shift in the distribution of income towards the government and possibly to banks and their borrowers as a result of the operation of the phenomenon of inflation tax[7]. Creating money at a very rapid rate constitutes a tax on existing money holdings. Just as a tax on any commodity influences its quantity demanded, the imposition of an inflationary tax would simultaneously discourage real money holdings; carried to excess, an increased inflation can reduce rather than increase real tax revenue. Such inflationary finance by the government can

result in massive dissaving rather than enhancing national savings. Inflation can affect the fiscal budget in a number of ways including distorting relative prices in the economy. Inflation tends to reduce overall efficiency and thereby depressing the rate in regular tax collections. While the inflation tax may initially rise, it becomes limited as continued inflation induces people to turn from monetary transactions to barter so as to avoid the tax on money holdings. The worsening government budget deficit tends to worsen the inflation in a vicious cycle. Government expenditures, typically based on current prices, rise faster than tax receipts based on past prices. Any attempt to close the budget deficit via the creation of more money exacerbates this process and culminates in a fiscal crisis[8].

Secondly, the Keynesian position on inflationary growth is similar in some ways to the views expressed by Ghatak. The Keynesian approach to the issue of finance for development via inflationary means stresses first that investment can generate its own savings by raising the level of income when the economy is operating below full capacity and by redistributing income from wage-earners with a low propensity to save to profit-earners with a high propensity to save, when the economy is at full capacity. Besides, inflation itself can encourage investment by raising the nominal rate of return on investment in addition to reducing the real rate of interest. Unemployed resources provide the classic basic argument for the Keynesian policies of inflationary finance. If resources are unemployed or underutilised, real output and real saving can be enhanced by governments running budget deficit finances either by printing money or by issuing bonds to the banking sector as well as the public. In a situation of genuine 'Keynesian' unemployment and tendency towards inflation, regardless of the method through which deficits are financed, we expect inflation to be under control, at least, as the supply of goods rises to meet the additional purchasing power created.

Some other scholars maintain that inflation stimulates business enterprises and entrepreneurs stand to profit enormously through rising prices. Although, wages may rise, they are not expected to increase at the same rate as the rise in the price level. The time lag between price increases and rising costs serves as an additional source of short-run gains. Inflation stimulates investment and encourages entrepreneurs to invest. This appears to be the case of a country like Nigeria in view of the rapid expansion in the activities of the multinationals in the face of various doses of inflation. It is also argued that inflation is usually accompanied by prosperity and boom. Furthermore, when total demand exceeds total supply the inflationary gap so created will induce more investment as

a result of the increase in prices. This would in turn lead to the creation of more employment activities.

However, not all development economists accede to the notion that inflationary-financed growth is practically sustainable. By implication, inflationary-financed growth is anti-developmental. Inflation, if uncontrolled, could discourage savings and hampers the growth of capital markets necessary for efficient distribution of scarce capital among competing uses in order to promote balanced economic growth. Inflation may also simultaneously discourage inward foreign investment and promote capital flight.

Inflation, in a developing country, encourages inventory accumulation in the form of raw material, excessive investment in merchandise building and landed property. As a result, capital is prevented from being utilised for projects required for economic growth. Inflation clearly reduces the purchasing power of money. If inflation becomes excessive not only will voluntary savings be discouraged, but the use of money as a medium of exchange could also be jeopardized.

However, empirical evidence from some major developing countries such as Brazil, Venezuela and Mexico has led to a re-awakening of the issue under discussion. Empirical results from these countries via cross-sectional and time series data confirm a positive relationship between inflation and selected macroeconomic variables, especially savings and investment.

MATERIALS AND METHODS

Methodology and model specification: The researcher utilized selected macroeconomic time-series data running from 1991 to 2001. In assessing the effects of inflation on growth performance, a combination of six different econometric equations were derived, formulated and fitted. These equations consist of three linear models and three double-log transformation models. The double-log transformation equations allow the researcher to carry out elasticity analysis. The study relied heavily on secondary data as well as the OLS regression method as a matter of technical necessity.

Model specification: The general model utilized in the study is represented functionally as:

$$GR_t = f(IR_t, IM_t)$$

Where:
GR = growth rate
IR = inflation rate

IM = imports
t = time period

By taking the partial derivatives of the above general function with respect to each of the independent variables, we obtained the following expected results:

$$\frac{\partial GR}{\partial IR} < 0; \qquad \frac{\partial GR}{\partial IM} < 0;$$

The results of the partial derivatives imply that growth and inflation are expected to move in opposite directions, while growth and imports are negatively related. The explicit forms of the equations to be estimated are thus, specified as follows:

1. $GR_t = B_0 + B_1 IR_t + U_t$
2. $GR_t = B_0 + B_1 IM_t + U_t$
3. $GR_t = B_0 + B_1 IR_t + B_2 IM_t + U_t$

The respective natural log transformations of the above equations are:

4. $LogGR_t = B_0 + B_1 LogIR_t + U_t$
5. $Log\ GR_t = B_0 + B_1 LogIM_t + U_t$
6. $LogGRt = B_0 + B_1 LogIR_t + B_2 LogIM_t + U_t$

The noise term (U) is included as a matter of technical necessity.

RESULTS AND DISCUSSION

Analysis of OLS logistic regression results: The OLS logistic regression results were obtained using SPSS. Natural logarithms were used to transform the regression equations into their respective double log forms in order to carry out elasticity analysis. A combination of 5 and 10% significance levels were utilized to determine the presence of serial correlation in the estimated regression equations. A two-tail test was also carried out to determine the significance of the least square estimates. The best fitting regression equation results with t-values given in parentheses obtained through the estimation process are reported and subsequently discussed as follows:

Equation 1 shows the coefficient of the IR term to be correctly signed. The IR term is statistically insignificant at both levels of 10 and 5%. The fit of this equation is very low in view of the low value of the unadjusted coefficient of determination. The predictor IR is only able to account for approximately 26% of the variance in

growth rate. The negative coefficient of the IR term implies that inflation and growth rate are inversely related. The d-w value of .964 is an indication that the equation is free of serial correlation.

$$GR_{t=15840.623-272.913IRt}$$
$$(10.109) \quad (-1.796)$$

$$R^{2=.264} \qquad R^{-2=.182} \quad D\text{-}W=.964 \tag{1}$$

Equation 2 shows the coefficient of the IM term not conforming to a priori expectations. The IM term passes the significance test at both levels of 10 and 5%. The fit of the equation is very high. Imports alone are able to account for over 90% of the systematic variation in growth rate. The d-w value of 1.078 shows that first-order serial correlation does not pose any threat in the equation.

$$GR_{t=4263.637+1.148IMt}$$
$$(4.420) \quad (9.314)$$

$$R^{2=.906} \qquad R^{-2=.896} \quad D\text{-}W=1.078 \tag{2}$$

In equation 3, the coefficient of the IR term conforms to theoretical expectations, while the coefficient of the IM term contradicts a priori knowledge. The large value of the R^{-2} allows us to infer that both explanatory variables taken together are able to explain over 89% of the variance in growth rate. Both variables also pass the significance test at 10 and 5% levels as well. The d-w value of 1.01 tells us that the equation is not autocorrelated.

$$GR_{t=2996.383+61.1991IRt+1.234IMt}$$
$$(1.718) \quad (.877) \qquad (7.789)$$

$$R^{2=.914} \qquad R^{-2=.893} \quad D\text{-}W=1.01 \tag{3}$$

On inspection of equation 4, the coefficient of the IR term was found to be negative as expected. By implication, there is an inverse relationship between inflation and growth. The IR term also did not pass the significance test at both levels of 10 and 5%. The fit of the equation is very low. The regressor i.e. inflation rate is able to account for only 28% of the systematic variation in growth rate. A 1% rise in IR would lead to a 0.25% reduction in the rate of economic growth. This result is not unusual, since we generally expect inflation to have a dampening effect on the national economy. The d-w value of 1.02 is an indication that the model is free of autocorrelation.

$$^{Log}GR_{t=10.030-.245LogIRt}$$
$$(33.995) \, (-1.889)$$

$$R^{2=.284} \qquad R^{-2=.204} \quad D\text{-}W=1.02 \tag{4}$$

The coefficient of the IM term in equation 5 does not conform to economic reasoning. The IM term also passes the significance test at both levels of 10% and 5%. The fit of the equation is reasonably high. Imports alone are able to account for over 90% of the variance in economic growth. A 1% increase in imports would lead to a 0.67% increase in economic growth. The d-w value of 1.117 implies that the model is autocorrelation free.

$$^{Log}GR_{t=3.490+.670LogIMt}$$
$$(5.865) \, (10.063)$$

$$R^{2=.918} \qquad R^{-2=.909} \quad D\text{-}W=1.117 \tag{5}$$

In equation 6, the coefficient of the IM and that of IR term do not conform to theoretical expectations. The fit of the equation is quite high. Over 91% of the systematic variation in the dependent variable can be explained by the estimated regression equation. A 1% rise in IR would lead to an increase of only 0.07% in growth. Similarly, a 1% jump in IM is associated with a 0.7% rise in growth. The d-w value of 1.055 allows the researcher to conclude that the equation is not serially correlated.

$$^{Log}GR_{t=2.682+0.07279LogIRt+.742LogIMt}$$
$$(3.186) \, (1.310) \qquad (8.789)$$

$$R^{2=.933} \qquad R^{-2=.916} \quad D\text{-}W=1.055 \tag{6}$$

The following observations are made in view of the analysis and discussion of the regression results presented above:

Inflation could have a negative repercussion on growth, especially, if not controlled. It was also observed that imported inflation is visible in the economy of Namibia. This is not surprising, since the Namibian economy depends heavily on imported items from other countries such as South Africa and United Germany. This import dependency syndrome is likely to remain for sometime in view of the low level of industrialization activities prevalent in the Namibian economy.

Policy recommendations and concluding comments: Based on the findings of this study, the following recommendations are suggested:

There is the need to fine-tune the government's monetary and fiscal policy instruments. For instance, efforts should be directed at controlling the government's high budget deficit.

The policy of inflation targeting which the government of Namibia is currently pursuing is a step in the right direction. This strategy involves periodically specifying a numerical target for inflation and working towards achieving it. Countries such as Chile, Brazil, Korea, Thailand and South Africa have obtained some

degree of success with this strategy. This should be complemented with appropriate policies capable of promoting employment activities.

Measures designed to address supply-side constraints should be implemented. In this regard, incentives capable of stimulating and boosting productive activities should be encouraged. Such incentives should, inter alia, focus on tax as well as the provision of basic infrastructures needed for production.

It is also recommended that Namibia should aggressively pursue an export-led industrialization strategy aimed at export diversification. In this regard, the government of Namibia should commit more resources towards the successful implementation of the Export Processing Zone projects. In addition, the government should ensure that incentives, designed to attract foreign investors to invest in the Export Processing Zone, especially those incentives relating to taxes are fully implemented.

Namibia should also remain an active member of the regional economic blocs such as SADC, SACU, etc and take advantage of the benefits derivable from such regional coalition.

In future research, it would be useful to extend the empirical investigation on three fronts. In the first instance, the robustness of the model coefficients should be examined by repeating the estimation process. In this regard, the number of countries used should be increased to include more countries in the region of SADC. Secondly, more explanatory variables should be accommodated in the general model presented in section three of the study. In addition, the time-series data should be extended to cover fifteen or more years.

Finally, it is envisaged that the results/findings of this study will serve as a challenge to professional colleagues and also encourage them to focus more attention on the relationship between inflation and growth for the Namibian economy as well as other developing economies of the world.

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