Different Fiscal and Monetary Policies : Nigeria

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ABSTRACT

This paper studied how different fiscal and monetary policies which are chosen by Nigerian government can change long-term consumption in Nigeria. Oil income is considered as one of the main source of income for government in this country so any variation in its price should be considered as a shock for the whole economy which will directly or indirectly influence daily life of people. After evaluating our data which cover years between 1985 and 2015, ordinary least square method (OLS) was applied for running our regression. It can be argued that government fiscal policies have a positive impact on long-term consumption
Keywords: Monetary Policy, Private consumption, Fiscal policy, Oil price

I. INTRODUCTION

Monetary policy is well-defined by the connection between the interest rate in the country's economy and the total money supply. In situations where a monopoly exists for distributing money, or if money-distributing banks act systematically by connecting to the central bank, monetary authorities have the ability to change the money supply and interest rates to achieve monetary policy objectives [1]. Trust in monetary policy announced by policy makers is very important. If private sector activists (consumers and business enterprises) believe that policymakers are determined to reduce inflation, they will predict that prices will decrease in the future [2]. Thus, if the policy announcement by policy makers is not acceptable, the policy will not have the desired effect [3]. If policy makers believe that private sector brokers have predicted low inflation, there will be incentives for adopting an expansionary monetary policy in the event that the ultimate benefit of increasing total output is higher than the final cost of inflation [4]; although assuming that private sector brokers have rational expectations, they are aware of policymakers' motivations. Therefore, private sector brokers know that if low inflation is predicted, an expansionary policy will be adopted, resulting in high inflation. Consequently, they expect high inflation (unless policymakers accept that their policy is effective in low inflation). Therefore, the inflation is high without increasing returns. As a result, if the private sector does not trust the policy, the expansionary monetary policy will fail [5]. Accreditation takes place in a number of different ways. One of these methods is the establishment of an independent central bank to keep inflation at a low level, regardless of the level of production [6]. Therefore, private sector producers are aware that inflation will be low because this policy is followed by an independent board. Central banks can create incentives to achieve their goals (more funds, rewards or higher wages for the bank's chairman) and increase their reputation or credibility. The reputation for implementing monetary policy is a major factor but the idea of the reputation should not be confused with the commitment [7]. A central bank may have a good reputation but will not choose any particular form of commitment. The existence of an efficient monetary, fiscal decision-making institutions and also an effective monitoring system which influence economic relations are vital for countries to experience a sustainable and growing Gross Domestic Product (GDP), and also more advance financial development which have direct and indirect influence on individuals' decision regarding their saving and consumption [8], [9]. According to previous studies, only those countries with a certain long-term plan regarding their socio-economic goals can succeed in this regard [10,11]. For this specific research, we are interested to see how government fiscal policies influence long-term consumption in Nigeria or how fluctuation in oil prices in the business cycle impact people's decision regarding their private consumption.

II. METHODS AND PROCEDURE

Ordinary Least Squares Method

This method, which is the most important and common least squares estimation method, is used in many sciences including mathematics, statistics, engineering, management, economics, and others for statistical analyses [12]. However, the ordinary least squares method considers an assumption that seeks to simplify the real world and is therefore far removed from the real world. This method is very useful because of simplification and simplicity of least squares estimation.

Here, we discuss the ordinary least squares method in detail. The regression equation is as follows:

$$Y_i = \alpha_0 X_1 + \alpha_2 X_2 + \cdots + \alpha_n X_n + U_i$$

Where,

Y: Endogenous variable, that is, the variable we want to fit.

α_0: intercept

X_i: Exogenous and given variables used to fit the endogenous variable.

U_i: Error term in the model. This is the difference between a mathematical model and a statistical model, that is, a mathematical equation that is completely definite, but not in statistics, and there are some errors in fitting the model. This is easily comparable to the mathematical interpolation equation. The error term is never visible to us. For the study of the distribution of the statistical population, a representative number around which the sizes are distributed is called a central value. Each numeric measure representing the center of the data set is called the central tendency. The mean and median are the most common measures of the central tendency [13]. In the table above, in most cases it is seen that the mean is close to the median, indicating a normal distribution of variables. Standard deviation is one of the dispersion indices that indicates how much the data differ from the mean value. If the standard deviation is a set of data close to zero, it will indicate that the data is close to the mean and has a small dispersion. A large standard deviation reflects a significant dispersion of data. As

displayed in Table 2, in all cases, the standard deviation of the data is small.

The skewness is the normalized third central moment of the distribution function. In fact, the skewness is a measure of symmetry, or lack of symmetry, of the distribution function. The skewness for a normal distribution is zero. Positive values for the skewness indicate data that are skewed right and negative values for the skewness indicate data that are skewed left [14]. Kurtosis is the normalized fourth central moment. It refers to the degree of the curve peakiness at the maximum point [15]. The kurtosis of the normal distribution is equal to 3 [16]. Considering that the main aim is to examine the role of fiscal policy in Nigeria's business cycle, using a model that includes fiscal policy shocks will be efficient. Therefore, the theoretical foundations of this study are based on the developed model by Tagkalakis (2008), which is a neoclassical model [17]. The basic assumption of Tagkalakis is that the government is mainly financed by taxes. Since Nigeria is a country that provides a high percentage of its income with oil exports, therefore, oil price volatility affects the financial decisions of the government. Considering the above argument, the following equation will be used for this specific research:

$$\Delta c_t = \alpha_1(1 - D_D)\,\varepsilon_1^G + \alpha_2(1 - D_1)\varepsilon_1^T + \alpha_3 D_1 \varepsilon_1^G + \alpha_4 D_1 \varepsilon_1^T + \alpha_5 \Delta Y_a + v_1$$

III. PRE ERSTIMATION TESTS

Stationarity Test

Time series are one of the most important statistical data used in empirical analysis. In analysing this kind of data set, it is always assumed that the time series is stationary, and if this state does not exist, t-test or F-test can be questioned. In addition, if the time series variables are not stationary, a problem may occur, known as the false regression (Gujarati, 2004).

A time series variable is stationary when the mean, variance, and self-correlation coefficient remain constant over time. One of the most commonly used

tests for stationarity is the unit root test that includes several tests, such as the Augmented Dickey-Fuller(ADF), Phillips -Perron (PP) test, Elliot-Rothenberg -Stock point optimal (ERS) test, Ng-Perron test. In this study, the Augmented Dickey–Fuller test and the PP test is used to examine the stationarity. Dickey and Fuller (1979) proposed statistics that have a finite distribution, and their critical quantities are obtained and tabulated for the unit root test using simulation methods. In this test, three regression equations that can be considered for the unit root test are as follows:

$$\Delta y_t = \alpha y_{t-1} + \varepsilon_t \quad (1)$$
$$\Delta y_t = \beta_0 + \alpha y_{t-1} + \varepsilon_t \quad (2)$$
$$\Delta y_t = \beta_0 + \beta_1 t + \alpha y_{t-1} + \varepsilon_t \quad (3)$$

The equation (2) shows the process of a random walk with drift. In the equation (3), y_t is also a random walk that changes around a time trend. ☐ is the parameter studied in all equations. If ☐ = 0, the time series y_t contains the unit roots. In this method, one (or more) of the above equations is estimated by the Ordinary Least Squares (OLS) method, and the test is performed using the estimated values and standard deviations.

Phillips and Perron Test:

If the assumption of independence and distribution of the error term is rejected, the table calculated by Dick and Fuller cannot be used. For this reason, Philips and Perron augmented the Dickey -Fuller (ADF) test for models that are not known as the white noise, and proposed the Augmented Dickey–Fuller test. If the error term is correlated, the equation (3) is modified as follows:

$$\Delta y_t = \beta_0 + \beta_1 t + \alpha y_{t-1} + \alpha \sum_{i=1}^{\rho} \Delta y_{t-i} + \varepsilon_t$$

Where $\Delta y_{t-1} = y_{t-1} - y_{t-2}$, that is, the interrupted differential terms are used. The number of the interrupted differential terms to be included in the model depends on how many entries of these terms result in the serial independence of the error terms in the equation (4). The ADF test, like the Dickey Fuller test, has the same asymptotic distribution. The following table shows the result of the ADF test for the model variables.paragraphs must be indented. All paragraphs must be justified, i.e. both left-justified and right-justified.

Variable	statistics	Significance level	result
Change in consumption	-7.88	0.0000	stationary
policy	-6.56	0.0000	stationary
Tax	-12.68	0.0000	stationary
Oil revenue	-7.89	0.0000	stationary

IV. Estimation of the Regression Model

Testing of the research hypotheses is done by estimating the regression model. Then, the regression model is rewritten and fitted, and the hypotheses are examined. The regression model introduced in the previous section is as follows:

$$\Delta c_t = \alpha_1 (1 - D_D)\, \varepsilon_1^G + \alpha_2 (1 - D_1)\varepsilon_1^T + \alpha_3 D_1 \varepsilon_1^G + \alpha_4 D_1 \varepsilon_1^T + \alpha_5 \Delta Y_a + v_1$$

The following table shows the results of estimating the regression model for the indices using the ordinary least squares method.

Variable	Coefficient	Standard Deviation	T - statistics	Significant level
Constant	5532.5	2923.9	3.22	0.05
$(1 - D_1)\varepsilon_1^G$	-0.14	0.021	-8.45	0.15
$(1 - D_1)\varepsilon_1^T$	0.36	.0045	25.02	0.05
$D_1\varepsilon_1^G$	0.015	.049	3.01	0.0000
$D_1\varepsilon_1^T$	0.034	0.0004	12.85	0.01
ΔY_a	0.23	0.012	3.65	0.05

V. Results and Conclusion

For this specific research, we studied how government fiscal policies influence long-term consumption in Nigeria or how fluctuation in oil prices in the business cycle impact people's decision regarding their private consumption. It can be argued that specific fiscal policy which has been chosen by the Nigerian Government shows a positive and significant impact on long-term consumption. Available studies have argued that the factor of financial development can affect households' decision regarding the allocation of their income between saving and consumption

[19, 20], so right now we can argue that different sort of fiscal and monetary policies which were chosen by government influence individuals decision regarding the level of their consumption and saving which will change their daily life [21].

VI. REFERENCES

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