

# Macroeconomic Instability and Healthcare in Nigeria

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This paper looks at the link between macroeconomic stability and health care delivery in Nigeria and at what can be done to support research in this field especially in poor countries. There are two parts to this paper. First, however, the authors introduce the reader to the concept of health care delivery and its importance. The second part is concerned with the analysis of the relationship between the economic environment and health care delivery in Nigeria. The third part looks at a case study that supports the importance of an integrated approach to the delivery of healthcare and health care delivery in Nigeria. The case study also examines the impact of the introduction of health care delivery and the extent of adjustment of the individual over time from the short-run equilibrium position to the long-run equilibrium position of the system of delivering health care delivery in Nigeria. All the variables considered in the study, namely, the stability of the economy, the change rate from the foreign exchange position, the availability of local currency, import policy, export policy, fiscal policy, industrial policy, monetary policy and inflation rates, were integrated.

## 1. Introduction

The concern prompted by developing countries with regard to their health care delivery systems is a consequence of either the supply of certain medical services and the demand for those services or the inability of the people to access and utilize those services. The former situation

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in a number of social services (e.g. health care services), given the instability of the economy. For the rest of education, infrastructure and health care, we find it to be wrong to conclude that increased volatility is solely to blame for cutbacks, structural adjustment programmes and the external economic crisis of the early 1990s, resulting from the above, has contributed to deterioration in the provision of goods. For instance, when the debt crisis began in 1982, the nation's external debt burden had doubled to 10.5 per cent of GNP, due mainly to speculative foreign exchange market interventions. By 2000, Mexican debt had increased to about US\$45 billion and total debt service payments amounted to US\$13 billion. The real rate of interest was a proportion of GDP (real) at 10.5 per cent while debt service payments stood at 2.5 per cent of GDP. Mexico attempts to effectively manage the debt by issuing bonds in the domestic market, predominantly using New York dollars; albeit in 2000 to US\$2.8 billion in 1990 and about US\$1.5 billion in the year of 2000. External debt service payments rose from US\$1.1 billion in 1990 to US\$1.45 billion in 1999 (US\$1.26 billion in 2000).

The instability in the nation's exchange rate regime may also have had an effect on the nation's economy. For instance, the continuous devaluation of the country's currency from 40 pesos per US\$1 in 1982 to 19.37 pesos per US\$1 in 2000, has made the nation's export cheaper and its import dearer. Since the nation relied heavily on foreign capital for its development, what the nation has achieved over the years is to be dependent on international investors. This has also been reflected in the movement of investment capital to all sectors of the economy. During the 1990s, in the absence of oil, it also has an entrepreneurial and the nation's industrial base has had to be based on international investors (see also, Nelson, 1998, 1999a, 1999b). The instability of these investors are also unfavourable since as the trend resulted in some countries the consequences could be severe, when it had a detrimental effect on their long-term welfare and health programs. The deterioration in the level of life in health care (Dert and Dardai, 1998, August 2000, April 2001).

Statistics from the 1990s, 1995-2000, and other sources, illustrate the relationship between macroeconomic stability and health outcomes in Mexico, using a multiple linear regression analysis that tested for the significance of the independent and the long-run consequences of the instability on health outcomes in Mexico.

## 2. Macroeconomic instability and health outcomes

### 2.1. Macroeconomic instability: Meaning and consequences

The issue of macroeconomic instability often takes form of a political and economic debate on whether inflation, exchange rate stability, fiscal deficits,

in certain countries and asset valuation, with the consequential taking of the position where the poor become richer in aggregate demand compared to everyone else. In the case of economic reform, public sector length and intensity of the way of economic changes in income distribution; and both in government spending and revenues in public sector criteria (Fischer and Tolokon 1999; Fischer and Miles 1991; Dan and Kostikov 2000; Fischer and Miles 1999; Agustín 2001; Abad and Vargas 2000; Gómez 2000; Gómez 2001).

Take the case of inflation, the overall effect of it is usually felt in the income of individuals and enterprises, patterns of the major sectors of the economy, including the health sector. For example, the effect of inflation is mostly on fixed investment, which is a result of two components of fixed: the allocation of assets (both real and financial) and their relative value of return. The effect can be a reduction of assets by lowering the cost while investment-based investment, and by increasing of debts and holding interest rates may hinder an entry of potential users. This said, a more serious issue is inflation in terms of effect on relative rates of return is mostly felt if interest rates and nominal currency decrease and increase and potentially, by upper-income groups, who are known income group to be mainly non-subsidized. This inflation can affect the ultimate stability because the inflation has well be bound by the power of globalisation. The effect of inflation is the increase in both private and public expenditure that is hard to overcome or control for the fiscal imbalance especially because as well that it is known the price of production and other products, the latter of which would not be the same from time to time (Fischer 1999; Agustín 2001; Fischer and Vargas 2000).

Real banking system available is mostly in the developed countries, together is characterized to be that it will have the domestic point of temporal banking and if the bank are constituted by the poor it will have a negative effect on the market, form a reduction of consumer demand, especially deposit activities, thus among the reasons of hyperinflation between and rural areas, and increase the cost of the output of the bankable sector because capital, goods, machinery and equipment are often imported in developing countries. When this occurs it tends to have a deficit in base capital, which is introduced by the World Bank (World Bank and O'Connell 1994; Fischer 1999; Agustín 2001; Domínguez and Vargas 2000; Vargas, 2001).

In the case of foreign debt service, the effects can be varied what compared with the debt repayment ratio (Borchardt, Fischer 1999) and an export-oriented growth rates, the level of lending by the government depends on the ratios of CDR and import-export. With this scenario, not only have

relative and economic growth being stunted, the socio-political problems cannot have failed to be a considerable factor in the decline in wages. For instance, the marked increase in the debt, bank and civil service payments will have to take a share of productive capacity as the resulting slowdown domestic investment and deterioration of projects, in turn will further increase unemployment rate due to the closure of factories, decline in government finance in social services, e.g. health care services, education and infrastructure services, like roads, electricity and water, as well as the unwillingness of the government to invest in them in the last decades (see, 1993; Esteban, 1993; Esteban, 1995).

Contribution to the explanation the effects of foreign exchange availability, Fischer and Thomas (1990) claimed that fiscal policy is key to stimulate macroeconomic policy because of its direct consequences on either on the current allocation of resources and the way all methods of managing a budget deficit can potentially reduce the cyclical effects when used in combination with a mixture of granting more money and taking away less tax collection, borrowing or foreign aid. For instance, assuming setting high-powered currency above the one desired for a stable exchange inflation, running down foreign exchange reserves will increase foreign technical advice, foreign borrowing and local real estate market and decrease the domestic low-interest rate. Higher interest rate would force both higher inflation and more borrowing and increase the foreign currency holding and load from external debts. Applying a restrictive monetary policy to a highly centralised fiscal policy should also be detrimental to the whole economy, as it will produce high real interest rates that would be a constraint to investment and productive financial debt conversion (see also Lira et al., 1993; Marshall and Schmandt-Gelzer, 1993; Parry, et al., 1993).

In terms of current rate variability, given a wider could contribute to, which the authorities is heterogeneous to develop and find a balanced approach to control the economy and public spending expansion, which is to be done by a rapid decrease of fiscal deficits, but bonds were financed with foreign borrowings. As foreign borrowings are monetized as import inflation and not income growth. Aiming to limit this ratio by controlling through a series of new capital controls, through gold domestic currency savings and foreign capital flight. Exporter firms' policies that usually follow, have static affiliation severely weakened, with revenues reduction, whereas firms located in the most severe areas have to raise their oil exports by demanded higher prices to compensate for the risk of receiving less oil. Import oil exports could not be increased but they can issue larger credits loans; and the cost of refinancing credit loans as the English Latin American Economic Studies. The former because of an already demand's system in fluctuating

more efficient allocation of resources which often are used productivity (Gaddis, 1992).

### **2.2. Health outcome: Planning and Information**

#### **a. Planning**

Health care services are considered as more effective when there are no disease, morbidity and mortality and, availability and accessibility. This approach not just the health of young children, but also the health of older children and adults. It also comprises reproductive health (i.e. the health of women during child bearing) and other programme and initiatives, programme. A usual way of determining health outcome is to focus on the lifespan of the people which have to undergo the process through birth, infancy, childhood, the school years, adolescence, adulthood and aging; which is the sequential life of individuals (Gaddis, 1992).

It is important to note that many days of the lifecycle there are risks to health and associated with such corresponding outcome changes. For instance, during the first year of life (infancy), there are risks of diarrhoea, pneumonia, other growth and development, anaemia, impotence and death. The corresponding indicators include the incidence of malaria, dengue fever, diarrhoea or fever and such as perinatal death, weight-for-age, underweight, low birth-weight, malnutrition and death during maternity (Gaddis, et al 1992; WHO 2006; World Bank 2005a; World Bank 2005b; WHO, 2006).

Current indicator is mainly on health status, access to improved health and coverage of services and the use of health care services. This includes of health-care services the use of health facilities and delivery, the nature of health insurance and the utilization of household members, early health care services determined by the use of antenatal services, child health care, use of hospital services, and use of family planning and related services. The outcome of health care can also be measured through the number of health facility visits, the availability of medical services and personnel (Gaddis, et al 1992; WHO 2006; World Bank 2005a; World Bank 2005b).

#### **b. Data Indicators of Health Outcome**

- (i) **Access to Health Care Services.** According to the WHO (WHO, 2006; 2007) and the World Bank (WHO, 2002) access to health care services refer to the percentage of the population that can reach a service to treat health care problems by the time needed of transport and time to see health care. In Nigeria, the concepts include the number of health care services (private, secondary and tertiary) available per 1000 people.

In other words, the state's health care system, and with it the rest of its organized public in Nigeria, is linked to the above in the availability of health care services, which is usually measured by the number of hospital beds and doctors per 1000 people (see also NSER, 2001).

- (a) Life Expectancy at birth is central. This is often used as the measure of a country's position, that would give a clear picture of stability in the state of health care so long the same throughout a life. It is a measure of how long individuals are expected to live (health generally considered to be a good indicator of current health outcomes (AFR, 2002; 2006; World Bank, 2005a, 2005b).
- (b) Infant Mortality Rate. This is used to evaluate the state of conditions that are existing the first year of life. It is the number of deaths occurring during birth. Below one year average period of 2000-2004 from UNICEF (2006); ADB (2005, 2006); World Bank (2005a, 2005b).

### 1.2 Macroeconomic Instability and Health Outcomes in Nigeria

The variability of macroeconomic variables in Nigeria can be traced back to the early 1980s, caused by several debt overhang, economic liberalization of the economy, inflation, in terms of trade, rising interest rates, over-indebtedness, spending policies which lead to a rapid expansion of fiscal deficit and the collapse of the late 1980s, followed by the regularization of monetary measures and general adjustment implemented in 1986 and 1989 respectively (Adegbola, 1990; Olayele 1992; Enyeama 1994; Onyekwelu 1998; NSER, 2001).

This suggests the decline in health care delivery has been a major cause of slow and developmental, especially in investment in health care services in Nigeria. Other specific issues, in some cases, have to do with data reporting, there are some social services like education by NSER (2001), in the year 2002, Nigeria's external debt was about US\$25.6 billion and external debt service payments amounted to US\$8.2 million. Because of this heavy debt service, the country could accepted a health care system that making it impossible to achieve much of its development goals (see also Dabla, 2002).

The major long-term structural adjustment programmes were funded by the IMF, for which the government had to cut spending on health care infrastructure. For instance, before the structural adjustment programme in 1986, the share of health expenditure in the health sector was 1.1 percent of the GDP, and with the introduction of the programme it dropped to 0.8 percent in 1990. By 1999, it rose to 4.5 percent and dropped again to 3.7

per cent in 2000 (WHO 2002, 2004 2005). The distribution of health care services per capita has increased from 0.16 per 1,000 in 1960 to 24.03 in 2003. Despite this, however, not only is the quantity of health care services but the quality as well. Other consequences of this economic instability include the double-edged effects of state-subsidized programmes on health care services on the inadequacy of hospitals and medical clinics especially in the rural areas, coupled with the high cost of medical services, thus making health care services beyond reach of many people. It is also noted that when services are provided in rural hospitals, there are not drugs, more often than not medicine given away, which are not used. Furthermore, medical salaries and low remunerated public practices have led to poor remuneration, which has contributed to increasing the health care delivery, because health care workers leave the service due to low wages or persistence of child malnutrition and low life expectancy in health system when compared with some African countries like Egypt, Morocco and Mauritius (see Table 1).

Table 1. Indicators of Health Services in Nigeria and their values, February 2003

COUNTRY	life expectancy at birth (years)	Infant mortality rate (per 1,000)	Low birth weight (%)	Maternal mortality (MM per 100,000)
Nigeria	51.9	50.8	16	600
US	77.8	4.2	11	117
Kenya	51.7	55.6	17	513
Morocco	66.6	11.2	9	211
South Africa	50.9	35.0	17	315
Kenya	51.5	51.6	17	50

SOURCE: UNDP 2002.

## 2. Data Sources and Methodology

### 2.1. Data Sources

Data on macroeconomic period 1990–2003, and regarding indicators of population (e.g. exchange rate, inflation rate, exports, GNP, deficit, foreign and local services) and health care were passed with four sources in both (years) in Nigeria over a period of the study. The data was obtained from the Central Bank of Nigeria between 1990 and 2003 for the year 2003; African Development Bank (African Poverty and Environment Indicators, 2003 African Outlook, for the year 2003); and World Bank Development Indicators for the year 2003.

### 3.2. Methodology

#### a. The Model

In estimating the model for this study, emphasis is placed on whether the individual's economic, socio-economic and family, health and economic, financial, education, 2003's finance available services/loan repayment patterns influence the health outcome in Nigeria.

The regression model for this study is formulated as:

$$\text{Health}_i = \beta_0 + \beta_1 \text{Econ}_i + \beta_2 \text{Soc}_i + \beta_3 \text{Fam}_i + \beta_4 \text{Ed}_i + \beta_5 \text{Fin}_i + \beta_6 \text{Rep}_i + \epsilon_i \quad (1)$$

$$\text{Health}_i = \alpha_0 + \alpha_1 \text{Econ}_i + \alpha_2 \text{Soc}_i + \alpha_3 \text{Fam}_i + \alpha_4 \text{Ed}_i + \alpha_5 \text{Fin}_i + \alpha_6 \text{Rep}_i + \epsilon_i \quad (2)$$

Following Engle et al. (1980), Pagan and Hall (1980), Pagan and Vella (2001), Kivimaki et al. (2003), Pagan and Wermuth (2003), Bush and MacCurdy (2003), estimating equation (1) through three stages due to the specification of the model variables. In order to predict the problem, integration has accounted for in determining the multicollinearity of the variables. Durbin-Watson test can be used to test the multicollinearity of the dependent and independent variables. In this study, the Durbin-Watson test was used to test the dependence of the independent variables on each other. The Durbin-Watson test value, the independent variable is not necessarily. The value of integration will be based on the number of times the value is different from before it becomes stationary. If the first difference does not differ from zero and the difference of the second, the change first difference does not differ from zero and to be integrated of order one (1), while for the first difference does not differ from one (1) (see, also Phillips 1987 and Phillips and Suliman 2001).

An estimation of the above can be carried out in order to obtain an estimate long-run equilibrium and specific, however the dependent variable and each of the independent variables being exogenous, etc. The econometric test for the existence of multicollinearity of the variables generated by running a linear regression on each of one or more of the independent variables on the dependent variable (see, Engle and Granger 1980; Engle 1982; Engle and Wermuth 1982; and Pagan and Wermuth 2003). The existence of causation from the dependent to the independent condition for the formation of a model that satisfies the assumption of a linear Cointegration (Engle 1982). The assumption embodies both the short-run dynamics and the long-run condition found as the causal relation. ENGEL also shows how the system converges to a unique short-run equilibrium pattern. Therefore, to study the convergence rate of the model system, the short-run dynamics of causality (K1) were used. The causality is stationary. Therefore, to determine the long-run causality (K2) causality (K2) values are derived.

$$\Delta \text{Log}(B) = \alpha_0 + \alpha_1 \text{GDP}_t + \alpha_2 \text{GDP}_{t-1} + \alpha_3 \text{GDP}_{t-2} + \alpha_4 \text{Log}(B_{t-1}) + \epsilon_t \quad (2)$$

Where:

$\Delta \text{Log}(B)$  = change in health care expenditure with its dependency on health care services in the previous year.

$\text{GDP}_t$  = change in GNP at 1990 US dollar price.

$\text{GDP}_{t-1}$  = change in GNP at 1990 US dollar price.

$\text{GDP}_{t-2}$  = change in GNP at 1990 US dollar price.

$\text{Log}(B_{t-1})$  = Log of change in health-care services (in million of Rupees).

$\alpha_0, \alpha_1, \alpha_2, \alpha_3$  = the estimated log factors which are found to be statistically significant and statistically significant to support the direction of investigation.

The significance of the health-care services on the economy is also supported by Bhattacharya (1993), Wu and Bhattacharya (2001), Bhattacharya et al. (2002) and Datta and Nandi (2002).

$\epsilon_t$  = the error term.

$\alpha_4$  = the intercept.

$\alpha_5$  =  $\alpha_4 - \alpha_0$  = the parameter estimates.

The reported investigation on the empirical pattern of behavior of the independent variables on economic stability for the dependent variable ( $\Delta \text{Log}(B)$ ) shows that  $\alpha_0 > 0$ ,  $\alpha_1 < 0$ ,  $\alpha_2 < 0$ ,  $\alpha_3 < 0$  and  $\alpha_4 < 0$ .

#### 4. Results and Discussion

The analysis of the model starts with a consideration of the nature of data since if they are random and following the pattern of a regular time series test of autocorrelation (Ljung-Box test) the dependency of the variable can be tested.

The results of the stationary test are presented in Table 2 and it is found that all the data points are non-stationary or integrated of the same order (I(1)) because of two-fold right shift when the first difference did not give the desired results. From the LM statistic at the 1% level of the null hypothesis of difference variable are greater than the Ljung-Box test value, the LM test at 5 percent level is significant. The results of the investigation will be presented in Table 3 to support the log-log relationship between the independent variables and the dependent variable. The LM value at 1% is statistically significant because it is greater than the critical value (4.23) at 2 percent level of significance.

The result of the cross correlation is shown in Table 4 to support the statistically significant for supporting the existence of endogenous between health care services and macroeconomic variables. The cross correlation

new authors also provide the economic rationale of the statistical technique of the independent variables to represent the speed of the convergence toward equilibrium and they trace the long-run equilibrium position to a Phillips-Charlton equation and Clark and Mortensen (1969). In conclusion,  $\alpha_1$ ,  $\alpha_2$ ,  $\alpha_3$ ,  $\alpha_4$ , and  $\alpha_5$  signify the weights that the respective income-growth variable may have on the growth of independent variable, according to theory from the estimated value on equilibrium position (see, Kuttner et al., 2000; and, Dule and Nwachukwu, 2003).

Of all the macroeconomic variables under study, GDP the exchange rate stability can change easily from the long-run equilibrium position. For instance, if it is the case with the GDP has already affected the outcome of health care delivery in Nigeria. Infrastructures, patient care, doctors from a well developed education nation tend to the outcome of the health system. In fact, there is no apparent improvement. On the other hand, the need to take the treatment is also major of the outcome economy that has impacted international investors. Hence, impacted the outcome of sufficient and appropriate medical equipment and drugs, are expected the outcome a long run of investment into all the sectors in the Nigerian economy including the health sector. This assumption is consistent with the views of Kuttner (1998) and Agboola (1997).

Table 2. Testing the Order of Integration of the Four Best of the Variables.

Variables	IC	Residual
GDP	-0.26	1.00
Infrastr.	-1.81	1.00
Expt.	-1.70	1.00
Doc.	-0.77	1.00
EDUC.	-0.70	1.00
INVEST.	-0.96	1.00

Note: Critical value of 10% I.I.C. present value of residual = 1.00.

Table 3. Testing the Order of Cointegration of the variables.

Dependent Variable	Independent Variables	Decision
GDP	Expt. INVEST. Doc. EDUC.	Accept

Note: Critical value of 5% is 1.95201 RSD. Hsiao value is 1.430.

Table 4. *Panel C: Cross-Sectional Model with Errors-in-Variables  
Specification and Instrumental Variables*

Variable	Pearson Correlation Coefficients
Population	
GDP per Capita	0.93***
Healthcare Expenditure	0.93***
Healthcare Price Index	0.90***
Healthcare Deficit	0.79***
Healthcare Deficit/GDP	0.79***
Healthcare Deficit/GDP per Capita	0.80***
Healthcare Deficit/GDP per Capita Log	0.81***
Healthcare Deficit/GDP per Capita Log <sup>2</sup>	0.79***
Healthcare Deficit/GDP per Capita Log <sup>3</sup>	0.78***
Healthcare Deficit/GDP per Capita Log <sup>4</sup>	0.78***
Healthcare Deficit/GDP per Capita Log <sup>5</sup>	0.78***
Healthcare Deficit/GDP per Capita Log <sup>6</sup>	0.78***
Healthcare Deficit/GDP per Capita Log <sup>7</sup>	0.78***
Healthcare Deficit/GDP per Capita Log <sup>8</sup>	0.78***
Healthcare Deficit/GDP per Capita Log <sup>9</sup>	0.78***
Healthcare Deficit/GDP per Capita Log <sup>10</sup>	0.78***
Healthcare Deficit/GDP per Capita Log <sup>11</sup>	0.78***
Healthcare Deficit/GDP per Capita Log <sup>12</sup>	0.78***
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Healthcare Deficit/GDP per Capita Log <sup>84</sup>	0.78***
Healthcare Deficit/GDP per Capita Log <sup>85</sup>	0.78***
Healthcare Deficit/GDP per Capita Log <sup>86</sup>	0.78***
Healthcare Deficit/GDP per Capita Log <sup>87</sup>	0.78***
Healthcare Deficit/GDP per Capita Log <sup>88</sup>	0.78***
Healthcare Deficit/GDP per Capita Log <sup>89</sup>	0.78***
Healthcare Deficit/GDP per Capita Log <sup>90</sup>	0.78***
Healthcare Deficit/GDP per Capita Log <sup>91</sup>	0.78***
Healthcare Deficit/GDP per Capita Log <sup>92</sup>	0.78***
Healthcare Deficit/GDP per Capita Log <sup>93</sup>	0.78***
Healthcare Deficit/GDP per Capita Log <sup>94</sup>	0.78***
Healthcare Deficit/GDP per Capita Log <sup>95</sup>	0.78***
Healthcare Deficit/GDP per Capita Log <sup>96</sup>	0.78***
Healthcare Deficit/GDP per Capita Log <sup>97</sup>	0.78***
Healthcare Deficit/GDP per Capita Log <sup>98</sup>	0.78***
Healthcare Deficit/GDP per Capita Log <sup>99</sup>	0.78***
Healthcare Deficit/GDP per Capita Log <sup>100</sup>	0.78***
Healthcare Deficit/GDP per Capita Log <sup>101</sup>	0.78***
Healthcare Deficit/GDP per Capita Log <sup>102</sup>	0.78***
Healthcare Deficit/GDP per Capita Log <sup>103</sup>	0.78***
Healthcare Deficit/GDP per Capita Log <sup>104</sup>	0.78***
Healthcare Deficit/GDP per Capita Log <sup>105</sup>	0.78***
Healthcare Deficit/GDP per Capita Log <sup>106</sup>	0.78***
Healthcare Deficit/GDP per Capita Log <sup>107</sup>	0.78***
Healthcare Deficit/GDP per Capita Log <sup>108</sup>	0.78***
Healthcare Deficit/GDP per Capita Log <sup>109</sup>	0.78***
Healthcare Deficit/GDP per Capita Log <sup>110</sup>	0.78***
Healthcare Deficit/GDP per Capita Log <sup>111</sup>	0.78***
Healthcare Deficit/GDP per Capita Log <sup>112</sup>	0.78***
Healthcare Deficit/GDP per Capita Log <sup>113</sup>	0.78***
Healthcare Deficit/GDP per Capita Log <sup>114</sup>	0.78***
Healthcare Deficit/GDP per Capita Log <sup>115</sup>	0.78***
Healthcare Deficit/GDP per Capita Log <sup>116</sup>	0.78***
Healthcare Deficit/GDP per Capita Log <sup>117</sup>	0.78***
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Healthcare Deficit/GDP per Capita Log <sup>143</sup>	0.78***
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Healthcare Deficit/GDP per Capita Log <sup>152</sup>	0.78***
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Healthcare Deficit/GDP per Capita Log <sup>167</sup>	0.78***
Healthcare Deficit/GDP per Capita Log <sup>168</sup>	0.78***
Healthcare Deficit/GDP per Capita Log <sup>169</sup>	0.78***
Healthcare Deficit/GDP per Capita Log <sup>170</sup>	0.78***
Healthcare Deficit/GDP per Capita Log <sup>171</sup>	0.78***
Healthcare Deficit/GDP per Capita Log <sup>172</sup>	0.78***
Healthcare Deficit/GDP per Capita Log <sup>173</sup>	0.78***
Healthcare Deficit/GDP per Capita Log <sup>174</sup>	0.78***
Healthcare Deficit/GDP per Capita Log <sup>175</sup>	0.78***
Healthcare Deficit/GDP per Capita Log <sup>176</sup>	0.78***
Healthcare Deficit/GDP per Capita Log <sup>177</sup>	0.78***
Healthcare Deficit/GDP per Capita Log <sup>178</sup>	0.78***
Healthcare Deficit/GDP per Capita Log <sup>179</sup>	0.78***
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Healthcare Deficit/GDP per Capita Log <sup>194</sup>	0.78***
Healthcare Deficit/GDP per Capita Log <sup>195</sup>	0.78***
Healthcare Deficit/GDP per Capita Log <sup>196</sup>	0.78***
Healthcare Deficit/GDP per Capita Log <sup>197</sup>	0.78***
Healthcare Deficit/GDP per Capita Log <sup>198</sup>	0.78***
Healthcare Deficit/GDP per Capita Log <sup>199</sup>	0.78***
Healthcare Deficit/GDP per Capita Log <sup>200</sup>	0.78***

Notes: <sup>a</sup>  $p < 0.05$ .

<sup>b</sup> Statistically significant at 1 percent level.

### 5. Conclusions and Recommendations

This paper provided an empirical analysis of the impact of insurability of some key macroeconomic variables such as income, inflation rate, interest rate, deficit finance and external debt on health insurance in Nigeria, by first testing the significance of the variables and the bivariate implications of the variables, using the ARDL model, which allows for the inclusion of variables with different time periods, and secondly, using cross-sectional models with instrumental variables to estimate the long-run equilibrium relationship between the dependent variable and the independent variables.

The results of the estimation test show that the variables lagged out of the initial equation, low price of the insurance company, the exchange rate and the import substitution of the insurance company, have significant impact on the insurance premium. The government should adopt a fiscal policy which has the tendency of reducing the value of real wages and controlling the inflow of money in the economy, with the level of import substitution and more of green and services than capital intensive. These measures if adopted will go a long way in improving health insurance and prosperity in the country.

Given the above result, the government should continue to stabilize the exchange rate since this would enhance the translation of local goods cost to the foreign sector. The government should also adopt a fiscal policy which has the tendency of reducing the value of real wages and controlling the inflow of money in the economy, with the level of import substitution and more of green and services than capital intensive. These measures if adopted will go a long way in improving health insurance and prosperity in the country.

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