HOW DOES PUBLIC DEBT AFFECT UNEMPLOYMENT IN NIGERIA

By

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Abstract
The study examined the impact of disaggregated debt components on unemployment in Nigeria covering the period 1992 to 2020. The Autoregressive Distributed Lag (ARDL) method was used on account of the outcome of stationarity tests of the times series data. The result showed a highly positive and significant relationship between unemployment and external debt. The recommendations include that a fundamental consideration for any future public borrowing should be its employment generation capacity. An employment generation benchmark needs to be established for all future borrowing, in recognition of the principle that where no new employment can be generated, existing ones should not be endangered.
Keywords: external debt, OLS, ARDL, unemployment.
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Introduction

The growth of a mixed economy like ours depends on the availability of an environment that encourages the thriving of private business. One aspect of such enabling environment is the availability and adequacy of physical infrastructure which, owing to low level of internally generated revenue, most developing countries lack the capacity to provide. This has brought about a yawning financing gap which needs to be filled. ADB (2018) estimates Africa's annual financing gap for infrastructure at $68 billion to $108 billion. This can be financed internally, but more realistically, externally, through borrowing. Thus countries borrow in order to enhance economic growth, generate employment and ameliorate the living conditions of their people (Hassan and Mamman, 2013)

One precondition for the effectiveness of any borrowing is that it is channeled to increase the productive capacity of the economy and thus promote capital formation and economic development. In this respect it is conceivable that effectiveness may be influenced by the nature and source of the debt, the ease or difficulty of obtaining it, the relative ease of diverting the funds etc. Even when these conditions are as they should be, the origin of the funds, whether domestic or foreign, and thus open or otherwise to foreign exchange risks, may have an effect on its overall effectiveness.

This paper pursues these thoughts and seeks an empirical insight into whether the effectiveness of public borrowing depends on its source, domestic or external. Reframing the question, we ask what effect disaggregated public debt has on unemployment in Nigeria. The

rest of the paper continues with a review of relevant literature, followed by methodology issues, after which we present and discuss results, then conclusion and recommendation.

Review of extant literature

The Keynesian theory argued that increasing aggregate expenditure helps to increase aggregate consumption, increase investment and boost employment. Thus governments tend to increase public expenditure and public debts in order to increase consumption, investment, and reduce unemployment. Fedeli and Forte (2012) however argued to the contrary, that the higher the amount of deficit spending, the exponentially higher will be the unemployment rate. Fox and Gandhi (2021) concluded that when countries achieve balanced economic growth and transformation, better employment opportunities follow. Siddiqa (2021) found external debt to have a positive impact on unemployment in their study of determinants of unemployment in selected developing countries using the Generalized Method of Moments (GMM). Soukaina and Hammami (2021) used Simultaneous Equation models to estimate for the six countries of the Euro zone and the results showed that there is a two-way relationship between unemployment and debt. The analysis of Shuaibu et al (2021) showed that public debt, especially, external debt causes more unemployment than domestic debt. Similarly, Iwuoha (2020) found an inverse relationship between public debt and unemployment. Sirah and Mazher (2020) using ARDL proposes that external debt helps in explaining the long run unemployment rate in Ethiopia. Cahyadin and Ratwianingsih (2020) using granger causality showed that there was a causal relationship between external debt, exchange rate, and unemployment, especially in Indonesia. Igberi et al (2016) examined the implications of rising public debts on unemployment in Nigeria using ARDL model. The findings of the study revealed that public debt has a positive and significant effect on unemployment in Nigeria. Nwokoye et al (2016) findings show that external debt stock negatively but significantly affected unemployment indirectly through domestic investment.

Research method

The model for this study is specified as

$$\text{unemp} = f(\text{gdpg, inf, dd, exd, tds}). \qquad (1)$$

Where *unemp* is unemployment rate, *gdpg* is gross domestic product growth rate, *inf* is inflation rate, *dd* is domestic debt, *exd* is external debt, and *tds* is total debt services as a percentage of GDP. Taking the natural log of the debt channels, the functional form of the model becomes:

$$\text{unemp} = \gamma_0 + \gamma_1\text{gdpg} + \gamma_2\text{inf} + \gamma_3\text{lndd} + \gamma_4\text{lnexd} + \gamma_5\text{tds} + \varepsilon \qquad (2)$$

where γs are the parameters and ε is the stochastic error term.

In investigating the time series property of the data (sourced from Central Bank of Nigeria statistical bulletin and World Bank's world development indicators), stationarity tests were carried out using ADF and PP procedures with the following outcome:

Table 1: Results of stationarity tests

Variable	UNEMP	TDS	GDPG	INF	LNDD	LNEXD
Order of Integration	I ~ (1)	I~ (1)	I ~ (1)	I ~ (1)	I ~ (1)	I ~ (1)

Source: Author's analysis 2022

In view of the difference stationary feature of all time series data, investigation was launched into their long term relationships using Autoregressive Distributed Lag (ARDL) methodology as developed by Pearson and Smith (1995) and used by Pearson, Shin and Smith (2001). The Bounds test approach and the unrestricted error correction model, were used. The ARDL model is specified as

$$unemp = \varphi_0 + \varphi_1 gdpg + \varphi_2 inf + \varphi_3 lndd + \varphi_4 lnexd + \varphi_5 tds + \varphi_6 \sum_{i=o}^{n} \Delta gdpg + \varphi_7 \sum_{i=o}^{n} \Delta inf + \varphi_8 \sum_{i=o}^{n} \Delta lndd + \varphi_9 \sum_{i=o}^{n} \Delta lnexd + \varphi_{10} \sum_{i=o}^{n} \Delta tds + \varepsilon t \dots\dots\dots\dots\dots\dots(3)$$

The bounds test results, displayed in Table 1, indicate that the variables are co integrated. The levels equation and ECM regression are in Tables 2 and 3.

Table 1 – ARDL Bounds Test   Null Hypothesis: No levels
F-Bounds Test   relationship

Test Statistic	Value	Signif.	I(0)	I(1)
		Asymptotic: n=1000		
F-statistic	4.572305	10%	2.2	3.09
K	4	5%	2.56	3.49
		2.5%	2.88	3.87
		1%	3.29	4.37
		Finite Sample: n=35		
Actual Sample Size	28	10%	2.46	3.46
		5%	2.947	4.088
		1%	4.093	5.532
		Finite Sample: n=30		
		10%	2.525	3.56
		5%	3.058	4.223
		1%	4.28	5.84

Source: Authors' computation.

Table 2 - Levels Equation
Case 2: Restricted Constant and No Trend

Variable	Coefficient	Std. Error	t-Statistic	Prob.
TDS	-0.225898	0.261122	-0.865106	0.3978
INF	-0.015848	0.017782	-0.891238	0.3839
GDPG	-0.347214	0.080798	-4.297290	0.0004
LNDD	0.038733	0.375945	0.103028	0.9190
LNEXD	1.156960	0.323284	3.578772	0.0020
C	-1.491655	2.705249	-0.551393	0.5878

Source: Authors' computation.

Table 3 - ECM Regression
Case 2: Restricted Constant and No Trend

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(GDPG)	-0.099876	0.026067	-3.831507	0.0011
D(LNEXD)	0.248513	0.123405	2.013798	0.0584
CointEq(-1)*	-0.473290	0.078067	-6.062612	0.0000

Source: Authors' computation

From the results (Table 3), the error correction term is negatively signed and less than one, indicating convergence. It is also highly significant. Furthermore, External debt (Table 2) has a positive and significant effect on unemployment which corresponds with the findings of Siddiqa (2021), Shuaibu et al (2021), and Sirah and Mazher (2020). It however differs from the findings of Nwokoye et al (2016). On its part, Domestic debt impacts unemployment positively but in an insignificant manner. The positive relationship exhibited by these public debt components are not in consonance with *a priori* expectations. Nevertheless, they tell the story of today's Nigerian economy in which both unemployment and public debt appear to be simultaneously on the rise. Expectedly, Debt servicing shows a negative, if insignificant, relationship with unemployment.

Conclusion and Recommendations

The study investigated the component through which public debt affects unemployment. On account of data availability two public debt components were considered – domestic and external - along with debt servicing. From the results, and contrary to expectation, both domestic and external debt showed positive impact both in the short and long run on unemployment in Nigeria. Total debt servicing showed the expected negative, if insignificant, effect, indicating the expected outcome if debt servicing is to come from the proceeds of the investment of such debts. This goes to show that if these debts are properly utilized for viable investments, the economy will grow and the problem of unemployment will be ameliorated as noted by Melkamu (2021).

From the results the following recommendations were therefore made. Firstly, to address the unfavourable effect of public borrowing on unemployment, a fundamental consideration for all future public borrowing should be its employment generation capacity. A benchmark is to be established, recognising the principle that where no new employment can be generated, existing ones should be protected. Secondly, external debt appears more severely to impact unemployment thaN domestic debt. This is indicated by its real statistical effect and magnitude, believed to be traceable partly to foreign exchange risks. More stringent measures are therefore recommended for any future public external borrowing. Also, it is imperative that funds are used for the projects for which they have been raised, which projects are, on maturity, expected to service the loans and repay them fully. If measures are put in place to secure this, it should not happen that the more we borrow, the higher our unemployment as is presently the case.

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