

Re-Evaluation of the Impact of Public Debt on Economic Expansion of Nigeria

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ABSTRACT

The study examined the impact of public debt on economic expansion of Nigeria for the period 1981-2020, using the autoregressive distributed lag model. The variables analyzed in the research were gross domestic product, domestic debt, external debt, public debt service, exchange rate and inflation rate. The results indicated that domestic debt had a positive and significant impact on economic expansion both in the short-run and the long-run. It was also revealed that external debt exerted negative and significant effect on economic expansion in the long-run, and positive and significant influence on economic expansion in the short-run. Furthermore, public debt service was found to have a positive and significant influence on the economic expansion of Nigeria in the long-run but had a negative and significant impact on economic expansion in the short-run. In view of the above, the study recommended for continual accumulation of domestic debt in financing fiscal deficits of the country; but should be extremely cautious of external borrowing to avoid the problem of debt overhang. Again, since public debt service had a negative and significant impact on economic expansion, government should exercise restraint in further acquisition of external debt as it retards economic expansion of the nation.

Keywords: Re-evaluation, Public, Debt, Economic, Expansion.

INTRODUCTION

Most underdeveloped nations, Nigeria inclusive are characterized by little echelon of savings and capital formation and thus, low level of investments. Clearly, this is demonstrated in the vicious circle of poverty theory, which explains the reasons for financial stagnation at little echelon of per capita productivity [1,2,3,4]. In view of this, one of the major macroeconomic policies of nations is the achievement of sustainable economic growth and development [5,6,7]. A feature of these developing nations has always been the existence of savings-investment gap occasioned by low levels of income, low productivity, and low propensity to invest [8,9,10]. In order to close the savings-investment gap, borrowing becomes imperative. A public debt is very important in bridging the savings-investment gap, especially when judiciously used for production purposes. Thus, if well managed, public debt can exerts salutary effects resulting in increased economic expansion and progress of a country. As stated by [11], nations scrounge either for aggregate economic motives,

including achieving greater rates of investment, and consumption in order to offset fleeting equilibrium of payments shortages, or to circumvent budget constraints. The author, however, contends that when debt stock increases to the extent of overhang, debt servicing becomes a great burden, and nations involve, falls on other side of the debt Laffer-curve, which comes with debt crowding out outlay and expansion. In this circumstance, interest payments and amortization of the debt would require increasingly large outlays of foreign exchange which may compel the country to either restrict imports or to renegotiate foreign debt. Debt renegotiation usually involves some political costs to the developing country, since, according to [12] the creditor country may require the debtor country to agree to embark on unpopular monetary and fiscal policies. In Nigeria, most of outer debts come from multilateral organization such as the Paris club, World Bank, African Development Bank and bilateral organizations such as the China Exim Bank, French Development Bank,

Japanese Aid Agency, among others. Thus, the Nigeria's public borrowing has overtime being on the rising side thereby leading to the nation's debt overhang, and this has undoubtedly rendered expected benefits of the \$18 billion liability liberation made in 2006 unproductive. The debt relief should have provided a solid background for improved debt management policies and strategies that would propel the economy to higher level of economic expansion and advancement. Rather than propelling the economic expansion and sustainable, it has continued to engage in a borrowing spree with utter disregard to the fact that government is a continuum and that any borrowing obtained by one administration is normally transferred to the successive administration and to upcoming age group. Any debt incurred by any government and mismanaged is bound to adversely affect the standard of living of future generations [10].

Meanwhile, an international firm, Price Water Coopers was after studying the Nigeria's increasing debt profile observed that the debt profile plus the declining debt-maintenance to income proportion and alien swap liquidity difficulties, already aggravate by the Covid-19 epidemic have adversely influenced administration revenue [4]. In that, it was revealed that the ₦6.25 trillion deficits in the 2022 budget, which is approximately 3.39% of the gross domestic product of country is slightly above the 3% ceiling set by the Fiscal Responsibility Act, 2007. Under the present Buhari's administration, Nigeria's public debt rose from ₦18.89 trillion in June 2015 to ₦38 trillion, representing about 300% increase in seven years. As a result, the World Bank has warned that Nigeria would face a huge-debt risk exposure due to failure to meet contractual debt obligations (Dailysun, 2021). By implication, the current debt service-to-revenue-ratio of 98%, for every ₦1 earned, ₦0.98 is spent on debt servicing. According to Debt management office (DMO) statistics reports in 2019, the Nigeria's municipal liability stockpile stood at an unpleasant US\$83.88 billion (₦25, 701, 645.74

trillion); while internal liabilities account for US\$56, 720.03 billion (₦17,379,015.91 trillion), external debts account for US\$27,162.63 (₦8,322,629.83 trillion). In other words, while domestic debt is 67.62% of the entire debt stock, external debt stock is 32.38%. Similar reports released in 2015 indicated that Nigeria's municipal liability stood at US\$63,806.45 billion (₦12,118,849.45 trillion). The corresponding foreign liability for the same epoch was equally US\$52,949.93 billion (₦10,428,489.32 trillion) with domestic debt of US\$10,856.52 billion (₦1,690,360.09 trillion). The effect of the increase in entire municipal debt from US\$52,949.93 billion to US\$83.88 billion between 2015 and 2019 is that there have been continuous augments to the whole liability stockpile accumulating to about US\$20 billion above the epoch of four years (Ojong, 2020). The statistics equally indicated that the uncontrolled debt has been extra pronounced in the area of internal borrowing, rising from US\$10,856.52 billion (₦1690360.09 trillion) to US\$56720.03 billion (₦17379015.91 trillion) between the two periods (2015 and 2019). By 2020, the DMO disclosed that Nigeria's total borrowing profile stood at ₦28,628 trillion. This figure included a slight increase from the ₦27.4 trillion in 2019. A breakdown of the figure shows that total external debt is ₦9.978 trillion, representing 34.89% of the debt profile, while total domestic debt is ₦18.642 trillion, and also representing 65.11% of the total debt profile. In unmistakable terms, the 2019 World Bank Economic prospects account caution against undefended accretion of foreign borrowing as basis for underdevelopment of several nations. It specifically mentioned Nigeria among the African countries where municipal borrowing as a percentage of GDP has twined and that additional accretion of untenable liability will crumble the hope of such countries (Sun Newspaper Editorial, July 4, 2020 page 9). It against this background, that this study re-evaluated the impact of public debt on economic expansion of Nigeria.

Theoretical Review The Big Push Theory

The theory of Big Push also consigns to capital the fundamental function in the course of economic expansion and improvement. According to this theory, a developing nation requires massive capital investment through industrialization so as to obtain desired levels of economic expansion and

improvement. The Big Push theory calls for abrupt, quick and massive rise in the outlay proportion, involving capital accumulation. This might be achieved by accumulating domestic reserves; but a fast increase in the proportion of investment would necessitate burly action on the side of the administration.

The Two-Gap Model

The two-gap hypothesis opined that developing economies encounter two gaps which they must fill if they are to develop. The first is the difference between reserves and venture in the economy. An underdeveloped nation kicks off with extremely little reserves and needs to engage in a big push by investing massively in capital in order to increase per capita output and income to develop. To fill this gap, countries have to borrow or increase their gains from trade with other countries. The next gap is the one connecting imports and exports. Developing countries are usually engaged in primary products production whereas it would need large imports of

capital goods and consumer goods. Underdeveloped countries, being producers of primary products with very high price elasticity of demand, usually face current accounts deficits. These deficits obviously would have to be corrected probably by borrowing. Leaving a developing country to operate a free market system would imply that it would be locked in to the agricultural sector and its manufacturing sector would never grow, thereby ruling out the possibility of a structural transformation (industrialization) of the economy which is an important requirement for growth and development.

Debt-Overhang Theory

This theory involves a condition in which the liability of a country is so large and surpasses its upcoming capability to refund. Debt overhang could cause torpid expansion and a dilapidation of the levels of living. According to [8] if there is a few probability that, in the upcoming, liabilities would be greater than a nation's reimbursement capability, anticipated liability- service costs could dampen more internal and alien outlay and adversely affect expansion and

development. Because outlay is frequently lesser in greatly indebted nations, there is meager recital of venture in nations with high liability services troubles which is commonly reliable with debt-overhang. Debt overhang is therefore, a situation where the upcoming liability weight is viewed to be so elevated that it becomes disincentive to existing venture, as investors believe that the earnings of one fresh venture would be taxed away to service the existing debt.

Empirical Review

[8] investigated the collision of municipal segment borrowings on prices, interest charge and productivity in Nigeria from 1970 to 2014, using vector autoregressive technique, granger causality test, impulse response, and variance decomposition of the different improvement in the scrutiny. The results revealed that shocks to external debt stock increases prime lending rate but with a lag, and that external and internal liability stock had no important collision on the general price echelon and productivity.

More so, [8] did a study on the impact of domestic debt on economic expansion in Nigeria for the period 1970-2003; and found that internal liability as a percentage of GDP had a significant inverse collision with economic expansion. [9] studied the association connecting municipal liability and economic expansion in Nigeria over the 1980-2015, utilizing the vector error correction technique. The results indicated that external liability and internal liability exerted significant and negative brunt on economic expansion.

[10] conducted a study on the brunt of municipal liability on economic expansion in Nigeria from 1986 to 2014, by employing Johansen co-integration tests, vector error correction modeling, and granger causality tests. The study found that internal liability stock had a positive and significant influence on real gross internal product while external liability had insignificant impact on Nigeria's economic expansion process. [12] examined the effect of external liability on economic expansion in Sudan for the epoch 1969-2015 utilizing Johansen cointegration and vector error correction (VECM) approaches. It was discovered that external liability proxied by the ratio of external liability to exports contributed positively to the Sudan economy, while exchange rate and foreign direct outlay exerted negative effects on GDP expansion. [11] did a study on analysis of the brunt of external liability on economic expansion in an emerging economy in Nigeria for the period 1985-2015, using ordinary least squares method, Johansen cointegration, and granger causality test. The research revealed that liability service payment exerted a negative and insignificant brunt on Nigeria's economic expansion while external liability stock had a positive and significant brunt on Nigeria's economic expansion. The causality test showed a unidirectional associations running from GDP to external liability, from exchange rate to GDP, while no causality existed connecting GDP and liability service

payment. [10] empirically studied the association connecting municipal liability and Nigeria's economic expansion for the epoch 1981-2017, utilizing autoregressive distributed lag modeling, and Chow Breaking point test. The outcome indicated that external liability had a negative and significant brunt on economic expansion while internal liability had a negative and insignificant brunt on economic expansion. Furthermore, that external liability exerted a negative and significant brunt on municipal outlay, while internal liability had a positive and insignificant brunt on municipal outlay. In a study by [5] on external liability and economic expansion in an emerging economy from 1990 to 2015, utilizing autoregressive distributed lag modeling. The study indicated a negative and significant influence of external liability on economic expansion in Oman. In addition, gross fixed capital was found to be positively significant in determining expansion performance in Oman. [7] empirically evaluated the effect of external liability on economic expansion indices in Nigeria for the epoch 1980 to 2013, utilizing cointegration and error correction approaches. The outcome showed that external liability had a short-run positive association but a negative association in the long-run; while external liability service payment had a negative association with gross internal product, exchange rate is positively related with economic expansion.

METHODOLOGY

The technique applied in the study of the association connecting economic expansion proxied by gross internal product and municipal liability in Nigeria for the sample epoch 1981 to 2020 is the autoregressive distributed lag modeling. This was informed by the fact that the outcome of the unit root tests for stationarity test conducted utilizing both the Augmented Dickey-

Fuller and Phillip-Perron tests showed a mixed order of integration among the parameters. The variables modeled in the investigation include the real gross internal product, domestic debt, external debt, public debt service, exchange rate and inflation rate. Data for these variables are sourced from the Central Bank of Nigeria (CBN) statistical bulletin, volume 31, 2020.

Model Specification

The association connecting economic expansion and municipal liability in

$$\ln \text{RGDP}_t = b_0 + b_1 \ln \text{DMD}_{t-1} + b_2 \ln \text{EXD}_{t-1} + b_3 \ln \text{PDS}_{t-1} + b_4 \text{EXR}_{t-1} + b_5 \text{INF}_{t-1} + U_t$$

Where: RGDP = Real Gross Internal Product, DMD = Domestic Debt, EXD = External Debt, PDS = Public Debt Service,

Nigeria can be structurally specified as follows:

1
 EXR = Exchange Rate and INF = Inflation Rate. This model was expressed in logarithms in order for the estimated

parameters to be interpreted as percentages.

A Priori Expectation

The study, theoretically expects domestic debt, external debt, and exchange rate to have positive association with the real gross domestic product; while public debt service and inflation rate are expected to have

negative association with the RGDP. The a priori expectation behaviour pattern of the variables follows the trends as: $\phi_1 > 0, \phi_2 > 0, \phi_3 < 0, \phi_3 > 0, \phi_3 < 0$.

RESULTS AND DISCUSSION

Unit Root Test Outcome

The Augmented Dickey-Fuller (ADF) unit root test for the stationarity of the time-series data is presented in table 1 below:

Table 1: ADF Unit Root Test

At Level Series	At Level			At 1 st Difference			Rank
	ADF Statistic	5% Critical Level	p-Values	ADF Statistic	5% Critical Level	p-Values	
LGDP	-1.322789	-2.938987	0.6093	-3.319617	-2.941145	0.0209	I(1)
LDMD	-1.560140	-2.941145	0.4928	-4.611498	-2.941145	0.0007	I(1)
LEXD	-1.526210	-2.941145	0.5097	-4.793273	-2.941145	0.0004	I(1)
LPDS	-1.571268	-2.943427	0.4869	-5.371193	-2.943427	0.0001	I(1)
EXR	-2.088616	-2.938987	0.2501	-4.290841	-2.941145	0.0016	I(1)
INF	-2.942633	-2.938987	0.0496	-	-	-	I(0)

*NB: I(0) stands for stationary at a level while I(1) stands for stationary at first difference.

Source: Researcher's Estimate from Eview 9.0 (2022)

Table 2: Phillips-Perron Unit Root Test

At Level Series	At Level			At 1 st Difference			Rank
	PP Statistic	5% Critical Level	p-Values	PP Statistic	5% Critical Level	p-Values	
LGDP	-1.022959	-2.938987	0.7356	-3.284592	-2.941145	0.0227	I(1)
LDMD	-1.862521	-2.938987	0.3459	-4.621322	-2.941145	0.0006	I(1)
LEXD	-2.547237	-2.938987	0.1126	-4.810479	-2.941145	0.0004	I(1)
LPDS	-1.076426	-2.938987	0.7154	-8.097638	-2.941145	0.0000	I(1)
EXR	-2.218084	-2.938987	0.2034	-4.136976	-2.941145	0.0025	I(1)
INF	-3.004900	-2.938987	0.0432	-	-	-	I(0)

*NB: I(0) stands for stationary at a level while I(1) stands for stationary at first difference.

Source: Researcher's Estimate from Eview 9.0 (2022)

Both the Augmented Dickey-Fuller unit root test shown in Table 1, and Phillip-Perron unit root test in Table 2, indicate that at 5% critical value, while inflation rate (INF) was stationary at level, the

other parameters, namely, gross internal product (GDP), internal liability outstanding (DMD), external liability(EXD), municipal liability service (PDS), and exchange rate (EXR) were stationary at first difference.

ARDL Bounds Test

Table 3: ARDL Bounds test outcome.

Test Statistic	Value	K
F-statistic	8.030890	5
Critical Value Bounds		
Significance	I0 Bound	I1 Bound
10%	2.75	3.79
5%	3.12	4.25
2.50%	3.49	4.67
1%	3.93	5.23

Source: Researcher's Estimate from E-view 9.0 (2022)

The ARDL-Bound test outcome presented in table 3 showed that there exists a long-run equilibrium association at 5% level of significance connecting municipal liability and economic expansion in Nigeria during the epoch of the study. In other words, municipal liability and economic expansion in

Nigeria are co-integrated. This is because the F-statistic value of 8.030890 is greater than the upper bound value of 4.25 at 5% significant level. Therefore, the hypothesis of no long-run equilibrium association connecting municipal liability and economic expansion in Nigeria is rejected.

The Short-Run and Long-run Outcomes:

The short-run outcome on the brunt of municipal liability on the economic

expansion of this study is as presented below:

Table 4: ARDL Short-Run Effects and the coefficient of ECM

Parameter	Coefficient	Std. Error	t-Statistic	Prob.
D(LGDP(-1))	-0.900310	0.217193	-4.145214	0.0020
D(LGDP(-2))	-0.367303	0.181069	-2.028524	0.0700
D(LDMD)	-0.227129	0.074437	-3.051295	0.0122
D(LDMD(-1))	-0.033264	0.094787	-0.350939	0.7329
D(LDMD(-2))	-0.181660	0.115680	-1.570370	0.1474
D(LDMD(-3))	0.303527	0.086328	3.515964	0.0056
D(LEXD)	0.012889	0.031236	0.412631	0.6886
D(LEXD(-1))	0.017656	0.036107	0.488988	0.6354
D(LEXD(-2))	-0.183248	0.040506	-4.524000	0.0011
D(LEXD(-3))	0.155989	0.030102	5.181997	0.0004
D(LPDS)	-0.224353	0.051341	-4.369879	0.0014
D(LPDS(-1))	0.089092	0.058348	1.526906	0.1578
D(EXR)	-0.000521	0.000335	-1.555325	0.1509
D(EXR(-1))	-0.000248	0.000260	-0.954025	0.3626
D(EXR(-2))	-0.000066	0.000311	-0.212167	0.8362
D(EXR(-3))	0.001181	0.000313	3.777822	0.0036
D(INF)	0.008009	0.001455	5.502962	0.0003
D(INF)	-0.001721	0.001069	-1.609724	0.1385
D(@TREND())	0.026933	0.015606	1.725782	0.1151
CointEq(-1)	-0.460649	0.095705	-4.813202	0.0007

Source: Researcher's Estimate from Eview 9.0 (2022)

ARDL Long Run Coefficients

The long-run outcome on the brunt of municipal liability on the economic expansion of this study is as presented below:

Table 5: ARDL Long-Run Test

Parameter	Coefficient	Std. Error	t-Statistic	Prob.
LDMD	0.895901	0.104842	8.545265	0.0000
LEXD	-0.312751	0.051043	-6.127251	0.0001
LPDS	0.822667	0.253810	3.241279	0.0089
EXR	0.005280	0.001666	3.170115	0.0100
INF	-0.026975	0.005060	-5.331321	0.0003
C	1.335693	0.438905	3.043238	0.0124
@TREND	-0.058467	0.031197	-1.874105	0.0904

Source: Researcher’s Estimate from Eview 9.0 (2022)

The short-run outcomes indicate that internal liability lagged three epochs was positively and significantly related to economic expansion in Nigeria. However, in the first and second lags, internal liability showed an inverse and insignificant association with the economic expansion. In the long-run, internal liability exerted a very significant brunt on economic expansion as indicated by the t-value of 8.54526 and a p-value of 0.0000. The outcome showed that, all other things being equal, a 1% increase in internal liability outcomes in about 89.6% increase in economic expansion in Nigeria. In the short-run, the empirical outcome showed that external liability exerted a highly significant and positive brunt on economic expansion, while the in the long-run the association with economic expansion was negative and significant as shown by the t-value of -6.127251 and p-value of 0.0001. It also disclosed that a 1% increase in external liability will outcome in a decrease in economic expansion by about 31.3%, all things being equal. With regards to municipal liability service, the empirical outcome indicated that in the short-run it has a negative and significant association with economic expansion, while in the long-run, it has a negative and highly significant association with

economic expansion. In the long-run, 1 % increase in municipal liability service exerted about 82% fall in economic expansion in Nigeria. This is confirmed by a t-value of 3.241279 and a p-value of 0.0089. Exchange rate is shown to have a negative but insignificant brunt on economic expansion in Nigeria in the short-run, while in the long-run it exerted a positive and significant brunt. This is to lend credence to the theory that exchange rate depreciation would outcome in increased exports and consequently in increased economic expansion performance. Inflation rate is shown to be indirectly related to economic expansion with a very high brunt factor. A 1% increase in inflation, all things being equal, will cause economic expansion to decrease by about 2.7%. This is supported by a t-value of -5.331321 and a p-value of 0.0003. As also indicated by the empirical outcome, an error correction coefficient (ECM_{-1}) of -0.460649, with a t-value of -4.813202 and a p-value of 0.0007, indicates that about 46% of the discrepancy connecting the short-run disequilibrium and long-run equilibrium is corrected annually. This is in line with the a priori requirements that the ECM_{-1} coefficient must be negative, fractional, and significant. This is however, a fairly good speed of adjustment.

Post-diagnostic Tests:

Table 6: Breusch-Godfrey Serial Correlation LM Test

F-statistic	1.997914	Prob. F(2,5)	0.1606
Obs*R-squared	5.754952	Prob. Chi-Square(2)	0.0643

Source: Researcher’s Estimate from Eview 9.0 (2022)

The post-diagnostic outcome of serial correlation shown on Table 6 above indicated that there is no existence of serial correlation or autocorrelation in the model because both the probability values of F-statistic of 0.1606 and that of the observed R-square of 0.0643 are more than 5% level of significance.

Table 7: Heteroskedasticity-Breusch-Pagan-Godfrey Test

F-statistic	1.229073	Prob. F(25,10)	0.3814
Obs*R-squared	27.16062	Prob. Chi-Square(25)	0.3479
Scaled explained SS	2.995202	Prob. Chi-Square(25)	1.0000

Source: Researcher’s Estimate from Eview 9.0 (2022)

The Breusch-Pagan-Godfrey test for Heteroskedasticity in table 7 also indicated that there is no existence of probabilities of F statistic of 0.3814 and that of the observed R square of 0.3479, respectively are higher than the 5% level

Table 8: Ramsey RESET Test of Specification

	Value	Df	Probability
t-statistic	0.856955	9	0.4137
F-statistic	0.734371	(1, 9)	0.4137
F-test summary:			
	Sum of Sq.	Df	Mean Squares
Test SSR	0.000701	1	0.000701
Restricted SSR	0.009298	10	0.000930
Unrestricted SSR	0.008597	9	0.000955

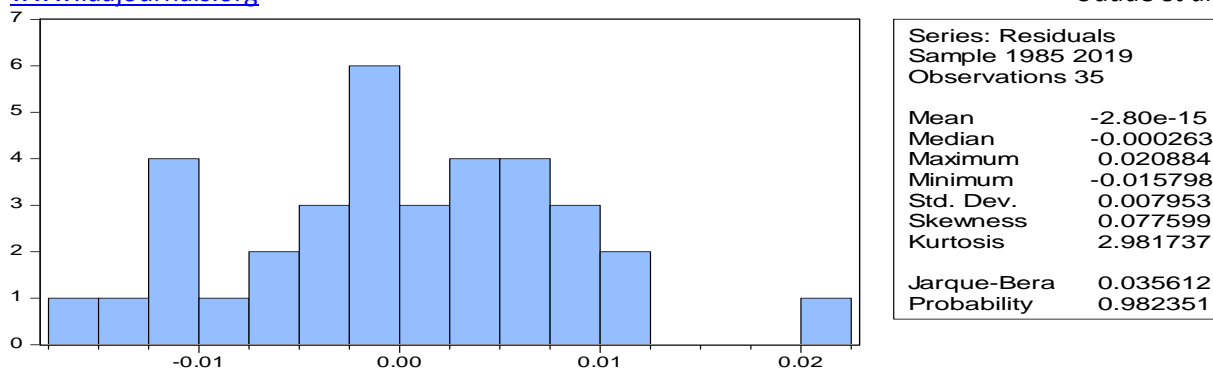
Heteroskedasticity because the ofsignificance.

Source: Researcher’s Estimate from Eview 9.0 (2022)

The Ramsey RESET test of model specification presented in Table 8 shows that there is no model misspecification in this study, that is, that the model utilized in this study is without error of either omission, measurement, etc. This is because the probabilities of both t-statistic and F-statistic respectively were all statistically insignificant i.e., greater than 5% level of significance.

Histogram Normality Post Diagnostic Test

The histogram normality test presented in figure one below shows that the residuals of the model were normally distributed because the probability of the Jarque-Bera statistic is more than 5% level of significance.



Source: Researcher's Estimate from Eview 9.0 (2022)

Figure 1: Normality Test

Policy Implications of the Results

From the results, internal debt has a positive and significant influence on LR GDP. It is estimated that a 1% increase in internal debt will lead LR GDP to improve by 0.9%. More so, the external debt has a negative and significant effect on real gross domestic product. Thus, the study, estimated that a 1% rise

in the external debt will result in a 0.31% decrease in LR GDP in the economy in the long-run. The results as well indicated that public debt service has a positive and significant influence on economic growth. Hence, it implies that a 1% rise in public debt service will raise LGDP by 0.8%.

CONCLUSION

This is a study of the brunt of municipal liability on economic expansion in Nigeria for the epoch 1981-2020. The empirical outcome showed that internal liability had a positive and significant brunt on economic expansion in the short-run while in the long-run, the brunt was positive and significant. External liability outstanding had a highly significant and positive brunt on economic expansion in the short-run, while in the long-run it had a negative and significant brunt. Municipal liability service exerted negative and significant brunt, both in short-and -long-runs. More so, Exchange rate had a negative and insignificant brunt on economic expansion in the short run, while in the long run it exerted a positive and

significant brunt on economic expansion. Inflation rate showed an insignificant and negative brunt in the short run but negative and significant brunt on economic expansion in the long run. On the above note, it is recommended that while Nigeria could continue to make use of internal liability, there is need to be extremely cautious or to exercise a good measure of restraint in her external borrowing, to avoid the problem of liability over-hang. Secondly, government is advised, as an option to external borrowing, to depreciate her currency in order to make her exports more competitive. This will improve her balance of payments and consequently enhance her economic expansion.

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