



RESEARCH JOURNAL OF FINANCIAL SUSTAINABILITY REPORTING

A PUBLICATION OF THE
DEPARTMENT OF ACCOUNTANCY
FACULTY OF MANAGEMENT SCIENCES,
ENUGU STATE UNIVERSITY OF SCIENCE & TECHNOLOGY

ISSN: 2635 - 3679. VOL. 5, ISSUE 1, JANUARY- JUNE, 2020

Determinants of Gross Domestic Savings in Nigeria

Biliquees A. ABDULMUMIN, PhD¹, Temitayo O. OLANIYAN² & Dayo BAMIGBADE³

¹ & ² Department of Finance, University of Ilorin, Ilorin, Nigeria. Correspondence: ¹abdulmumin.ba@unilorin.edu.ng
²17-68ns011@students.unilorin.edu.ng

³ Department of Accounting, University of Ilorin, Ilorin, Nigeria. bamigbade.d@unilorin.edu.ng

Abstract: We examine the long-run and short-run determinants of gross domestic savings in Nigeria over the period 1987 to 2019. The importance of macro-financial characteristics in determining the level of domestic savings. The study employed the ARDL cointegration procedure in the estimation and it confirms the presence of a long-run cointegrating relationship between domestic savings and its determinants. The results show that remittances and financial development are significant financial determinants of gross domestic saving in Nigeria. Other determinants are the growth of real per capita income, age dependency ratio, fiscal deficit, and deposit interest rate. Therefore, these important determinants of saving accumulation in Nigeria should not be ignored by policymakers in formulating capital accumulation policies. This study recommends that the need for government policies aimed at leveraging cash flows to facilitate capital accumulation savings and investment. Moreso, the interest rate policy should take market conditions and public requirements into consideration when determining interest rates. Furthermore, there is the need to create a conducive environment for receiving remittances by promoting financial development.

Keywords: Gross Domestic, Savings, Nigeria

1 Introduction

In the literature on economic growth, savings are identified to play a critical role in enhancing economic growth. Solow (1956) indicates that higher savings contribute to capital accumulation, a crucial driver for economic growth. Despite the benefits of savings, the amount of domestic savings is low in Nigeria. Many factors contribute to Nigeria's low level of savings, including banks' neglect of small and medium-sized savers to favour government deposits. There is also a low grassroots savings mobilisation, as banks set unrealistic requirements that need to be fulfilled before they open the accounts (Imoisi *et al.*, 2018). The problems of low domestic savings were compounded by low and negative savings deposit rates. The low savings rate represents a lack of successful policies to promote domestic savings and thus people are not willing to compromise their consumption (Imoisi *et al.*, 2018). Savings are one of the most important economic strategies for mobilising investment funds, it is a crucial driver for economic growth (Adedokun *et al.*, 2020). An adequate supply of domestic savings remains a core national policy objective, mainly due to its direct impact on the growth process and its role as domestic investment stimulants (Mumba & Lusaya, 2019). The higher likelihood of savings from migrants' transfers can be explained by the relatively high costs of these transfers. Therefore, foreign-currency remittances gives households the opportunity to save more. Consequently, the higher the value of the remittances received by households, the higher their chance of savings.

The primary source of capital accumulation and investment financing are savings, particularly domestic savings. Moreso, higher domestic savings and additional capital stocks support countries' development by ensuring long-term growth sustainability (Alper, 2018). An effective and well-developed financial sector is vital for mobilising domestic savings to strengthen the financial sector. Hence, a developed financial system is expected to increase savings by improving the level of financial intermediation process (Etudaiye-Muhtar & Agboola, 2019). The person to person flow of remittances within household will directly affect savings by increasing the disposable

income of transfer-receiving households (Aker, 2018). Households typically do not spend all the remittance received on consumables; they may also save part (Adaawen & Owusu, 2014; Quartey *et al.*, 2018). We argue that migrant flows can lead to higher domestic savings. Critical domestic savings opportunities include external sector transactions such as foreign aid, remittances and international investments. For example, Nigeria is still characterised by low investments and production growth, despite the growing trend of private savings, indicating that the average savings ratio is still not impressive. Domestic savings can, however, reduce reliance on foreign financing for a nation, such as migrants' transfer and foreign aid. Malunond (2007) notes that countries are highly vulnerable to external shocks when they depend on foreign financial flows to finance investments. He argues that domestic savings as a source of investment financing will minimise vulnerability to international economic fluctuations.

The Nigerian economy is faced with the challenges, which include a low GDP growth rate, high level of inflation, and maladapted financial sector. These problems might have contributed to the country's low levels of gross domestic savings. Despite intervention programmes of the government, the problem of low savings as a constraint to resource mobilisation and economic growth remains a big challenge in Nigeria. It, therefore, requires that we examine the macro-financial determinants of domestic savings in Nigeria. A number of factors including fiscal deficits, age dependency ratio, interest rate, inflation rate, per capita income, financial development, amongst others may influence domestic savings. Developing countries often face capital constraints due to low levels of savings. As a result, these countries rely mostly on foreign capital inflows to fill up the desirable resources (Aker, 2018). The relatively high values of most foreign remittances inflows to developing countries like Nigeria has the tendency to explain the level of domestic savings. Thus, this study examines the macro-financial determinants of aggregate savings in Nigeria.

The rest of the paper is organised as follows: the section two discusses the literature review. Section three explains the methodology and data. Section four entails the empirical results and discussion, while section five concludes the study and provides detailed recommendations.

2 Review of Related Literature Conceptual & Theoretical Literature

Gross domestic savings refers to the total savings accrued from the economic units: private individuals, corporate organisations, and governments. The funding of priority projects and programmes in an economy requires the ability to produce sufficient, stable and predictable savings. It has two facets, namely: (a) private household savings in the financial sector (private banks are channelling these savings to investment) and (b) public savings, which is the public revenue surplus after existing government spending (Ayimadu, 2016). The funding of priority projects and programmes in an economy requires the ability to produce sufficient, stable and predictable savings. It has two facets, namely: (a) private household savings in the financial sector (private banks are channelling these savings to investment) and (b) public savings, which is the public revenue surplus after existing government spending (Ayimadu, 2016). Modigliani's life cycle hypothesis has been used to analyse savings behaviour. Ando and Modigliani (1963) provide further insights into the savings behaviour of individuals within the society. The life-cycle hypothesis assumes that saving is intertemporal and depends on the age of a person. Meanwhile, savings rates are also expected to be pro-cyclical, with individuals saving more when income increases. The model was focused on rational economic units' savings and consumption choices, which are based on assumptions of intertemporal and utilities maximisation. Based on this hypothesis, savings are not static but often changes over time. According to the life-cycle theory assumptions, income varies systematically over people's lives. Savings allow individuals to move income from those times when income is high when it is low. The McKinnon-Shaw hypothesis of McKinnon (1973) and Shaw (1973) posit that interest rate liberalisation would deepen the financial system and put a stop to financial repression. This happens when higher interest rates promote savings, and there is an increase in financial intermediaries' efficiency. According to McKinnon's model, the assumption is that the ability to trigger investment will be undermined unless sufficient savings are efficiently mobilised in the form of increased deposit liabilities of the banking system.

They specifically argue that a deepened financial sector increases the domestic savings rate, leading to reduced borrowing costs and investment stimulation.

Empirical Review

Touny (2008) examined the determinants of domestic savings in Egypt for 1975 to 2006 using cointegration and error correction methodology. The result of the study provides evidence that the growth of per capita income has a positive influence on domestic savings, especially in the long-run, budget deficit ratio appears to have a negative effect on domestic saving ratio and that higher government savings partially crowd out private savings, the development of the financial market as proxied by the increase in the M2/GNP ratio, the real interest rate, and inflation rate shows a positive and significant effect on the level of domestic savings. More so, the current account deficit recorded a negative and statistically significant effect on both the short run and the long run, which implies that external saving may tend to act as a substitute to domestic private saving.

Munir *et al.* (2011) examined the effect of workers' remittances on the private savings behaviour in Pakistan by using the ARDL bounded testing approach. They concluded that the workers' remittances have a positive impact on the private savings in the long run and the short run; thus, workers' remittances are both consumed and saved. Furthermore, foreign direct investment negatively influences savings because it does not reach poor households directly. Azam and Shakeel (2012) analysed the impact of foreign capital inflows on household savings by using OLS. They found a significant positive influence of foreign direct investments and foreign remittances on savings and a significant negative influence of foreign aid on savings.

Ahmad and Mahmood (2013) worked on macroeconomic determinants of domestic Savings in Pakistan. The cointegration using Autoregressive Distributed Lag Model (ARDL) bound testing approach for cointegration techniques to check the robustness for long-run relationship and error correction Mechanism. They found that per capita income inversely related to domestic savings rate, both in the long-run and as well in the short-run significantly. The exchange rate and inflation rate harm savings. Moreover, trade openness is positively associated with national savings in Pakistan.

Chipote and Asrat (2014) investigated the household savings determinants in South Africa through a life cycle model. The results of the error correction mechanism show that household savings are affected by age dependence, household income levels, real interest, and inflation rates. Household income level and savings are negatively related, implying that South African households not only save but primarily finance their expenditure with debt. The study also showed that inflation, interest rates, and age dependency positively correlate with household savings.

Bamidele *et al.* (2015) investigated the determinants of savings in Nigeria and lessons for policy, using descriptive and econometric analyses. Long-run static and short-run dynamic error correction models were estimated for the period 1960 to 2013. The results indicated that the per capita income, inflation, and the real interest rate affect savings as predicted by theory. This result fully supports the McKinnon and Shaw hypothesis. It also indicated that the Keynesian absolute income hypothesis is found to hold in Nigeria. Ahmad (2015) investigated the determinants of savings behaviour in Pakistan from 1972 to 2012 and applied a cointegration test, vector error correction model, and causality tests. The results suggested that GDP per capita, inflation rate, financial development, dependency ratio, and fiscal development have an impact on the private savings rate in Pakistan.

Gani (2016) study tested the savings and remittance relationship under the life cycle hypothesis for nine Asian countries. Using cross-country time-series data, the empirical findings suggest a positive relationship with domestic savings. Abusomwan and Ezebuihe (2017) assessed the impact of interest rate and output on gross results showed that changes in output explain the behaviour of gross domestic savings. Furthermore, the study report that the interest rate is not a determinant of savings behaviour.

Alper (2018) studied the determinants of domestic savings in Turkey over the period 1979 to 2017. GDP per capita and bank deposit interest rate have a positive impact on savings, and inflation and public spending have a negative impact on savings. Abasimi and Martin (2018) employed the data collected from four West African countries over 1997-2016 and analysed through the ARDL cointegration procedure. The findings showed that GDP and per capita income increase savings, whereas real interest rates increase savings only in the long-run, while the age dependency ratio decreases the savings.

Adedokun *et al.* (2019) evaluated the determinants of private savings in Nigeria from 1981 to 2016. The results show that lifetime income and social security payment have a significant positive relationship with private saving in the long-run, while adult dependency has a significant negative relationship with private saving. The results showed through the two-stage least squares and ordinary least squares methods that household size, household land ownership, location, occupation, and age are determinants of household savings in Nigeria. Furthermore, household living conditions, marital status, and availability of infrastructure such as electricity. The results show that household socioeconomic characteristics, locational and zonal factors are important determinants of household saving accumulation in Nigeria.

Research Gap

Empirical studies on the determinants of savings behaviour have focused on the macroeconomic determinants of domestic savings such as per capita income and interest rates (see, for instance, Ahmad & Mahmood, 2013; Abusomwan & Ezebiuhe, 2017). Extant studies have failed to identify the financial determinants of savings. Specifically, the effectiveness of remittances in stimulating savings generates a continual debate and remains inconclusive. Therefore, the literature on the determinants of domestic savings in Nigeria is not extensive, the impact of macro-financial factors on domestic savings is mostly underexplored, for instance; Nwosu *et al.* (2019); Adedokun *et al.* (2019); Alper (2018); Abasimi and Martin (2018); Abusomwan and Ezebiuhe (2017), among others.

3 Methodology

This study adopts the model specified by Etudaiye-Muhtar and Agboola (2019). We modify the model by incorporating remittances, an important financial flow that may induce domestic savings as such inflows grow higher. We also employed the deposit interest rate, which is more related to savings mobilisation rather than real interest rate. The *ex-post facto* research design is adopted in investigating the macro-financial determinants of gross domestic savings in Nigeria. Specifically, the growth of per capita income, savings deposit rate, and fiscal deficit are some of the macroeconomic factors that can determine gross domestic savings in an economy. At the same time, the age dependency is an important variable suggested by the life cycle hypothesis. The data for fiscal deficit are sourced from the Central Bank of Nigeria (CBN) statistical bulletin and those for other variables are from the World Bank's Development Indicator (WDI) Database. We collect annual data on the variables for the period 1987 to 2019 and employ the error correction modelling (ECM) approach over the Ordinary Least Squares (OLS) estimates in analysing the data because OLS produces short-run oriented results and may be biased. The ECM examines the long-run relationship between gross domestic savings and its macro-financial determinants. Besides, it provides an opportunity to estimate both the short-run and long-run effects of the variables.

Model Specification

The model for this study is specified as:

$$GDS = f(REM, FD, GY, AGD, FID, DIR) \quad (1)$$

Eq. (1) can be restated in econometric form as:

$$GDS_t = B_0 + \beta_1 REM_t + \beta_2 FD_t + \beta_3 GY_t + \beta_4 AGD_t + \beta_5 FID_t + \beta_6 DIR_t + \mu_t \quad (2)$$

where; GDS is gross domestic savings as a ratio of GDP (a measure for the level of domestic savings mobilization of deposit money banks); REM is remittances/migrant transfers' as a ratio of GDP; GY is the growth of real per capita income; FD is financial development; AGD is age dependency ratio; FID is fiscal

deficit, and DIR is the deposit interest rate. While, β_0 is the intercept of the model; β_1 - β_6 is the regression coefficients to be estimated; t represents a period, and μ is the stochastic error term. β_1 - β_6 are hypothesised to be positively related to gross domestic savings. Therefore, the variable enters the regression specified in this study. Table 1 shows a detailed discussion of the variables used.

Table 1. Variable Description and Measurement

Variables	Measurement	Sources	Literature back up
Gross Domestic Savings (GDS)	It is measured as the ratio of real gross domestic savings scaled by the GDP level.	WDI database	Etudaiye-Muhtar & Agboola (2019)
Remittances (REM)	It is measured as remittances received expressed as a ratio of GDP	WDI database	Akter (2018)
Financial Development (FD)	We employ bank credit to the domestic sector as a percentage of GDP to measure the depth of the financial sector in terms of savings mobilisation.	WDI database	Ndukwe-Ani et al. (2018); Tsaurai (2017); Etudaiye-Muhtar & Agboola (2019)
Growth of per capita income (GY)	The ability to save depends on the size of the national income. The higher the national income, the higher the per capita income, which consequently enhances the power to save. The low level of national income is regarded as one of the most critical factors that cause insufficient savings	WDI database	Alper (2018); Etudaiye-Muhtar & Agboola (2019)
Age Dependency Ratio (AGD)	It is the ratio of dependents younger than \15 or older than 64 to the working-age population (15-64 years). This indicator gives insight into the amount of people of non-working age compared to the number of those of working age. Following the life cycle model, the retired population is expected to be dissaving, while young dependents should cause households to have higher consumption levels and lower saving rates. An increase in the age dependency ratio will likely lead to a decrease in national savings.	WDI database	Ang (2011); Kapingura and Alagidede (2016); Etudaiye-Muhtar & Agboola (2019)
Fiscal Deficit (FID)	Fiscal balance measures the surplus or deficit of the federation as a percentage of GDP	CBN bulletin	Ahmad (2015); Nwachukwu and Odigie (2011); Etudaiye-Muhtar & Agboola (2019)
Savings Deposit Rate (DIR)	Deposit interest rate is the rate paid by commercial or similar banks for demand, time, or savings deposits. The higher the interest paid to deposits, the higher the level of savings because people will want to take advantage of a higher interest rate by depositing more funds in banks	WDI database	Alper (2018)

Source: Prepared from literature review

4. Data Presentation & Analysis

4.1 Summary Statistics

Table 2 (see appendix) shows that GDS, REM, GY, FD, AGD, FID, and DIR have mean values of 18.68%, 2.95%, 2.39%, 15.72%, 86.01%, -2.37%, and 14.35%, respectively. The maximum value for GDS, REM, GY, FD, AGD, FID, and DIR is 42.7%, 15.6%, 32.7%, 42.9%, 98.42%, 0.88%, and 23.24%, respectively while their minimum value is 5.6%, 0.01%, -12.3%, 7.08%, 86.6%, -6%, and 5.69%, respectively. FD showed a high maximum value, implying that credit to the private sector is huge and expected to have a meaningful impact on gross domestic savings. The standard deviation of GDS, REM, GY, FD, AGD, FID, and DIR is 6.3%, 3.85%, 5.2%, 5.05%, 1.72%, 1.95%, and 0.68%, respectively. The standard deviation of GDS, FD, AGD, and DIR is low as compared to their mean value, implying that the actual value of the variables is close to the predicted value.

4.2 Test for the Stationarity of Variables

This study performs the traditional Phillip-Perron (PP) Unit Root Test to determine the stationarity of the series together with their order of integration -I(d). The null hypothesis of the test is that the variables to be examined contain a unit root.

Table 3. Results of Phillip-Perron (PP) Unit Root Test

Variables	Unit Root at Level		Unit Root at First Difference		I(d)
	Test statistic	p-value	Test statistic	p-value	
GDS	-2.183954 ^c	0.3203	-5.507454 ^b	0.0001***	I(1)
REM	-2.059293 ^b	0.0252**	-	-	I(0)
FD	-1.804261 ^b	0.3403	-2.043197 ^a	0.0005***	I(1)
GY	-1.843201 ^a	0.0725*	-	-	I(0)
AGD	-0.756437 ^a	0.3942	-2.904534 ^a	0.0044***	I(1)
FID	-1.205824 ^a	0.2206	-3.178241 ^b	0.0002***	I(1)
DIR	2.470736 ^b	0.0813*	-	-	I(0)

Notes: ^a, ^b and ^c indicates the test equation has no intercept and trend, intercept only, and intercept and trend, respectively. ***, **, and * denote the rejection of the null hypothesis at 1%, 5%, and 10% significance level, respectively.

Source: Authors' Computation, (2020).

Table 3 shows that gross domestic savings, financial development, age dependency ratio, and fiscal deficit are non-stationary series; hence they have a unit root. The implication is that OLS regression could not be used on the non-stationary data; thus, it will be spurious. However, remittances, growth of income, and deposit interest rate are stationary at level. The order of integration for gross domestic savings, financial development, age dependency ratio, and fiscal deficit was confirmed to be I(1) when these series became stationary after first differencing. The stationarity test shows that the variables are a mixture of I(0) and I(1), implying that the Autoregressive Distributed Lag (ARDL) bounds test approach to cointegration is most suitable in testing for the existence of a long-run relationship among the variables in the model.

4.3 ARDL Bounds Testing Approach to Co-integration

The results of the PP unit root test depicted in Table 3 demonstrates that the series in the model is I(0) and I(1) combinations. According to Pesaran and Shin (1998), the ARDL Bounds testing approach is the best estimator for the I(0) and I(1) series when checking for long-run relationship. Based on the Akaike information criterion (AIC), the optimal lag order of 1 is automatically selected for the ARDL specification. The procedure is used to determine the presence of a long-run relationship between variables. The bounds test result conducted is shown in Table 4.

Table 4. Results of the ARDL Bounds Testing Approach to Co-integration

Computed F-Stat	Significance level	Lower bound I(0)	Upper bound I(1)	Decision
5.057335***	10% critical bounds	2.74	3.65	Reject the null hypothesis of no cointegration
	5% critical bounds	2.92	3.97	
	1% critical bounds	3.24	4.96	

*** implies the rejection of the null hypothesis at a 1% level of significance.

Source: Author's Computation, (2020).

Table 4 reveals the bounds test result computed with the condition to the variables are fractionally integrated. $I(0)$ represents the set of lower bound and $I(1)$ depicts the set of upper bound. The F-statistics value of 5.057335 lies above the upper bound critical value of 4.96 at 1% significance level. Therefore, the joint null hypothesis of no cointegration is rejected, which implies that cointegration exist. There is a need to conduct the long-run relationship among the variables and the short-run dynamic estimates from the ARDL cointegration technique.

4.4 ARDL Regression Estimates

A long-run co-integration relationship exist among variables in the model using the following ARDL specification (1, 1, 0, 1, 0, 1, 1) for estimation. Table 5 shows the results of the ARDL long-run regression estimates

Table 5. Results of ARDL Regression Estimates
Dependent Variable (Gross Domestic Savings)

Panel A		Panel B	
Variable	ARDL Long-run Coefficient	Variable	ARDL Short-run Coefficient
REM	0.2851936*** {0.08053}	$\Delta(\text{REM})$	0.562492** {0.220623}
FD	0.220428** {0.00527}	$\Delta(\text{FD})$	0.22072* {0.07514}
GY	2.056291*** {0.02178}	$\Delta(\text{GY})$	2.08207 {3.47333}
AGD	0.968032** {0.22781}	$\Delta(\text{AGD})$	0.782103 {2.20313}
FID	-0.310356*** {0.109018}	$\Delta(\text{FID})$	0.674172*** {0.15226}
DIR	1.278172** {0.028178}	$\Delta(\text{DIR})$	-0.828911** {0.206714}
C	-8.726117 {3.92083}	Coint. Eq(-1)	-0.96121** {0.25752}

Model Diagnostics

Ramsey RESET, F -statistics	0.78031 (.3504)
Jarque Bera Normality, χ^2	0.8324 (.5783)
Serial Correlation LM, F -statistics	1.988336 (.1125)
Heteroscedasticity Test, F -statistics	1.328917 (.1043)
Stability Tests (CUSUMs)	Lies within 0.05 level of significance (see Appendix)

Model Results

R-squared	.9814
Adjusted R-squared	.9503
F-statistics	86.015***
Durbin Watson Stat.	2.102

Notes: ***, **, and * implies the significance of the variables at 1%, 5%, and 10% significance level respectively. Standard errors are reported in brackets { }, while p -values are reported in parentheses ().

Source: Author's Computation, (2020).

Long-Run Analysis Results

Panel A of Table 5 demonstrates the results of the estimated ARDL long-run relationship between the gross domestic savings and its macro-financial determinants (remittances/migrant transfers, financial development, growth of real per capita income, fiscal deficit, deposit interest rate, and age dependency ratio. In terms of the sign of the variables, five out of the six explanatory variables (remittances/migrant transfers, financial development, age dependency ratio, deposit interest rate and growth of real per capita income) are positively related to gross domestic savings. It implies a direct relationship between these variables and gross domestic savings, as revealed by their positively signed coefficients. In contrast, the coefficient of fiscal deficit showed a negative relationship with gross domestic savings, implying that an increase in fiscal deficit reduces gross domestic savings. Meanwhile, the independent determinants of gross domestic savings show p -values less than the 10% threshold level of significance.

Short-Run Analysis Results

The results of the ARDL short-run regression estimates in Panel B of Table 5 show that $\Delta(\text{REM})$, $\Delta(\text{FD})$, $\Delta(\text{GY})$, $\Delta(\text{AGD})$, and $\Delta(\text{FID})$ have positive coefficients. This result implies that as any of the lags of these independent variables increase, there is an increase in gross domestic savings. On the other hand, $\Delta(\text{DIR})$ has a negative coefficient implying that deposit interest rate affects gross domestic savings negatively in the short-run. Meanwhile, the ARDL short-run estimates revealed that all the variables except $\Delta(\text{GY})$ and $\Delta(\text{AGD})$ are statistically significant since their respective p -value is less than the 10% threshold level of significance. The lagged error correction term (CointEq(-1)) is the series of OLS residuals that are derived from the long-run estimation. As expected, the ECM term's coefficient (-0.96121) is negative and significant at a 1% level of significance. Therefore, the results validate the existence of a long-run equilibrium relationship between the variables of this study. This implies that the disequilibrium can be adjusted to the long-run with higher speed, having any prior-year shock in the explanatory variables. The value of R-squared and adjusted R-squared were estimated to be 0.9814 and 0.9503, which implies the model of this study has a good fit; hence the explanatory power of the independent variables regarding the behaviour of gross domestic savings is satisfactory. The F -statistics, which has an exact p -value of 0.000, implies that the overall significance of the short-run ARDL model. Based on the rule of thumb, the Durbin Watson statistics falls within the acceptable limit with a value of 2.102; hence there is no presence of first-order serial correlation in the model.

Post-Estimation Diagnostics

To validate the findings, the study performed model diagnostic tests, including tests for normality of data series, heteroscedasticity, serial correlation, and model instability. Panel A of Table 5 shows that the ARDL model has passed the diagnostic tests since there is no heteroscedasticity and serial correlation demonstrated by their p -values, which are statistically non-significant at the 5% level of significance. It was also concluded that the model residuals are free from non-normality since the probability values are more significant than the 5% significance level. The stability tests indicated no problem of structural change in the model since the plots of the test lie within critical boundaries at the 5 percent level of significance. The results of the Error Correction Model (ECM) allows a variable to be dynamic in the short-run while remaining at equilibrium in the long-run.

4.5 Discussion of Results

This study examined the determinants of gross domestic savings in Nigeria, and the results obtained are supportive of the existence of both short-run and long-run relationships. Hence, we discuss the results of the ARDL long-run estimates.

The relationship between per capita growth rate and domestic savings is positive, as expected. The coefficient of per capita growth rate is positively related to gross domestic savings, and significant. This reveals that changes in the economic growth rate affect aggregate domestic saving. This result implies that the potential for economic growth to increase domestic savings in Nigeria is enormous. Hence, per capita growth rate stimulates increased savings in Nigeria. This result agrees with the life-cycle theory of saving and consumption, which predicts that

changes in a country's economic growth rate will affect its aggregate saving rate by changing the lifetime resources of younger people relative to older people.

The relationship between financial development and domestic savings is positive and significant. We found that financial development is important as a determinant of gross domestic savings. Financial development, in terms of increased credit to the private sector will encourage productive activities and increase the flow of funds (savings) to the financial sector. Financial development ensure a productive allocation of available resources leading to increased savings.

In accordance with the life-cycle hypothesis, interest rate on deposits is a significant determinant of domestic savings in Nigeria. Therefore, when deposit money banks pay commercial banks pay more interest on deposits relative to the inflation rate, it tends to encourage more savings. However, other behavioural factors may affect the growth of savings like customers' convenience, the security of deposits, etc.

Changes in the age dependency ratio exerts an influence on the accumulation of savings. This aligns with the life-cycle hypothesis whereby the early and later stages of life are associated with dissaving, and savings characterize only the middle stage. However, this could be attributed to precautionary saving due to future income variations and other risks like a health risk, business risk, and unavoidable expenditures. Elderly people are likely to dis-save quickly, they tend to spend what they save during their active years. However, they may save more to enable them to leave bequests to their children.

Remittances has a positive and significant effect on gross domestic savings (Jukan *et al.*, 2020). A stable flow of remittances contributes to improved savings. Thus, remittances contributes significantly in increasing the level of domestic savings in Nigeria. It implies found that remittances can supplement domestic resources and part of this funds can be saved. Fiscal deficit has a negative relationship with gross domestic savings' hence, there is the fear that increased taxes in future will be need to finance deficits. This leads to a depletion in gross domestic savings. Specifically, the Ricardian Equivalence hypothesis is not upheld since fiscal deficit limits the ability or capacity of governments to save.

5. Conclusion and Recommendations

The findings show a positive impact of remittances on gross saving. Therefore, remittances received by households affect their savings behaviour. It shows that remittances increases savings. We conclude that decision makers need to create regulatory framework that will encourage remittance recipients to receive remittances through formal financial institutions. This would mean that all receipts would be in the need to have bank account opened which might give them the incentive to save portion of received money. This study examines the potential determinants of Nigeria's gross domestic savings between 1987 and 2019. Financial development and remittances are important determinants of gross domestic savings in Nigeria. We recommend that government policies aimed at leveraging cash flows to facilitate capital accumulation savings and investment. Moreso, the interest rate policy should take market conditions and public requirements into consideration when determining interest rates. There is the need to create a conducive environment for receiving remittances, thus policymakers need promote financial development. For instance, policymakers should ensure the reduction of cost of sending and receiving remittances because it may encourage migrants to make more transfers to the families; it helps to boost domestic savings.

References

- Abasimi, I., & Martin, A. Y. (2018). Determinants of national saving in four West African countries. *International Journal of Economics and Finance*, 10(5), 67. <https://doi.org/10.5539/ijef.v10n5p67>
- Imoisi, A. I., Iyafekhe, C., & Ezeibekwe, F.O. (2018). Determinants of aggregate savings in Nigeria. *Accounting & Taxation Review*, 2(1), 198-198. <https://www.zbw.eu/econis-archiv/bitstream/11159/4382/1/1695622863.pdf>
- Abusomwan, S., & Ezebuihe, J. (2017). Gross domestic savings and gross capital: What matters to their formation in an era of economic recession in Nigeria? *Oradea Journal of Business and Economics*, 2(2), 45-55. http://ojbe.steconomieuradea.ro/wp-content/uploads/2017/09/OJBE_vol-22_final.pdf#page=45.
- Ahmad, F. (2015). Determinants of savings behaviour in Pakistan: Long run-short run association and causality. *Timisoara Journal of Economics and Business*, 8(1), 103-136. <https://doi.org/10.1515/tjeb-2015-0011>
- Ahmad, K., & Mahmood, H. (2013). Macroeconomic determinants of national savings revisited: A small open economy of Pakistan. *World Applied Sciences Journal*, 21(1), 49-57. <https://doi.org/10.5829/idosi.wasj.2013.21.1.2458>
- Akram, N., & Akram, M. I. (2016). Macro and socioeconomic determinants of savings in Pakistan. *Pakistan Business Review*, 18(2), 325-342. <https://journals.iobmresearch.com/index.php/PBR/article/view/833/170>
- Bamidele, A., Jibrin, M., & Isa, A. (2015). Determinants of gross domestic savings in Nigeria: Lessons for policy. *Economic and Financial Review*, 53(3), 16-37. <https://www.cbn.gov.ng/Out/2018/RSD/Volume%2053%20Number%203%20September%202015.pdf#page=20>
- Mumba, C., & Lusaya, S. (2019). Analyzing the determinants of household savings in Zambia 1985-2017. *The International Journal of Multi-Disciplinary Research*, 2, 1-26. <http://www.multiresearch.net/cms/publications/CFP11202019.pdf>
- Chipote, P., & Asrat, T. (2014). Determinants of household savings in South Africa: An econometric approach. *Mediterranean Journal of Social Sciences*, 5(15), 183-190. <https://doi.org/10.5901/mjss.2014.v5n15p183>
- Doker, A. C., Turkmen, A., & Emsen, O. S. (2016). What are the demographic determinants of savings? An analysis of transition economies. *Procedia Economics and Finance*, 39, 275-283. [https://doi.org/10.1016/S2212-5671\(16\)30324-0](https://doi.org/10.1016/S2212-5671(16)30324-0)
- Etudaiye-Muhtar, O. F., & Agboola, I. (2019). An empirical investigation of the link between financial depth and savings mobilisation in Nigeria. *Nile Journal of Business and Economics*, 12, 17-31. <https://journal.nileuniversity.edu.ng/index.php/NileJBE/article/view/195>
- Akter, S. (2018). Do remittances and foreign aid augment the gross savings: Bangladesh, India and Philippines perspective? *International Review of Economics*, 65, 449-463. <https://doi.org/10.1007/s12232-018-0305-z>
- Nwosu, E. O., Anumudu, C. N., & Nnamchi, C. E. (2019). Microeconomic determinants of household savings in Nigeria. *Journal of International Development*, 32(2), 150-167. <https://doi.org/10.1002/jid.3440>

Quartey, P., Ackah, C., & Lambon-Quayefio, M. P. (2018). Inter-linkages between remittance and savings in Ghana. *International Journal of Social Economics*, 46(1), 152-166. <https://doi.org/10.1108/ijse-12-2017-0618>

Adedokun, A. J., Falayi, O. R., & Adeleke, A. M. (2020). An autoregressive analysis of the determinants of private savings in Nigeria. *Review of Innovation and Competitiveness*, 6(1), 5-20.

Solow, R. (1956). A contribution to the theory of economic growth. *Quarterly Journal of Economics*, 70(3), 65-94. <https://doi.org/10.2307/1884513>.

APPENDIX

Descriptive Statistics

Statistics	GDS	REM	GY	FD	ADG	FID	DIR
Mean	18.68	2.95	2.39	15.72	86.01	-2.37	14.35
Maximum	42.7	0.01	32.7	42.9	98.42	0.88	23.24
Minimum	5.6	16.8	-12.3	7.08	86.6	-6	5.69
Std. Dev.	6.3	3.85	5.2	5.05	1.72	1.95	0.68
Observations	33	33	33	33	33	33	33

Stability Tests

