Economic Diverification in Nigeria: Agriculture in Perspective

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ABSTRACT: This study examines economic diversification: agricultural in perceptive. In particular the study examines the impact of investment in agricultural sector in achieving economic diversification between periods spanning from the years 2000 to year 2022. Time series secondary data were sourced from Central Bank Statistical Bulletin (2022) and World Bank Development Indicators (2024). Autoregressive Distributed Lag Regression Estimate (ARDL) analysis was conducted with the aid of E-view 10. Findings of this study reveals that agriculture credit guarantee scheme fund for cash crops and livestock have negative and significant impact on economic diversification. More so, agriculture credit guarantee scheme fund for food crops equally has negative and insignificant impact on economic diversification. However, grand total of agriculture credit guarantee scheme fund on agricultural commodities has positive and insignificant impact on economic diversification. Based on study findings, the following recommendations are suggested; that governments at all levels should as a matter of urgency should sustain funding of agriculture sectors and provide necessary infrastructure in the rural areas where majorities of agricultural activities take place in order to diversify her economy. More so, stakeholders in the agricultural sectors mainly the farmers should take advantage of loanable fund available to them and channelled it to appropriate crops that will yield investment return. In addition, it is also recommended that monetary policy authority should look inward to determine why agricultural credit guarantee scheme fund has negative significant impact on all the three categories of agricultural commodities identified. This can be achieved through close monitoring and adequate supervision of the loan disburse to the direct beneficiaries. Lastly, investment in human capacity in agricultural sector is away forward for economic diversification.

KEY WORD: Economic Diversification, Agriculture in Perspective, Cash Crops, Livestock and Food crops

1. INTRODUCTION

Economic diversification has become a viable channel for the developing nations like Nigeria to move away from inherent mono-economy. Nigeria's economic aspirations have remained that of altering the structure of production and consumption patterns, diversifying the economic base and reducing dependence on oil, with the aim of putting the economy on a path of sustenance, all-inclusive and non-inflationary growth as well as achieving major macroeconomic goals which include; Economic growth, Full employment, Price stability and Balance of payments equilibrium.

Economic diversification refers to broadening the range of economic activities both in the production and distribution of goods and services could be seen as a way of diversifying the economic activities that might have solely relied on or benefitted from a particular sector. For instance, Nigeria, after the discovery of crude oil, paid less attention to other sectors of the economy, and largely depended on the oil sector for her fiscal policy operations. In the past, before oil discovery, Nigeria's economic activities relied on non-oil sectors, particularly, the agriculture sector. The aphorism that agriculture is the hub of the Nigeria economy cannot be overemphasized.

Agriculture contributes to Nigeria's economy in many ways which include provision of food, employment generation, foreign exchange earnings through remittance from export earnings, and provision of raw material for the agro-industry. Therefore, we cannot underscore the importance of agriculture in the past as a major means of economic development. Governments at various tiers in Nigeria must encourage the diversification of their economies via agricultural sector. It is the only viable option to survive global economic uncertainty amid the volatility of oil prices and foreign exchange. (Suberu, Ajala, Akande & Olure-Bank, 2015; Anyaehie & Areji, 2015). Economic diversification is a process that helps and immunes a country from the volatility of a single commodity.

Nevertheless, one way to ensure economic diversification in the country is for both government and the private sector to increase their spending (including relevant infrastructural development) in the agricultural sector in the country. Hence, agriculture in perspective is suggested as possible options for diversifying the Nigerian economy. The place of agriculture in Nigeria's economy

Economic Diverification in Nigeria: Agriculture in Perspective

has remained critical over the decades. Prior to the political crisis of 1967-1970, agriculture's positive contributions to the economy were instrumental in sustaining economic growth and stability. The bulk of food demand was satisfied from domestic output, thereby obviating the need to utilize scarce foreign exchange resources on food importation.

Options for diversifying an economy abound, such as agriculture, entertainment, financial services, industrialization, information and communication technology, tourism, mining, etc. However, it is worthy to note that country-specific circumstances ought to as a matter of necessity, be considered. This is cogent, since due to structural differences, a model that fits an economy perfectly well may prove irrelevant in another. Underscore, the importance of the agricultural sector contributions to gross domestic product (GDP) past and present government have made several attempts to revitalize agricultural sector which have suffered neglect for decay as a result of many factors, notably attraction from oil revenue, under development of rural areas and poor infrastructure, bad governance among other. Such agricultural support programme, include agricultural credit guarantee scheme fund (ACGSF), Green revolution and the recent of it is anchor borrower programme.

Despite these efforts, Nigeria is still largely still a mono-economy whose major source of foreign exchange crude oil. It is against this backdrop that this study employs autoregressive distributed lag (ARDL) technique analysis to examine the impact of investment in agriculture via agricultural credit guarantee scheme in achieving economic diversification through agriculture. Therefore, this study proposes the following null hypotheses:

$H0_1$: Agriculture credit to fund total cash crops has no significant impact on economic   diversification.

$H0_2$: Agriculture credit to fund total livestock has no significant impact on economic diversification.

$H0_3$: Agriculture credit to fund total food crops has no significant impact on economic diversification.

$H0_4$: Agriculture credit to fund grand total agricultural commodities has no significant impact on economic diversification.

2.   LITERATURE REVIEWConcept of Economic Diversification

There is no generally accepted definition of economic diversification due to the fact that a number of scholars have conceptualized it from different perspectives. To some scholar, the term economic diversification refers to the strategy of making the economy dependent on a wide range of products and sectors instead of relying on a few or just one product. It also means integrating the economy into different regions of the global economy so that a robust economic growth and sustainable development can be generated (Uzonwanne, 2015). Adamu, (2016) defined diversified economy as an economy that has a number of various sources of revenue and provides nations with the potentials for sustainable growth and development due to the fact that it does not rely on one particular source of revenue. In a situation like this, such diversification provides nations with the security and reliability needed in case there is a failure in one economic revenue source the nation's attention can be diverted to other several alternatives for revenue. In the words of Muhammad, Mairiga, Thompson and Bello, (2020) diversification implies movement into new fields and stimulation and expansion of existing traditional products. Economic diversification is generally taken as the process in which a growing range of economic output is produced. It can also refer to the diversification of markets for exports or the diversification of income sources away from domestic economic activities (i.e. income from overseas investment). The last is particularly relevant to capital-surplus oil exporting countries.

Concept of Agriculture

Agriculture is defined as an art, science and business of producing crops and livestock for economic purposes (Harris & Fuller, 2014). As an *art* it embraces knowledge of the way to perform the operations of the farm in a skillful manner but does not necessarily include an understanding of the principles underlying the farm practices. As a *science* utilizes all technologies developed on scientific principles such as crop breeding, production techniques, crop protection, economics etc. to maximize the yield and profit. As the *business:* As long as agriculture is the way of life of the rural population production is ultimately bound to consumption. But agriculture as a business aims at maximum net return through the management of land labour, water and capital, employing the knowledge of various sciences for production of food, feed, fibre and fuel. In recent years, agriculture is commercialized to run as a business through mechanization.

Theoretical Review

Agricultural-based economic development theory: Wiggins (2009) propounded the agricultural-based economic development theory, which stressed that agriculture requires technical, institutional, and financial incentive change that will raise the productivity of small farmers. The theory further explains that in striving for economic development, agricultural financial schemes can play a dual role of increased purchasing power and provision of input to sustain the industrial revolution.

Structural change theory: The theory, which was formulated by Nobel laureate W. Arthur Lewis in the mid-1950s, emphasized the mechanism by which developing economies can transform their domestic structure from a heavy dependence on traditional subsistence agricultural practices to more modern and advanced agricultural practices through sufficient financial support. An extended version of this theory adds that increased agricultural development cannot be realized unless the government builds a supporting system that creates and provides the necessary incentives, opportunities, and, most importantly, productivity in the agricultural sector.

Economic Diverification in Nigeria: Agriculture in Perspective

Sustainable Livestock Theory: Chamber and Conway (1991) extended the sustainable livestock theory for capabilities, including capital and other social resources as well as other farming practices required for a means of living. The theory holds that increasing output can only be achieved by ensuring secured ownership of or access to capital resources and income-earning activities, which include reserves and assets to offset risk, ease stocks, and meet contingencies, as well as enhancement and maintenance of productive resources on a long-term basis. Therefore, increasing agricultural output (food security) is not just food affordability but the ability to produce food and earn income on a long-term basis by farmers.

Empirical Review

Muhammad, Mairiga, Thompson, and Bello (2020) examine the role of agriculture in the diversification of the Nigerian economy within the period spanning from 1980–2016. The estimation results of Cointegration and Vector Error Correction Technique indicate that agricultural output has a positive relationship and significant impact on diversification of the Nigerian economy as a proxy for non-oil exports and non-oil revenue.

Ahmed (2019) investigated the impact of agricultural output on standard of living in Nigeria via crops, livestock, forestry, and fishery. Secondary data were obtained from the CBN statistical bulletin from 1970–2016 and analyzed using the cointegration and error correction model (ECM). It was found that the standard of living is elastic with respect to crops, forestry, fishery, and livestock output in the short- and long-run estimates.

Umeji (2019) examined diversification of the Nigerian economy through agricultural sector transformation, using the descriptive research method, and examined the role and challenges of the agricultural sector in the diversification of the Nigerian economy. The findings showed that agriculture contributes to the economic development of a country as it increases domestic supply of food for consumption, releases labour for employment in the industrial sector, increases market size for industrial output, increases supply of domestic savings, and increases foreign exchange earnings. However, some of the challenges facing the agricultural sector in Nigeria are lack of high-yielding seedlings, poor extension services, lack of credit facility to the sector, lack of storage facilities, and poor infrastructure in the country.

Adesoye (2018) examined how enhancing the agricultural value chain can contribute to rapid economic diversification in Nigeria. The autoregressive distributed lag (ARDL) model was employed as the econometric method of estimation from 1981–2015. Findings showed that agricultural raw materials, machinery, and land have a direct impact on agricultural productivity in Nigeria, while agriculture productivity has a positive impact on economic growth in Nigeria.

Adamu (2016) examines the importance of diversifying the Nigerian economy for sustainable development and to see how that can liberate the country out of the present economic challenges. The study relies on secondary sources of data collection and argues that the continuous dwindling revenue generation in Nigeria, particularly from the oil export, has called for the diversification of the nation's economy. It reveals that many state governments in Nigeria have been finding it difficult, especially towards the end of 2014, to even pay salaries of their public servants as a result of meagre revenue allocation from the Federation Account. The study concludes that the diversification of the Nigerian economy should be given the necessary attention it requires considering the development challenges facing the country at the moment.

Suberu, Ajala, Akande, and Olure-Bank (2015) sought possible ways of diversifying the productive base of the Nigerian economy. Using the descriptive method of analysis, the study findings revealed that among several options, agricultural sector financing is the best option.

Mussema (2015) examines the drivers of agricultural diversification in the Oromia region. Hackman's two-step method was employed on survey data from a regionally representative household survey. The study discovered that asset ownership, soil quality, agricultural extension, and level of infrastructural development are the significant drivers of crop diversification in Oromia.

Adetiloye (2012) found out that though credit to the agricultural sector was significant, it has not been growing relative to the economy. The ACGSF settled claims were negatively significant. Ammani (2012) findings indicated that formal credit was positively and significantly related to the productivity of the crop, livestock, and fishing sectors of Nigerian agriculture. Lawal (2011) findings indicated that the institutions had a positive impact on agricultural production through only rotating savings being statistically significant at the 10 percent level.

3. METHODOLOGY

This study is an ex-facto research design. Also known as "after-the-fact" research, it is a research method that looks into how an independent variable (groups with certain qualities that already exist prior to a study) affects a dependent variable. The study examines economic diversification: agricultural in perceptive in Nigeria within the sample period of 2000 and 2022. The data for this study were secondary time series data sourced from the Central Bank of Nigeria Statistical Bulletin (2022) and the World Development Indicator, 2024. The quantitative data were analyzed with the econometric technique approach of autoregressive distributed lag (ARDL) with the aid of EViews version 10 software to generate and analyze descriptive as well as inferential statistics for the study. However, the analysis includes both residual and coefficient diagnostic tests in order to satisfy certain econometric assumptions.

Economic Diverification in Nigeria: Agriculture in Perspective

The study model specifies that economic diversification (ED) via agriculture productivity (APO) is a function of investment in agriculture, where agricultural productivity output itself is a function of agricultural inputs, which include all factors of production such as land, labour, and capital. The research model adopts the Cobb-Douglas production function, which takes the form:

$$Q = f(AL^{\alpha}K^{\beta}) \dots\dots\dots\dots\dots\dots\dots\dots\dots (3.1)$$

Where Q is the output; A is the level of technology; L is labour; K stands for capital; while α and β stand for the coefficients of labour and capital, respectively. However, modifying this foregoing model, the components of K, which include finance, are included in the model such that agriculture productivity output (APO) is a is a proxy as economic diversification (ED) is a function of investment in agriculture, which will be proxies by the Agricultural Credit Guarantee Scheme Fund Operation in terms of the value of the loan guarantee to total cash crops (TCC), total livestock (TLS), total food crops (TFC), and grand total (GT). The model for the study specifies as follows:

$$ED = f \text{ (TCC, TLS, TFC, GT)} \dots\dots\dots\dots\dots\dots\dots\dots (3.2)$$ where, ED = Economic diversification serves as a dependent variable and proxy by agriculture, forestry, and fishing, value added (% of GDP). It is defined as agriculture, forestry, and fishing (APO) corresponds to ISIC divisions 1-3 and includes forestry, hunting, and fishing, as well as cultivation of crops and livestock production. Value added is the net output of a sector after adding up all outputs and subtracting intermediate inputs. It is calculated without making deductions for depreciation of fabricated assets or depletion and degradation of natural resources. The origin of value added is determined by the International Standard Industrial Classification (ISIC), revision 4. Note: For VAB countries, gross value added at factor cost is used as the denominator.

TCC = Total cash crops. In this study, it is defined as a total agricultural credit guarantee scheme fund for financing major cash crops such as Oil palm, rubber, cocoa, cotton, and groundnut/ginger.

TLS = total livestock. In this study, it is defined as a total agricultural credit guarantee scheme fund for financing major livestock such as fisheries, mixed farming, other poultry, cattle, sheep, and other livestock.

TFC = total food crops. In this study, it is defined as a total agricultural credit guarantee scheme fund for financing major food crops, including grains, roots & tubers, bean & soya beans, and vegetables.

GT = grand total; this is the grand total of the agricultural credit guarantees scheme fund for financing the foregoing. All serve as explanatory variables in the study model as defined above.

The linear form of estimable equations is specified as follows:

$$ED_t = \alpha TCC_{t-1} + \beta TLS_{t-1} + \gamma TFC_{t-1} + \ell GT_{t-1} + et \dots\dots\dots\dots\dots\dots\dots (3.3)$$

Where $_t$ is current time, and $_{t-1}$ is the lagged parameter estimated.

The Apriori Expectation: $\alpha, > 0$ and $\beta, \gamma, \ell < 0$

4. Data Analysis and Results Presentation

Descriptive statistics help to describe the basic features of the understudy data used as presented in Table 1.

Table 1. Descriptive Statistics

	TCC	TLS	TFC	GT	ED
Mean	11.73046	13.26621	14.91572	15.31359	24.21182
Median	12.15787	13.56921	15.10641	15.58185	23.69187
Maximum	13.53790	14.66662	15.89989	16.33773	36.96508
Minimum	8.075396	10.21490	12.62372	12.79788	19.99025
Std. Dev.	1.633566	1.253292	0.857181	0.952940	4.118859
Skewness	-0.916126	-1.087199	-1.139686	-1.259720	1.793704
Kurtosis	2.608331	3.074073	3.578396	3.607216	5.980882
Jarque-Bera	3.364277	4.536264	5.299658	6.436439	20.84869
Probability	0.185976	0.103505	0.070663	0.040026	0.000030
Sum	269.8005	305.1229	343.0615	352.2126	556.8718
Sum Sq. Dev.	58.70780	34.55630	16.16472	19.97806	373.2299
Observations	23	23	23	23	23

Source: Researcher Computation using Eview 10

From table 1, the study observation is 23. The skewness, which measures the degree of asymmetry of the series, shows that, with the exception of economic diversification with a positive sign long-right tail, the rest of the of the entire variables understudy, namely, total cash crops (TCC), total livestock (TLS), total food crops (TFC), and grand total (GT), have a negative sign that is long-left tail. Also, the entire series is normal skewness and leptokurtic because the values are above the kurtosis of 3. Meanwhile,

kurtosis less than 3 is said to be platykurtosis. Jarque-Bera statistic exceeds (in absolute value of 5%, that is, 0.05) the observed value under the null hypothesis; a small probability value leads to the rejection of the null hypothesis of no normal distribution. Therefore, all the entire variables exhibited a normal distribution

Table 2. Series of Augmented Dickey-Fuller Test (ADF) Output Results

Coefficients	Critical Values at 5%	ADF Values	Probability	Comments
D(TCC)	-3.020686	-5.177457	0.0005	I (0)
D(TLS)	-3.020686	-3.468758	0.0204	I (0)
D(TFC)	-3.012363	-4.245275	0.0037	I (0)
D(GT)	-3.012363	-4.386276	0.0027	I (0)
D(ED)	-3.012363	-3.891431	0.0080	I (0)

Source: Researchers Computation Using Eviews 10

Table 2 presents the series of unit root tests of ADF. The results show that the entire variables understudied were stationary of order I (0) in first differencing. Therefore, the stationary tests met the criteria for the conduct of an autoregressive distributed lag cointegration test in order to examine the existence of a long-run relationship among the variables understudy within the sampled period spanning between the periods of 2000 and 2022. Following Pesaran, Shinb, and Smith (2001), the study estimates autoregressive distributed lag as reported in Table 3 as follows:

Table 3. Autoregressive Distributed Lag Estimation

Dependent variable: ED

Method: ARDL

Date: 09/08/24 Time: 20:10

Sample (adjusted): 2002-2022

Included observations: 21 after adjustments

Maximum dependent lags: 2 (automatic selection)

Model selection method: Akaike info criterion (AIC)

Dynamic regressors (2 lags, automatic): TCC TLS TFC GT

Fixed regressors:

Number of models evaluated: 162

Selected Model: ARDL (2, 0, 2, 0, 0)

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
ED (-1)	0.219746	0.115875	1.896410	0.0822
ED (-2)	-0.483281	0.108508	-4.453886	0.0008
TCC	-1.465856	0.438970	-3.339309	0.0059
TLS	0.390192	1.278322	0.305237	0.7654
TLS (-1)	-0.956995	0.691156	-1.384631	0.1914
TLS (-2)	-2.508353	0.502657	-4.990185	0.0003
TFC	-1.902062	2.367740	-0.803324	0.4374
GT	3.902293	3.520022	1.108599	0.2893
C	57.12775	13.41018	4.260027	0.0011
R-squared	0.960219	Mean dependent var		24.33520
Adjusted R-squared	0.933699	S.D. dependent var		4.270200
SE of regression	1.099536	Akaike info criterion		3.325180
Sum squared residue	14.50775	Schwarz criterion		3.772833
Log likelihood	-25.91439	Hannan-Quinn criter.		3.422332
F-statistic	36.20663	Durbin-Watson stat		1.881137
Prob(F-statistic)	0.000000			

*Note: p-values and any subsequent tests do not account for model selection.

Source: Researchers Computation Using Eviews 10

Economic Diverification in Nigeria: Agriculture in Perspective

The first part of the output provides a summary of the settings used during estimation. The result shows that automatic selection (using the Akaike Information Criterion) was used with a maximum of 2 lags of both the dependent variable and the regressor. Out of the 162 models evaluated, the procedure has selected an ARDL (2, 0, 2, 0, 0), including observation 21 after adjustment.

However, the coefficients of economic diversification at periods of lag 1 (ED(-1)) and lag 2 (ED(-2)) are 0.219746 and -0.483281, with probabilities values of 0.0822 and 0.0008, respectively, indicating that lag 1 is statistically insignificant because the probability value is greater than 0.05 level of significance, while lag 2 is statistically significant because the probability value is lower than 0.05 level of significance. This implies that holding other independent variables constant, a one percent increase in economic diversification via agriculture, forestry, and fishing, and value added (% of GDP) at period of lagged 1 translate to approximately a 22 percent increase in its present value. At the same time, a period of lagged 2 translates to approximately a 48 percent decrease in its present value.

More so, the coefficients of the total agricultural credit scheme fund to cash crops (TCC) at the current level are -1.465856 with a probability value of 0.0059 less than 0.05 levels of significance, suggesting that TCC at the current level has a negative and significant impact on economic diversification (ED). Subsequently, the result suggests that a one percent increase in TTC leads to about a 147 percent decrease in ED; both variables are moving in different directions. The policy implication of this result indicates that the total agricultural credit scheme fund for cash crops does not translate to an increase in economic diversification but instead negatively impacts ED. In other words, agricultural credit scheme funds targeting cash crops are positively affecting economic diversification.

Additionally, the coefficient of total agricultural credit scheme fund for livestock (TLS) at current level period, period of lag 1 and lag 2 are 0.390192, -0.956995, and -2.508353 with probabilities values of 0.7654, 0.1914, and 0.0003, respectively. This result indicates that the credit scheme fund for livestock (TLS) at the current level period and period of lag 1 are statistically insignificant due to p-values that are greater than 0.05 levels of significance. While at period of lag 2, a p-value less than 0.05 is statistically significant. Furthermore, total agricultural credit scheme fund disburse to livestock sector at current level is positive. One percent increase in total agricultural credit scheme funds for livestock led to a 39 percent increase in economic diversification.

More so, at periods of lag 1 and 2, respectively, a one percent increase in the total agricultural credit scheme fund for livestock led to approximately -96 percent and -251 percent decline in economic diversification. The results suggest that agricultural credit scheme funds for livestock at periods of lag 1 and 2, respectively, are moving in the opposite direction with economic diversification. As one goes up, the other goes down. The policy implication of this result indicates that the total agricultural credit scheme fund for livestock does not translate to an increase in economic diversification but instead negatively impacts ED.

Furthermore, the coefficient of the total agricultural credit scheme fund to total food crops (TFC) at the current level period is -1.902062 with a probability value of 0.4374, which is greater than the 0.05 level of significance. This result suggests that TFC at the current level is negative and statistically insignificant. One percent increase in TFC leads to approximately -190% declines in economic diversification. The policy implication of this result indicates that the total agricultural credit scheme fund for food crops does not translate to an increase in economic diversification but instead negatively impacts ED.

Lastly, the coefficients of the grand total (GT) of the agricultural credit scheme fund to TCC plus TLS plus TFC at the current level are 3.902293 with a probability value of 0.2893, indicating that the grand total (GT) of the agricultural credit scheme fund has a positive and statistically insignificant impact on economic diversification. The policy implication of this result indicates that total agricultural credit scheme fund to grand total do translate to positive increase in economic diversification.

The coefficient of a fixed variable, that is, a constant (C), also known as the intercept, is the value of economic diversification via agriculture in perspective when other independent variables have a value of zero. 57.12775 is statistically significant with a probability value of 0.00, which is less than the 0.05 level of significance, i.e., at 5%. This result simply suggests that the increase in economic diversification in Nigeria is associated with other factors that are not explained by any of the explanatory variables stated in the model.

Furthermore, the R-square, often referred to as the coefficient of determination, also known as a measure of the goodness-of-fit, is 0.960219, approximately 96%. This means that 96% of the changes in economic diversification via agriculture in perspective at time t are explained by the changes in the explanatory variables, while the remaining 4% could be explained by factors outside this model represented by the error term.

The adjusted R-squared value is 0.933699. About 93% of the of the variation in the dependent variable is explained by only those independent variables that, in reality, affect the dependent variable. More so, the Durbin-Watson statistic (DW) is 1.881137, approximately 2, which shows there is no serial autocorrelation. The F-statistic that shows the overall significance of the model is 36.20663 with a probability of 0.00, indicating that the model specified in chapter 3 of this study is significant to explain the relationship between the dependent variable and independent variables. Table 4 below presents the bound test on which the decision to conduct the ARDL long-run test is based.

Economic Diverification in Nigeria: Agriculture in Perspective

Table 4a. **F-Bounds Test**

F-Bounds Test		Null Hypothesis: No-level relationship		
Test Statistic	Value	Signif.	I (0)	I (1)
			Asymptotic: n=1000	
F-statistic	28.91144	10%	2.2	3.09
K	4	5%	2.56	3.49
		2.5%	2.88	3.87
		1%	3.29	4.37

Source: Researchers Computation Using Eviews 10

Table 4a presents the F-bound test of the null hypothesis of no cointegration regression estimation in order to confirm the no long-run cointegration status. The calculated F-statistic of 28.9 exceeds the lower critical value of 2.56 at the 5% significant level. Therefore, the null hypothesis of no cointegration is rejected, implying that there is cointegration, thus the long-run relationship estimate is justified.
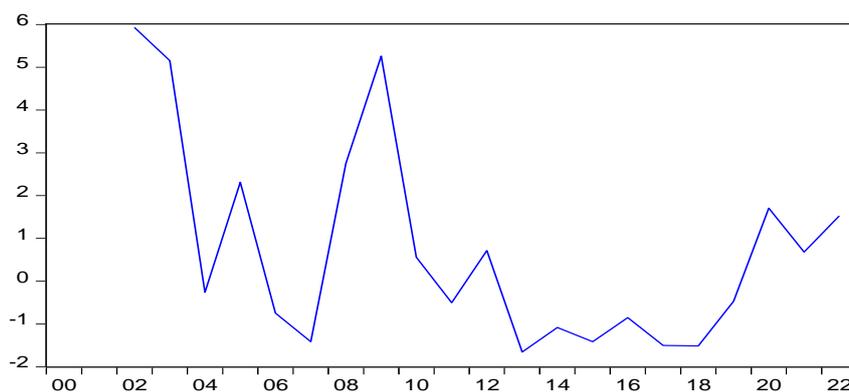

Figure 1: Cointegration graph
Source: Researcher Computation using Eview 10

Figure 1 shows that all the variables understudied were Cointegration in Nigeria between 2000 and 2022: there is evidence of cointegration. Thus, the test of conditional error correction regression in table 4b was conducted.

Table 4b. ARDL Long Run Form and Bounds Test

ARDL Long Run Form and Bounds Test
Dependent Variable: D(ED)
Selected Model: ARDL (2, 0, 2, 0, 0)
Case 2: Restricted Constant and No Trend
Date: 09/08/24 Time: 20:15
Sample: 2000-2022
Included observations: 21
Conditional Error Correction Regression

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	57.12775	13.41018	4.260027	0.0011
ED (-1) *	-1.263536	0.103866	-12.16503	0.0000
TCC**	-1.465856	0.438970	-3.339309	0.0059
TLS (-1)	-3.075156	1.234606	-2.490800	0.0284
TFC**	-1.902062	2.367740	-0.803324	0.4374
GT**	3.902293	3.520022	1.108599	0.2893
D (ED (-1))	0.483281	0.108508	4.453886	0.0008
D(TLS)	0.390192	1.278322	0.305237	0.7654
D (TLS (-1))	2.508353	0.502657	4.990185	0.0003

* p-value incompatible with the t-Bounds distribution.

** Variable interpreted as $Z = Z (-1) + D(Z)$.

Source: Researcher Computation using Eview10

Economic Diverification in Nigeria: Agriculture in Perspective

Table 4b reveals the result of the ARDL long-run form estimate of conditional error correction regression. However, the coefficients of economic diversification at period of lag1 [ED (-1)] are -1.263536, about -126%, with a p-value of 0.00 < 0.05, indicating that economic diversification at period of lag 1 is statistically significant in explaining its present value holding other factors constant. The coefficient of total cash crops (TCC) at the current level period is -1.465856, about -147%, with a p-value of 0.00 < 0.05 statistically significant, which implies that one percent increase in agriculture credit to support total cash crops results in a -147% decline in economic diversification. The coefficient of total livestock [TLS (-1)] at period of lag 1 is -3.075156 about -307% with p-value = 0.02 < 0.05, statistically significant, meaning that one percent increase in agriculture credit to support total livestock effects a -307% decline in economic diversification. The coefficient of total food crops (TFC) at the current level period is -1.902062, about -19%, with a p-value of 0.44 > 0.05. This statistically insignificant indicates that one percent increase in agriculture credit to support total food crops results in a -19% decline in economic diversification. Meanwhile, the coefficient of grand total (GT) at the current level period is 3.902293, or about 390%, with a p-value of 0.29 > 0.05, which is statistically insignificant and indicates that one percent increase in agriculture credit to support the grand total result in a 390% increase in economic diversification. The coefficients of adjusted first difference economic diversification [D(ED(-1))] in period of lag 1 are 0.483281, about 48%, with a p-value of 0.00 < 0.05, statistically significant, meaning that one percent increase in agriculture credit to support adjusted first difference economic diversification results in a 48% increase in economic diversification at its present value. The coefficients of first difference of total livestock [D(TLS)] are 0.390192 about 39% with a p-value of 0.76 > 0.05, statistically insignificant, and lastly, the coefficients of adjusted first difference total livestock [D(TLS(-1))] are 2.508353 about 250% with a p-value of 0.00 < 0.05, statistically significant. However, conditional error correction regression consequently produced levels equation alongside the conditional error correction regression outcome as reported as follows:

Table 4c. Levels Equation

Levels Equation
Case 2: Restricted Constant and No Trend

Variable	Coefficient	Std. Error	t-Statistic	Prob.
TCC	-1.160122	0.352974	-3.286707	0.0065
TLS	-2.433771	0.985513	-2.469548	0.0295
TFC	-1.505349	1.908239	-0.788868	0.4455
GT	3.088392	2.838906	1.087881	0.2980
C	45.21261	10.12112	4.467154	0.0008

EC = ED - (-1.1601*TCC -2.4338*TLS -1.5053*TFC + 3.0884*GT + 45.2126)
Source: Researcher Computation using Eview10

Table 4c presents the result of the level equation; the result shows that TCC and TLS were statistically significant given the probability values that are less than 0.05 levels of significance, while TFC and GT were statistically insignificant given the probability values that are greater than 0.05 levels of significance. However, with the with the exception of GT, the entire explanatory variables have a negative impact on economic diversification via agriculture in perspective, which suggests that both dependent and explanatory variables are not moving in the same direction. On the contrary, agriculture credit scheme fund grand total GT were moving in the same direction with the dependent variable.

Furthermore, error correction model mechanism regression in Table 5 shows the speed of error adjustment. ECM is a category of multiple time series model that directly estimates the speed at which a dependent variable returns to equilibrium after a change in an independent variable. ECM incorporates the long-run equilibrium in the dynamic adjustment (that is, the short-run model). The ECM is also closely bound up with the concept of co-integration.

Table 5. ARDL Error Correction Regression

ARDL Error Correction Regression
ECM Regression
Case 2: Restricted Constant and No Trend

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D (ED (-1))	0.483281	0.064309	7.514974	0.0000
D(TLS)	0.390192	0.392410	0.994348	0.3397
D (TLS (-1))	2.508353	0.380870	6.585853	0.0000
CointEq (-1) *	-1.263536	0.080602	-15.67633	0.0000

Source: Researcher Computation using Eview10

Economic Diverification in Nigeria: Agriculture in Perspective

Table 5 presents ARDL ECM regression estimation; in this context, the estimated parameters were subjected to testing based on economic theory so as to ascertain whether they agree with the expected sign. In other words, the model sought to relate the changes in economic diversification via agriculture in perspective in Nigeria to its explanatory variables to ascertain the conformation with 'a priori' expectation underlying each variable. This result shows that the CointEq (-1) coefficient of the error correction term, which measures the speed of adjustment towards long-run equilibrium, is negative assigned and statistically significant at the 5% level. The ECM has expected a negative sign of -1.263536. This implies that the rate at which changes in economic diversification via agriculture in perspective at time t adjust to the single long run co-integrating relationship is different from zero. The coefficient of the ECM revealed that the speed with which changes in GDP growth rate at time t adjust to respond to regressors is about -126% in the short run. This is in conformity with this study's prior expectation.

TEST OF HYPOTHESES

The test of hypotheses in this study is based on the outcome of the ARDL-level equation as presented in Table 4c. The decision criteria to reject or accept the earlier stated hypotheses is based on the p-value: where p-value is less than 0.05, the null hypothesis will be rejected, and the alternative hypothesis will be accepted.

For hypothesis one (H01) The p-value of the coefficient of total cash crops is $p = 0.00 < 0.00$ less than 0.05 levels of significance indicate that the null hypothesis stated earlier is rejected.

For hypothesis two (H02). The p-value of the coefficient of total livestock is $p = 0.03 < 0.00$ less than 0.05 levels of significance indicate that the null hypothesis stated earlier is rejected.

For hypothesis three (H03). The p-value of the coefficient of total food crops is $p = 0.44 > 0.00$ greater than 0.05 levels of significance indicate that the null hypothesis stated earlier cannot be rejected. For hypothesis four (H04). The p-value of the coefficient of total food crops is $p = 0.29 > 0.00$ greater than 0.05 levels of significance indicate that the null hypothesis stated earlier cannot be rejected. All the findings of this study are in agreement with those of Umeji (2019), Suberu, Ajala, Akande, and Olure-Bank (2015), and Okoro (2011), who concluded in their various studies that agricultural finance is statistically significant in economic diversification.

5. CONCLUSION AND RECOMMENDATIONS

This study examines the impact of investment in agriculture via the agricultural credit guarantee scheme fund in achieving economic diversification between periods spanning from the years 2000 to 2022. To achieve the objective of this study, time series secondary data were sourced from Central Bank Statistical Bulletin (2022) and World Bank Development Indicators (2024). Autoregressive Distributed Lag Regression Estimate (ARDL) analysis was conducted with the aid of E-View 10. The analysis and findings of this study lead to the following conclusions. That investment in agricultural via agricultural credit guarantee scheme fund has a significant impact in achieving economic diversification as it relates to funding of cash crops and livestock. More so, the study concludes that the agricultural credit guarantee scheme fund for grand total disbursed to the three categories of agriculture has a positive impact, though statistically insignificant.

Based on the foregoing findings and conclusions, the following recommendations are suggested: that governments at all levels should, as a matter of urgency, sustain funding of agriculture sectors and provide necessary infrastructure in the rural areas where majorities of agricultural activities take place in order to diversify their economies. More so, stakeholders in the agricultural sectors, mainly the farmers, should take advantage of the loanable funds available to them and channel them to appropriate crops that will yield an investment return. In addition, it is also recommended that monetary policy authorities should look inward to determine why the agricultural credit guarantee scheme fund has a significant negative impact on all three categories of agricultural commodities identified. This can be achieved through close monitoring and adequate supervision of the loan disburse to the direct beneficiaries. Lastly, investment in human capacity in the agricultural sector is a way forward for economic diversification.

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