

Natural Resources, a Curse, or a Blessing to Sustainable Financial Development in Nigeria

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Abstract: The current study tries to respond to the concern of whether natural wealth (NRR) is a curse or an opportunity for Nigeria's financial progress. This study also looked at the influence of technology (ICT), renewable energy (REC), and exports (EXP) in financial development (FD) from 1990 to 2022. The empirical findings of the study confirm the existence of a long-term relationship among the variables. This study employs a novel approach of non-autoregressive distributive lag and non-parametric causality test due to the presence of asymmetric data distribution. The empirical evidence indicates that NRR in both the positive and negative shocks is adversely related to FD, thereby confirming the existence of natural resource curse. Moreover, the augmentation of technology, renewable energy and exports contributes positively to the FD. Furthermore, the causality test has been established that there exists a bidirectional causal relationship between FD and the variables. We proposed policy measures accordingly.

Keywords: Natural resource rents, financial development, resource curse, technology, renewable energy.

JEL: F64, F65.

1. INTRODUCTION

A strong financial system drives the economy as a whole (Wang et al., 2022; Nawaz et al., 2019). This is why a well-established financial system is important for economic growth and wealth. Along with the development of technology, the rise of the banking industry helps growth by creating capital. Surprisingly, many countries with lots of natural resources have a lesser degree of economic development. Natural riches are important to a country and help it grow. (Hong et al., 2022; Su et al., 2022; Shahbaz et al., 2020) They can be a blessing or a curse dependent on how resources are used and on other important economic and financial issues. They are also susceptible to the rise of the financial sector. Shahzad et al. (2023) says that the "resource curse" happens when a country has a lot of natural resources but not much financial or economic growth. The hypothesis gives a full explanation of the negative link between collective natural resource rents and some strong reasons why this is true. The countries that are most affected by these circumstances are often poorly run, politically insecure, and facing other economic issues. When resource rents help the economy grow, resource abundance is a good thing (Anser et al., 2021; Yang et al., 2021). In the Nigerian context, the idea of a resource curse may not be true because there are also resource benefits. In 2019, Nigeria was the second highest creator of greenhouse gases in Africa and the 25th highest in the world. Exports of oil and gas are vital to the country's finances. 93% of Nigeria's total export income comes from

fossil fuels. The production of oil and gas in Nigeria is also linked to serious social and economic inequality and environmental disasters (Carbonbrief, 2023). As such, the present research focuses on revisiting the causes of financial growth whilst taking NRR into account, along with adding creative factors to the Nigerian economy in order to evaluate policies that will last. Concerns about financialization and problems with putting green energy output into place make it harder to reach SDGs 7 and 13 in the current environment (Liang et al., 2022; Xu et al., 2022; Yousaf et al., 2022). The revenue generated by NRR income is not a bad thing. With the help of better financial and political processes, some countries have turned the resource curse into a gain. On top of that, well-developed financial institutions offer opportunities to invest and support new ideas.

It would be interesting to learn more about resource rents, FD, and where they lead. The global economic and financial crisis has had a big effect on resource insecurity, which in turn affects the growth of the country (Lobato et al., 2021; Zhang et al., 2022). Because of this, financial rules and environmental plans are affected (Hordofa et al., 2022). Few people have looked into the link between resource fees and FD, but the results vary depending on the strength of institutions and other economic variables (Hadj and Ghodbane, 2021; M. A. Khan et al., 2020; Li et al., 2021). So, the focus of this study is on looking at the link in Nigeria's economy. The goals of the study are the following. Depending on the amount of FD, having a lot of natural wealth can be both a blessing and a curse. FD is needed to make the best use of NRR funds and help the business grow in the long run. So, the goal of the study is to look again at how the overall rents from natural resources affect FD in

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Nigeria, as well as other components that explain it. The second objective is to look into how using green energy affects the long-term growth of the Nigerian economy. Using green energy helps clean up the earth, which is important for long-term economic growth. How does green energy affect FD in the same way? Third, there is a positive link between financial growth and export success. Still, the goal of the study is to look at how exports affect the country's FD. The study is interesting because it looks at how new connections are being made in Nigeria. To figure out what makes FD sustainable, the effects of exports, resource rents, and the use of green energy are studied. Do they all make a substantial contribution to the expansion of FD? As a consequence, the current work is critical in assessing the aforementioned link and disseminating innovative results on the evaluation of novel elements in Nigeria. Furthermore, further study on the current issue may be required to help policymakers build more effective solutions. The findings are critical in creating carbon emission reduction strategies for a sustainable environment. According to the above assertions, the study is crucial in examining the role of natural resources in producing long-term financial growth. Because each county has a different level of financial development and natural resources, the nexus not only aids in policy re-strategization, but it also has an impact on financial development. As a result, the study's goal is to analyse the variables influencing Nigeria's financial progress. Hence, the current study findings contribute to the empirical data in understanding the determinants influencing FD. Furthermore, Nigeria's economy is the continent's second largest developing economy, with increasing production levels, and its policies and plans for growth and sustainability have a broader impact on the continent's nations (Anthony-Orji et al., 2023). As a result, identifying FD variables with the inclusion of fresh factors in Nigeria is crucial, and the authors were motivated to do experimental research on the relationship.

This study investigates whether or not there is a relationship between rents from natural resources and economic growth. Prior studies (Li et al., 2021; Umar et al., 2022) examined the impacts natural resource revenues have on a nation's FD through the lens of two distinct financial pathways: capital markets and financial organisations. Despite this, a number of studies (Atil et al., 2020; M. A. Khan et al., 2020; Shahbaz et al., 2020) have investigated the positive role that NRR plays in FD. Alternatively, numerous studies have demonstrated that NRR is detrimental to FD. Because of these contradictory results, the present inquiry is focused on re-examining the relationship between FD and resource rents. Therefore, the most significant addition is to broaden the argument regarding whether the abundance of natural resources is a curse or a blessing for the faith of Nigeria's financial development, which is notable in the existing academic literature. Second, the inclusion of new variables, such as exports, which were neglected in previous research for the sake of examining the factors that determined the level of financial growth in the country. Thirdly, the study employs cutting-edge econometric techniques to validate the long-term estimates that reveal the specific impact of regressors on financial growth. This is performed in order to investigate the economic nexus in Nigeria. This study contributes empirically to the existing body of pragmatic

literature by analysing the relationship between NRR, consumption of renewable energy, exports, and FD using the non-linear autoregressive distributive lag and the nonlinear Granger causality test developed by Diks and Panchenko (2006). In addition, the projected outcomes demonstrate an inverse relationship between NRR and FD in both positive and negative shocks in Nigeria, validating the NRR curse as an impediment to the achievement of sustainable FD. In the meantime, the function of technological advancement, REC, and exports constitutes an important aspect of attracting FD. The findings provide substantial evidence for evaluating the sustainability of environmental and economic scientists' and strategists' policies. This is a novel addition to the vast corpus of knowledge, so it is essential to note that the findings reach these conclusions. Following is the organisation of the remaining sections of the text. After the section on the introduction is the section on an empirical review of the available literature addressing the relationship between the research variables. Section 3 deconstructs and explains the data, model, and methodologies for the research analysis. The results are documented in Section 4, alongside a concise explanation of those results. Section 5 contains a discussion of the conclusion and any pertinent policy implications.

2. LITERATURE REVIEW

The link between natural resources and FD is of considerable relevance in the research for policy mechanisms that are vital in shaping financial growth (Atil et al., 2020; Su et al., 2022b). The existing body of research that is shown below clarifies on the connection between the two subjects in order to make the association clearer. The richness of natural resources was shown to have a beneficial effect on FD in Pakistan (Atil et al., 2020), as was the case in the previous example. There have been a few investigations that have concluded that the detrimental effect that resource rents have on FD can be mitigated by certain underlying characteristics. These elements help to decrease the adverse effect that resources have on FD. For example, a study by Khan et al. (2020) investigated the hypothesis that institutional quality plays a significant part in preserving the optimistic effect of total NRR on FD. The relationship between NRR and FD has a negative affect when it is below a specific threshold point. likewise, Jiang et al. (2021) explored the inverse relationships between the FD and NRR. Such relationships may be reduced in the long run. Canh and Thong (2020a), investigated the aforementioned connection. They demonstrated that NRR have an adverse effect on lending institutions and that there is a positive correlation between NRR and FD. This finding is consistent with the findings of a more recent research (Rahim et al., 2021; Chopra et al., 2022) that discovered the resource curse. Another study (Li et al., 2021) found that there is a connection between NRR and FD, and that this connection is mediated by two different financial mechanisms. The first route is through the various financial markets, and the second route is through various financial institutions. The empirical findings provided support for the resource abundance concept of the nation. On the other hand, an investigation into whether or not NRR has a negative impact on FD in the short run is carried out. A further point to consider is that the influence of FD on NRR

has been the subject of a greater amount of research than the impact of NRR on FD. For instance, in the context of economies that are abundant in resources (Shahbaz et al., 2020), researchers investigated the positive connection of FD with total NRR. The findings suggested that there is a favourable connection between FD and NRR throughout both the long run and the short run.

Renewable energy is now widely recognised as an important component in achieving global sustainable growth. Mukhtarov et al. (2020) investigated the favourable association between FD and REC in Azerbaijan. The empirical studies indicated that a rise in FD generates a surge in REC. The existence of a feedback hypothesis identified between the previously mentioned connotation has been established in the BRICS countries (Zhang et al., 2021). Likewise, Anton and Nucu (2020) studied if FD impacts REC share. An identical line of outcomes is examined in the context of Azerbaijan (Bansal and Kumar, 2021; Mukhtarov et al., 2020), which evaluated the beneficial relationship and impact of FD on REC that helps in the country's socioeconomic growth. Usman and Hammar (2021) discovered a bidirectional causation link between FD, REC, ECG, and ecological footprint. Ji and Zhang (2019) discovered that FD is required equipment for creating and promoting REC. In contrast, (Shahbaz et al., 2022) and (J. J. Wang et al., 2021) studied a one-way directional causal link from FD to REC in the context of China, with a negative relationship between the factors in the long term. Similarly, Eren et al. (2019) investigated the unidirectional causal link going from FD to REC. Contrary to this, Janpolat (2021) found no causal relationship between REC and FD. Saadaoui (2022) discovered that FD had no discernible impact on the development of renewable energy. Nevertheless, the causality assessment revealed that FD causes the development of REC. A separate study by Assi et al. (2021) found no causal relationship between FD and REC. Lei et al. (2022) found no such effect between the variables.

Long-term success and distinct advantages over other nations are aided by technological improvement (Hsu et al., 2014). Mas kus et al. (2019) investigated how FD and patent laws boost research and development of patent products in 22 patent sectors, while patent rights and FD lessen the information problem in R&D. Because patents can help to foster inventive activity (Spulber, 2015). Patents have been shown to increase transaction efficiency and offer incentives for creation and innovation (Ang, 2010). Patent rights have promoted knowledge accumulation, resulting in financial liberalisation. They are unbreakable assets that support the funding of innovation as well as invention. In the case of China, rising technical innovation has played a significant role in accelerating financial development (M. A. Khan et al., 2020; Lv et al., 2021). In contrast (Chu et al., 2020), it was discovered that patent protection had contradictory impacts on different phases of development.

Exports are important for growing contemporary economies because they provide people with commodities and services. Kong et al. (2021) discovered that FD has a positive effect on demand and supports export services across the economy. The empirical analysis demonstrates that FD has a threshold effect on local market demand that enhances exports (Han et

al., 2022). The increasing influence of export diversity on FD was investigated using a unidirectional causation connection that runs from FD to export diversity. Likewise, Rashid et al. (2022) discovered that FD had a significant influence on business exports. The findings show that FD helps to create the export industry. For Wajda-Lichy et al. (2020), depending on the country-to-country definition, looked at the commerce and banking nexus in several economies. Because FD and the open economy are inextricably intertwined, the encouragement of exports is largely dependent on the growth of the financial sector. The effect of FD on international trade was investigated (Yakubu et al., 2018). The findings show that domestic credit has a considerable impact on exports (Shahbaz and Mafizur Rahman, 2014). Nguyen and Su (2021) evaluated the role of FD and GDP in encouraging exports in the nation. The bidirectional causal relationship between the parameters of FD and export quality characteristics was established. The findings revealed a positive association between FD and exports in 49 low, medium, and high-income nations.

3. DATA AND METHODOLOGY

3.1. Data

This study extracts the expanded dataset for the Nigerian economy from 1990 to 2022. Table-1 shows the variable specifications/units as well as the data sources. The natural resource curse has been thoroughly researched in the extant literature. Nonetheless, the financial resource curse has recently become a hot topic. However, some research have explored the favourable effect of NRR in FD (Atil et al., 2020; M. A. Khan et al., 2020; Shahbaz et al., 2020). Yet, actual data suggests that NRR is a burden for FD. The available literature reveals a variety of reasons why NRR may have a negative impact on FD in various countries, including institutional quality (Bhattacharyya and Hodler, 2014), resource reliance (Beck, 2011), and resource availability (Yuxiang and Chen, 2011). The increased revenue in the form of NRR rentals, on the other hand, has the potential to shift wealth from the local banking industry to overseas offshore capital funds, investment corporations, or non-financial industries. As a result, NRR may impair FD by reducing financial transactions and other financial activity in the economy. Although the existing research indicates a mixed effect of NRR on FD, no particular analysis of the Nigerian economy over long time periods is available. As a result, this study seeks to investigate such impact and add to empirical research. Whereas technical innovation is seen as a critical tool for improving the industrial sector. Particularly, technical improvement may allow for more efficient use of readily accessible resources, that not only increases output but also contributes to industrial development and economic growth (Ur-Rehman et al., 2015). As a result, growth in technological innovation fosters the skills and knowledge that encourage inventions and improve transaction efficiency (Ang, 2010; Spulber, 2015). Thus, technical advancement might help the FD.

Furthermore, REC might have a significant influence on the FD. It is commonly known that the globe, and particularly industrialised countries, are in the process of transitioning to renewable energy. Nonetheless, the rate of this change is

substantially slower due to the greater start-up expense of renewable energy, which impacts all industrial and additional economic activity in the region. As a result, monetary transactions, credit, investments, and additional financial activity may suffer. The literature has presented substantial data indicating the impact of REC on economic expansion, but scientists disregarded such an important sector of development, namely financial development. The paper investigates the relationship between REC and FD in Nigeria. Furthermore, exports are seen as an important source of stronger economic growth in the country. However, increased industrial output needs additional energy, which is often acquired through NRR extraction. However, increased commodity production may result in the export of commodities that are in greater demand in distinct economies. A nation may gain from profit and higher reserves as a consequence of exporting products to other economies, that are mostly transmitted through financial channels. Thus, increasing exports might significantly enhance the usage of financial resources for operations, investments, savings, financing, and so on. As a result, it is expected that exports would greatly boost the region's FD.

Table 1. Variables, proxies, and data source.

Variables	Measurement	Data Source
lnFD _t	Domestic credit to the private sector, measured as % of GDP	World Bank Database (WBD)
lnNRR _t	Total natural resources rent measured as % of GDP	(WBD)
lnREC _t	Measured as % of total energy consumption.	(WBD)
lnEXP _t	Exports as % of GDP	(WBD)
lnICT _t	Mobile subscriptions (per 100 people)	(WBD)

3.2. Model Specification

This study identified the necessity to explore natural resource curses/blessings in FD based on the study's purpose and the literature reviewed above. Therefore, building on the work of Ding (2023), this research provides the following model:

$$\ln FD_t = f(\ln NRR_t, \ln REC_t, \ln EXP_t, \ln ICT_t) \quad (1)$$

According to the aforementioned model, total natural resource rents (NRR), information technology (ICT), renewable energy consumption (REC), and exports (EX) are functions of FD. Nonetheless, the natural resource curse is a well-known issue that oil-rich nations such as Nigeria must cope with. As a result, this study retrieved the expanded dataset for the Nigerian economy from 1990 to 2022. The specification in equation (1) is translated into the following econometric statement with a stochastic error term:

$$\ln FD_t = \beta_0 + \beta_1 \ln NRR_t + \beta_2 \ln REC_t + \beta_3 \ln EXP_t + \beta_4 \ln ICT_t + \epsilon_t \quad (2)$$

Other notations are described earlier; ϵ_t is the stochastic error term which includes other determinants not considered in our study.

3.3. Descriptive Stat

Table 2 shows the descriptive data and the correlation matrix. The findings show that FD is more volatile than ICT, while NRR and EXP are less volatile than REC. Also, NRR and EXP have a greater standard range. Skewness and kurtosis show that the data might not be spread out evenly. So, we use asymmetric data studies instead of symmetric ones. The study of correlation shows that there is no chance of autocorrelation.

Table 2. Descriptive Statistics Summary.

Variables	Mean	Standard deviation	Skewness	Kurtosis	Jarque-Bera
lnFD _{it}	-5.401	1.298	-1.203	3.031	4.291* (0.000)
lnNRR _{it}	3.184	2.275	-0.931	3.027	3.321* (0.000)
lnREC _{it}	1.239	0.701	-0.135	5.026	7.198 (0.000)
lnEXP _{it}	6.031	2.918	-0.204	2.192	8.301 (0.000)
LnICT _{it}	3.823	1.721	1.520	2.319	10.023 (0.000)
	lnFD _{it}	lnNRR _{it}	lnREC _{it}	lnEXP _{it}	lnICT _{it}
lnFD _{it}	1.000				
lnNRR _{it}	-0.138 (0.014)	1.000			
lnREC _{it}	0.130 (0.000)	0.245 (0.000)	1.000		
lnEXP _{it}	0.105 (0.001)	0.186 (0.015)	0.732 (0.000)	1.000	
lnICT _{it}	0.420 (0.001)	0.034 (0.000)	0.042 (0.000)	0.097 (0.003)	1.000

*Shows statistical significance at 1 percent level, while ** signifies the 5 percent significance level. Source: WDI (2023)

3.4. Non-Linear ARDL

Furthermore, the NARDL model is used in this work to uncover the asymmetric relationship between NRR and financial development. The natural resource rent has an essential role to play in financial development. Shin et al. (2014) proposed the following nonlinear equation for constructing the nonlinear ARDL:

Notably, the long-term coefficients are represented by c1 through c7. Variable variation, on the other hand, represents

$$\Delta FD_t = \omega_1 + \sum_{j=1}^{no} \omega_{2j} \Delta NRR^+_{t-j} + \sum_{j=1}^{np} \omega_{3j} \Delta NRR^-_{t-j} + \sum_{j=1}^{nq} \omega_{4j} \Delta REC_{t-1} + \sum_{j=1}^{nr} \omega_{5j} \Delta EXP_{t-1} + \sum_{j=1}^{ns} \omega_{6j} \Delta ICT_{t-1} + \gamma_1 NRR^+_{t-1} + \gamma_2 NRR^-_{t-1} + \gamma_3 REC_{t-1} + \gamma_4 EXP_{t-1} + \gamma_5 ICT_{t-1} + \mu_t \quad (3)$$

Table 3. Stationary Estimates.

Variables	KPSS		ADF	
	At level Im-stat [C-value]	At first different Im-stat [C-value]	At level t-stat [p-value]	At the first diff [p-value]
FD _t	0.642** (0.463)	0.123* (0.463)	-2.301 (0.176)	-7.393* (0.000)
NRR _t	0.518 (0.463)	0.143* (0.463)	-1.696 (0.427)	-7.277* (0.000)
REC _t	0.409** (0.463)	0.092* (0.463)	-1.531 (0.509)	-6.346* (0.000)
EXP _t	0.194* (0.463)	0.177* (0.463)	-5.908* (0.000)	-6.495* (0.000)
ICT _t	0.486 (0.463)	0.059* (0.463)	-1.645 (0.452)	-10.716* (0.000)

Table 3 above checks the stationarity of the variables using KPSS and ADF test statistics at the level and first difference. ***, ** and * indicate that rejection of the null hypothesis at 10%, 5%, and 1% significance levels, respectively.

short-term aspects. Furthermore, using the NARDL model specified in Equation (9), the bound test was used to explore factor cointegration. Pesaran et al. (2001) developed and recommended the bound testing technique to study the long-term relationship between components. The NARDL takes into account the possibility of asymmetrical affects caused by positive and negative changes in different portions of the explanatory factors. It may be employed with a small sample size and when the variables have an interaction order of 0 I (0) or one I (1) (Bhutto and Chang, 2019). This technique, unlike the ARDL model, has a limitation: we cannot utilise the QARDL method if the variables have the same degree of integration as I (2). To summarise, if the variables were stable after the second differencing, we cannot utilise this model. As a result, before utilising the NARDL model, we check the amount of stationarity across all variables using the ADF and KPSS tests. When the order of integration is determined, the NARDL test is used.

3.5. Diagnostic Tests

Notably, before investigating the short-term and long-term effects of positive and negative variances in natural resource rent on financial development, we observed diagnostic tests like heteroscedasticity, serial correlation, and normality to determine the precision of dynamic forecasting and decision-making parameters. The normality, serial correlation, and heteroscedasticity tests were used to assess whether the

models had been appropriately built and whether there was no autocorrelation in the model. To assess if the model is of good fit, an adjusted R square is considered. These diagnostic tests are shown in Table 3 under the bound test findings. According to the table, the estimated model passed these diagnostic tests since it showed no heteroscedasticity, autocorrelation, or non-normality at the 5% level of significance.

3.6. ARDL Bounds Tests for Cointegration

The results of the evaluation of cointegration bound tests for the parameters are reported in Table 4. The estimated F-statistics at a significance level of 5% is 17.127, which surpasses the highest analytical limit. This established the existence of long-term equilibrium linkages between climate policy uncertainty, economic policy uncertainty, financial globalisation uncertainty, economic performance, and oil market fear.

3.7. Nonlinear Causality Methodology

Diks and Panchenko (2006) develop a nonlinear Granger causality model to cope with over-rejection bias problem on the basis of Hiemstra and Jones (1994) test based upon nonparametric correlation integrals. Y_{t+1} is conditionally independent for the finite past values of X and Y. Statement

Table 4. Bound Test Results.

Function	F-statistics NARDL	
$F_{lnFD}(\ln NRR_t, \ln REC_t, \ln EXP_t, \ln ICT_t)$	5.295	
C value bounds		
Level of significance	I(0)	I(1)
At 10%	1.81	2.93
At 5%	2.14	3.34
At 1%	2.82	4.21
Diagnostic test		
R^2	0.547	
Adj- R^2	0.463	
F statistic	7.093	
Prob (F statistic)	0.000	
$X^2_{Normality}$	0.025 (0.548)	
X^2_{Arch}	0.013 (0.388)	
X^2_{Reset}	0.022 (0.284)	
X^2_{Ser}	0.084 (0.236)	

of $Y_{t+1} | (X_t^{wx}; Y_t^{wy}) \sim Y_{t+1} | Y_t^{wy}$ denotes conditional independence, where $X_t^{wx} = (X_{t-wx+1}, \dots, X_t)$ and $Y_t^{wy} = (Y_{t-wy+1}, \dots, Y_t)$ in a strictly stationary bivariate series. Meanwhile, $P = (X, Z, Y)$ is stated as an invariant random continuous variable. Density function of joint probability and marginal values of $f_{x,z,y}(x, z, y)$ must meet the condition at Equation below, and X and Z are independent conditionally on Y=y for every fixed value of y (Nazlioglu, 2011).

$$\frac{f_{x,z,y}(x, z, y)}{f_z(z)} = \frac{f_x(x, z)}{f_z(z)} x \frac{f_z(z, y)}{f_z(z)} \quad (4)$$

Diks and Panchenko (2006) reorganize the null hypothesis of nonlinear Granger causality with q statistics as equal to zero:

$$q = E\{f_{x,z,y}(X, Z, Y) f_z(Z) = f_{x,z}(X, Z) f_{z,y}(Z, Y)$$

Indicator function of q estimator is expressed based on the of bandwidth as:

$$T_n(e) = \frac{(2e)^{-dx-2dz-dy}}{n(n-1)(n-2)} \sum_i \left[\sum_{k \neq i} \sum_{j, j \neq i} (I_{ik}^{XZY} I_{ij}^Z - I_{ik}^{XZ} I_{ij}^{ZY}) \right] \quad (5)$$

Value $I(.)$ is the indicator function, where $I_{ij}^T = I(|T_i - T_j| < e)$. Value $||\cdot||$ reflects the maximum norm, where e is the sample size depended on bandwidth (Coronado et al., 2018).

4. RESULTS DISCUSSION AND ANALYSIS

This research chapter provides empirical estimates and examines the findings. To begin, this study seeks to analyse descriptive statistics that aid in information summarization. The estimated descriptive stats and correlation findings are shown in Table 2. The calculated results demonstrate that the mean and median figures for FD, ICT, EXP, and REC are all positive, however NRR is negative. This suggests that the former parameters are increasing with time, whilst the NRR is decreasing. The falling value of NRR indicates that it is depleting in nature, and as a result, the rents derived from such a depleting NRR drop over time. Furthermore, the range values showed a significant discrepancy between the highest and minimum values, indicating the cyclical nature of each factor under investigation. The standard deviation implies that all variables are unstable and that variations remain in the time sequence. Aside from descriptive stats, the current study investigated the variables' normality using skewness and Kurtosis, which reveal that the estimated values differ from the critical values. This provides information about the variables' uneven distribution. Nonetheless, Jarque and Bera (1987) produce statistically significant estimates rejecting the null-normal distribution. Instead, the parameters are abnormally dispersed, which must be estimated using proper time-series data approaches to account for the non-normality of the variables. Because the variables have a non-normal distribution, this study focuses on time series data, where disregarding diagnostic analysis may result in incorrect results and

recommendations. As a result, all the necessary diagnostic tests were conducted, and data verified.

Following the diagnostic tests, the study investigates the variables' stationary character. In accordance with that, we utilised ADF and KPSS tests, the results of which are displayed in Table 3 previously presented. According to the ADF test estimates, all variables are either stationary at level or at first difference. Similarly, KPSS test findings show that variables become stationary at either I(0) or I(1). In overall, the ADF and KPSS stationarity tests match the criteria of the models. The study goes on to investigate whether long run cointegration occurs between the parameters under discussion. The bound co-integration test was used in this resolve, and the empirical findings are shown in Table-4. According to the empirical results, the F-statistics value is bigger than the upper and lower analytical bounds at 5% significance level. As a result, the lengthy cointegration relationship between the variables is validated. After the long-run relationship between the NRR, ICT, REC, EXP, and FD has been established, this study examined the long-run coefficients and magnitude of each variable's effect on FD.

Because this study works with non-normally distributed data, it is important to use appropriate variables to address the issue. Table 5 summarises the NARDL estimator's identified results. The findings show that NRR and REC have a negative impact on FD in the Nigerian economy. More precisely, the model begins by distinguishing between the negative and positive components of NRR, and the findings reveal that the estimates are inversely related for both NRR rises and reductions. In the case of a positive shock, a 1% rise in the NRR decreases FD by -0.542% in the short run and -0.027% in the long run, which is considerable. In the case of a negative shock, however, the NRR coefficient becomes positive and statistically significant. The negative relationship between NRR and FD reveals that NRR is a curse for FD in the Nigerian economy. For different geographies, the empirical findings of this study are compatible with (Canh and Thong, 2020b; Hadj and Ghodbane, 2021). Natural resource income may result in a shift of wealth from the local financial system to foreign investment corporations, non-financial assets, or offshore assets. Particularly now that the Central Bank of Nigeria has approved banks' participation as holding entities. As a result, instead of funding those enterprises, banks are diverging from their fundamental duty of financing the real sector of the economy to acquire companies. Hence, the trading sector might be negatively affected if natural resource rents result in higher resource exploitation, replacing the non-resource sector and reducing the need for external financing.

But a 1% significance level shows that a 1% rise in REC strengthens FD by 0.149% in the short run and 0.119% in the long run. This fits with what Raza et al. (2020) and Dimnwobi et al. (2022) have found. The Nigerian economy may have had such a good effect because it has kept pushing for the growth and use of green energy. So, promoting the production and use of renewable energy will not only help the environment stay healthy, but it will also help the economy grow through things like green financing, loans,

and investments, which might be directed through financial services and lead to economic growth.

FD is also affected positively and greatly by ICT and exports. In particular, a one percent increase in ICT and EXP increases FD by 0.829% and 0.076% in the short run and by 0.065% and 0.099% in the long run. If these figures are between 1% and 5%, that's a big deal. Since new technologies and exports help the industry sector increase production and grow, it can meet the needs of both the local market and the markets of other economies. So, the number of jobs goes up, which increases the flow of money and makes it easier for people to use banking goods and services. So, scientific progress and trade help the Nigerian economy get more FD. Also, (Kong et al., 2021; Spulber, 2015) reports. fit with what we already know by showing that there is a good link between trade and ICT and FD.

However, Table 6 shows the real-world findings of the Diks and Panchenko causality test, which showed that there was a two-way causal link between the factors. Essentially, the explanatory factors, such as NRR, ICT, REC, and EXP, change the policies about FD in a major way. But the feedback effect is stronger because policies about FD further induce policy-level adjustments to the factors listed above. Canh and Thong (2020a) found that there was bidirectional linkage between NRR and FD (Usman and Hammar, 2021), REC and FD (Nguyen et al., 2020), ICT and FD (Nguyen and Su, 2021), and EXP and FD (Canh and Thong, 2020a). So, NRR, ICT, REC, and exports could be used as policy tools to increase FD in Nigeria.

Table 5. NARDL Results.

Variable	Short-Run	SE	t-statistic
$\Delta NRR+$	-0.542*	0.160	-3.379
$\Delta NRR-$	0.029**	0.014	2.082
ΔREC	0.149*	0.042	3.511
ΔEXP	0.076**	0.033	2.273
ΔICT	0.829*	0.158	5.236
$ECT(-1)$	-0.026**	0.011	-2.394
Variable	Long-run	SE	t-statistic
C	0.033**	0.014	2.296
$NRR+$	-0.027**	0.011	2.440
$NRR-$	0.171**	0.071	2.422
REC	0.119*	0.038	3.127
EXP	0.099**	0.038	2.638
ICT	0.065	0.032	1.970

Table 6. Diks and Panchenko Causality Test.

H_0	T-stats	P-value
NRR – FD	3.658*	0.000
FD – NRR	2.824*	0.007

ICT – FD	4.071*	0.000
FD – ICT	3.453*	0.001
REC – FD	1.883***	0.067
FD -REC	3.761*	0.000
EXP – FD	2.371**	0.026
FD -EXP	2.518**	0.019

The significance level is depicted by asterisks *** (1%), ** (5%).

5. CONCLUSION AND POLICY RECOMMENDATIONS

Nigeria has tried a lot of different ways to improve its economy and finances over the past few decades. But the current literature has a lot to say about what causes or determines economic growth at different times. Still, the problem of figuring out what makes the Nigerian economy grow financially is not solved. In this way, the current study looks at the possible factors that have affected Nigeria's financial growth over the last 30 years. More specifically, this economy in development is taking a few steps to improve the environment. For example, it is working to make sure that green energy is used and is encouraging advances in technology, which could affect its financial growth. This study looked at how environmental factors like natural resources and clean energy are influencing the Nigeria's financial growth. It did this by using non-parametric approaches, which work well with non-linear data distribution and help deal with the problem of endogeneity. These data showed that Nigeria's economy has a financial resource curse. Even though the country has a lot of oil, there are still a few things that keep natural resources and renewable energy from helping the banking system grow. So, the right policies are needed to change financial resources from a curse into blessing. Based on what was found in the real world, this study argues that NRR extraction should be cut in a sustainable way to make the local market more competitive. Also, the government should get involved in controlling NRR. This could help cut down on the transfer of funds to foreign businesses, reduce the amount of corruption, and improve banking services for NRR. So, the country will turn the natural resource curse into a blessing in a big way. This study also suggest that the use of green energy should be pushed in a way that could use more money. Green finance, credit, and shares, among other things, should be used to help make and use sustainable energy. Also, technological progress and exports should be encouraged because they bring in a lot of FD through the improved and enlarged industry sector route.

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