

Financial Intermediation, Growth of Industries and the Paradox of Corruption in Nigeria

Kolawole Subair and Ene Debra Ojabo Oloja

Department of Economics, Nigerian Army University Biu, Nigeria

Abstract

Industrial growth often acts as a catalyst for economic performance. However, for industries to flourish, there must be a robust financial sector that can offer a variety of financial intermediary assets. These assets could be loans, investments, insurance products, and other financial services that support businesses in managing risks and expanding their operations. By providing these financial tools, the sector can help industries secure the necessary capital, manage liquidity, and mitigate various risks, ultimately leading to a more dynamic and resilient economy. Amongst such risks is corruption, which has been identified as the predominant factor in the Nigerian economy. The interplay of corruption in the relationship between financial intermediation and the growth of industries in Nigeria was investigated through the use of Structural Vector Autoregressive Modeling technique. Nigerian dataset on the growth of industries, corruption index, loans and advances, lending rate and domestic credit from 1996 to 2023 was utilized. The study found that corruption and financial intermediation affected industrial growth positively, while domestic credit had both negative and positive effects on industrial growth and financial intermediation over time; corruption affected lending rates and loans positively; increases in financial intermediation resulted in decreasing corruption in Nigeria; increase in corruption and loan resulted in increasing lending rates, while domestic credit transmits a reduction effect on other financial intermediation indicators and corruption, to increase industrial growth. It is therefore, recommended that domestic credit and loans be increased while ensuring lower lending rates to minimize corruption for improved industrial growth in Nigeria.

Keywords: financial intermediation, industrial growth, corruption, SVAR, Nigeria.

JEL Codes: C53, G21, G23, O14, O47

Introduction

A country's performance can be based on its level of industrialization. Still, inadequate financial resources pose a significant threat to realizing such a feat in Sub-Saharan Africa, where Nigeria is located. Financial intermediation is crucial to ameliorate the challenges of inadequate finances for industrial growth. Financial intermediation plays significant role in ensuring that liquidity and financing are channeled towards competing units of economies, industrial projects inclusive (Subair & Soyabo, 2020). Various forms of financial intermediation are geared towards providing required funds from surplus to deficit sources. In Nigeria, financial institutions mobilize funds for sectors with shortages in funding projects either through formal and informal financial institutions that play intermediary roles in the country's financial system.

At independence in 1960, industries in Nigeria provided agricultural raw materials to the advanced economies, particularly Britain. Industrial activities in Nigeria were minimally focused on commercial activities owned and managed by foreign companies, which laid the foundation for the industrial development of the Nigeria's

economy. In as much as Enilolobo, Esedeke, Nnoli, Olowo, and Hassan (2024) observed that Africa is a continent among the least industrialized in the world, many policies have been enacted to enhance the growth of industries in Nigeria. In the same perspective, Index Mundi [IM](2024) indicated that Nigeria's industrial growth ranged between -4.7% and 4% from the year 2000 to the year 2016 but grew from ₦1,530,050,000,000 in the year 1996 to ₦43,530,800,000,000 in the year 2020. This indicates a nominal growth over time but very low growth rates. Similarly, the World Development Indicator [WDI](2024) revealed that industry value added as a ratio of gross domestic products (GDP) was highest by 1981 at 39.24% and declined through the years until 1996, when it increased to 37.44% and least in 2016 at 18.17%. It however increased to 32.58% by 2023. It is unclear how much of this growth and decline is attributed to financial intermediation or corruption.

The prevalence of corruption in many African countries does not exclude Nigeria. As long as corruption involves using entrusted assets for private gains, many forms of corruption have been identified as serious threats to the Nigeria's economy. Corruption has a long history in emergence of economies and their stages of development (Subair, 2012, 2013). Previously, Majeed and McDonald (2011) opined that corruption has a potential for expanded research. For an instance, in product and financial markets, a lack of competition fosters corruption. As much as corruption is viewed as having a negative influence, Mauro (1995, 2004) and Egunjobi (2013) indicated that corruption promotes economic growth but sometimes to a limited extent X thus reflecting its paradox. Furthermore, Transparency International [TI] (2024) posited that the highest corruption index of Nigeria at 3.6 in the year 2024 implies that Nigeria is 140th out of 180 countries, having 160 countries ahead of it, with less corruption indicating that extensive study in this area is thus required.

Corruption has paradoxical effects, sometimes creating inefficiencies and distortions in the economy, while in other cases, it might facilitate certain transactions. Investigating how corruption interacts with financial intermediation and industrial growth in Nigeria could uncover important insights into how to better design policies and interventions. Therefore, understanding how corruption, financial intermediation and industrial growth interact can provide valuable insights for policymakers and stakeholders. Hence, the examination of how financial intermediaries affect the growth of industries and how does corruption affect financial intermediation and industrial growth? On this note, this study assesses the role of corruption on financial intermediation and the growth of industries in Nigeria.

Literature Review

Conceptual Review of Relevant Literatures

Financial intermediation remains important in every economy because some sectors may have surplus financial resources with others having less to utilize for economic growth including industrial activities. Adeyinka, Akanmu, and Innocent (2019) espoused financial intermediation as the mobilization of financial resources from surplus sources to deficit sources for economic agents' utilization. Financial intermediation therefore includes using specific financial instruments by financial

institutions for the purpose of achieving growth, industrial development inclusive (Gbadebo, 2024). Such institutions include bank and non-bank financial institutions that facilitate credit transfer thereby playing key role in the allocation of capital (Subair & Soyebbo, 2020). This capital includes financial instruments such as bank deposits, bank loans, bank liquidity reserves, lending rates, and money supply (Levine, Loayza, & Beck., 2000; Babatunde & Oyedokun, 2022; Ijeoma, 2023; Madume & Dibiah, 2023) that serve as the channels through which surplus funds are transmitted to the deficit sectors in the economy. This study thus considers domestic credit and lending rates as the sources through which financial intermediary's role is executed in industrial development of Nigeria.

Industries are groups of specialized factories that transform raw materials into finished goods. The industrial sector is further categorized into sub-sectors consisting of mining and quarrying, manufacturing, production and construction to mention but few and which contributes reasonably to the GDP (Ikon & Chika, 2018). The growth of industries can be qualitative or quantitative. The growth of industries can be measured as a percentage change in industrial output over time. Hence, industrial growth refers to the increase in the performance of the industrial sector in an economy. Whereas, IM (2024) explained industrial growth as the yearly increase in industrial production which is composed of manufacturing, mining, and construction. However, since the growth of industries is akin to increase in GDP of any nation, it has been observed that in the short run, corruption could enhance industrial growth through foreign direct investment but impact negatively on industrial growth in the long run (Leff, 1964; Rose-Arkerman, 1994; Subair, 2013). The growth of industries in this study thus refers to current value added of industries as certain percentage of GDP in Nigeria. It therefore reflects the contribution of the industrial sector to the overall economy and clearly indicates its performance over time.

Going by TI (2024), corruption is the abuse of entrusted power for private gain. However, corruption is viewed differently by various economic actors both in time and place. For Egunjobi (2013), corruption depends on the existing laws and regulations guiding specific actions and which Subair (2013) posits that it is also depends on the "rate of risk" involved. According to Subair p.185, "the minimal risk involved often makes corruption almost an accepted norm since those previously involved were never or thoroughly prosecuted" and if subsequently convicted, it is just mild punishment or even plea bargain. Corruption may thus discourage or encourage industrial growth through the manipulation of policies or the diversion of funds. Hence, corruption here refers to manipulation of public policy or rent-seeking for secluded gain or loss in the industrial output as measured by the corruption index of Transparency International.

Theoretical Review of Literatures

McKinnon (1973) and Rajan and Zingales (1998) established that a relationship exists between financial intermediation and economic performance, however, McKinnon's hypothesis specifically that financial intermediation fosters entrepreneurial development while Rajan and Zingales (1998) directly considers the effect of finance on general growth. This study is better situated within the McKinnon hypothesis. Financial intermediation plays a critical role in industrialization. However,

rent-seeking may negatively or positively affect industrial output through financial intermediation. Market imperfection promotes rent-seeking and corruption because distortions in the financial markets can distort the availability of funds and hence, competition among would be lenders. But since Mckinnon posits that financial development improves growth performances, where financial deepening is low or completely not pursued by any economy, growth performances will be minimal or absent.

Further to this, Boerner and Hainz (2009) model emphasizes that entry fees and corrupt positions, an imperfect credit market, a stake in corruption, and opposition to anti-corruption reforms as well as some credit market imperfections are responsible for promoting corruption. Scholtens and Van Wensveen (2003) however, identified improvements in information technology, liberalization and the deepening of the financial market as determinants of transaction costs and informational asymmetries; which reduces the influence of financial intermediation thereby diverting its value-creating economic processes in the system. This is due to the fact that the financial intermediation theory as observed by Scholtens and Van Wensveen is founded on the imperfect financial system. This imperfect market or economy reinforces information problems, transaction costs, and regulation. The implication of such imperfection for the growth of industries in Nigeria is thus examined through the lens of the financial intermediary theory.

Empirical Review of Literatures.

Since industrial sector is one of the major sources of growth, it is not out of context to review literatures on growth and corruption *vis-a-vis* financial intermediation or how the formal financial and informal financial sector has been contributing to industrial growth in Nigeria. In the study of Mauro (1995, 2004), corruption is inversely related to growth most especially when the degree of corruption is monumental. Mauro (1995) further affirms that “higher corruption has lower ratio of (gross fixed capital formation) to gross domestic product” attributable to the extent of involvement of questionable payments in business transactions, such as addition of scrupulous entitlements on government purchases (Subair, 2013) otherwise tagged as public relations in Nigeria. In the final analysis, Mauro concludes that the level of corruption and rate of investment had significant but inverse relationship, such that a change in investment had multiplier effects on income and thus growth. Further studies that have either contributed directly or indirectly to financial intermediation, corruption and growth are limited due to inadequate dataset most especially on corruption.

Growth and industrial development are by extension intertwined such that the effect of the development of financial intermediation on economic growth cannot equally be divorced from industrial growth. For Levine *etal.*, (2000), using real per capita GDP, exogenous component of financial intermediary, initial income, educational attainment, government size, openness to trade, inflation and the black market exchange rate premium in estimating the effect of financial intermediary development on economic growth for 18 selected Sub-Saharan African countries through Panel ordinary least square (POLS) regression, found that financial intermediary development increased economic growth. On this note, Levine *etal.*, (2000) suggested that financial development should be accelerated for growth to be improved and thus, industrial development. In another vein and contrary to Levine *etal.*, (2000), Adeleye, Osabuohien, and Asongu (2020) analyzed the effect of finance

on agro-industrialization in Nigeria using error correction model and bounds cointegration technique to regress data from 1981 to 2015, the study revealed that agriculture and finance strongly and positively predicted long-run industrialization, while in the short run, finance had significant asymmetric effects on industrial output. The agricultural sector therefore predicts that the growth of the financial system has a decreasing effect on industrial output. Also in tune with the significant effect of financial intermediation on agro-industrialization is Enilolobo *et al.*, (2024) whose study of involved other variables such as exchange rates, population growth rate and inflation rate. In addition, Adeleye *et al.*, (2020) included volume of finance to agricultural sector, manufacturing and agricultural value added in their study to also find significant effect of financial intermediation on agricultural sector.

In deviance however and considering that a sound financial system depends on a country's monetary policy in regulating money supply to achieve desired macroeconomic objectives, the effect of this policy on industrial growth is thus considered worthy of examination. On this note therefore, using the dataset of Nigeria from 1986-2019, Uju and Ugochukwu (2021) examined the effect of monetary policy on industrial growth through ordinary least square regression and found that monetary policy enhances industrial sector growth in Nigeria. The authors thus recommend that a lower monetary policy rate (MPR) should be ensured in order to drive up investment such that growth of the industry can equally be boosted. But for the simple reason that all these views are limited to finance and growth, it is imperative that complete review of literatures that focus on the interconnectivity among financial intermediation, industrial growth and corruption be cross examined for a robust empirical analyses. In the studies of Majeed and McDonald (2011) as well as Edirisuriya (2017) growth is viewed as financial development in the financial industry and thus the corruption level and financial intermediation was examined. While Majeed and McDonald used dataset from 1984 to 2007 to test the effect of financial intermediation on corruption for countries from different continents with a random effects estimator and systems GMM estimator by which financial intermediation was found to negatively and significantly impact on corruption. The study thus suggests that financial market liberalization should be encouraged in order to combat corruption. Edirisuriya however, examined the corruption level and financial market deregulation using dataset for Islamic banks from fourteen countries. While using panel data and fixed effect regression method, the results conclude that countries where the Islamic banking is dominant, no significant positive relationship exists between the corruption level and financial deepening. This study also supports the view of Majeed and McDonald, in that corruption could only be mitigated by further deregulating the economies of these countries in which the Islamic banks hold sway.

In furtherance of the foregoing, Abdullahi, Shuaibu, Yusufu, Shehu, and Rafay (2023) using dataset from 1989-2019 and auto-regressive distributed lag cointegration and error correction model along with granger causality test procedure examined the case of corruption in Nigeria in terms of economic growth, financial development and bank failure, a negative relationship was found between corruption, financial development and economic growth. It was also revealed that corruption significantly impacted bank failures in Nigeria. In an extensive study by Struthmann, Walle, and Herwartz (2024), the system of generalized method-of-moments (SGMM) estimator investigated the relationship between corruption control and the volatility of economic growth using cross-country dataset of 131 economies from 1985-2018. The study discovered that the control of corruption would significantly reduce growth volatility.

But evidence further indicates that controlling corruption has indirect impact on industrial development and growth volatility through financial development.

The reviewed empirics investigated the key variables of this study, but the interactions between corruption, financial intermediation and the growth of industries in Nigeria is yet to be thoroughly explored. While Majeed and MacDonald (2011), Edirisuriya (2017) and Abdullahi *et al.*, (2023) along with Struthmann *et al.*, (2024) examined the issues of financial development, growth and corruption as the case may be, Enilolobo *et al.*, (2024) and Adeleye *et al.*, (2020) explicitly focused on the relationship between financial intermediation and agro industrialization. This study thus explores the empirical gap in the relationship between corruption, financial intermediation and the growth of industries in Nigeria.

Methodology

Dataset

The Structural Vector Autoregressive (SVAR) modeling technique was employed using E-views 10 software for regression. Nigeria’s dataset from 1996 - 2023 on the value added of industries as a percentage of GDP, corruption index, loans and advances to small and medium enterprises, lending rate and domestic credit was collected and analyzed. The dataset were sourced from the Central Bank of Nigeria [CBN] Statistical Bulletin (2023), WDI (2024) and TI (2024).

Model Specifications and Estimation Technique.

According to Rajan and Zingales (1998), financial development reduces external costs to firms (industry). In this study it was established that countries with developed financial markets enhanced industrial sector development especially where the sector needs of external finance. Based on this view and in application to Nigeria only, it is imperative to model the dependent variable as the industry while its growth is a function of financial intermediation. As usual, stating the model of Rajan and Zingales in its adaptation to this study is a *prima facie* to a robust analysis of the Nigeria’s economy. Hence, the fundamental equation upon which this study is based is as follows:

$$Growth_{j,k} = \beta_{1...m} . Country_k Characteristics + \beta_{m+1...n} . Industry_j Characteristics + \beta_{n+1...p} (Country \text{ and } Industry \text{ Characteristics}) + \beta_p Interaction + \epsilon \quad (1)$$

Where; the characteristics of the country include investment, per capita income, the average years of schooling population, and domestic credit and stock market capitalization are financial development.

Industry Characteristic is industry’s dependence on external financing. However, since this study focuses on Nigeria, only the basic regression model is formulated as:

$$IDG = f(FI) \quad (2)$$

While Abdullahi *et al.*, (2023) established that financial intermediation determines corruption Majeed & MacDonald (2011) established that corruption determines financial intermediation. These relationships are thus presented as follows:

$$COR = f(FI) \quad (3)$$

$$FI = f(COR) \quad (4)$$

These relationships, expressed in equations 2, 3 and 4 are most appropriately captured in non-linear models, and which is adequately taken care of by the vector autoregressive (VAR) framework. For this study, financial intermediation is made operational through loans and advances to small and medium enterprises, lending rate and domestic credit. Hence, equation 2 becomes:

$$IDG=f(SML, FIIM, DC) \tag{5}$$

Also, capturing equations 4 and 5 for a modification to the VAR model:

$$IDG=f(COR, SML, FIIM, DC) \tag{6}$$

Where; IDG = industrial Growth
 FI = financial intermediation
 COR = Corruption
 SML = loans and advances to small and medium enterprises
 FIIM = lending rate
 DC = domestic credit

By transforming equation 6 into econometric format, there arises equation 7:

$$IDG =\beta_0+ \beta_1COR + \beta_2SML + \beta_3FIIM + \beta_4DC +\mu_t \tag{7}$$

Where; IDG = industrial growth measured by industry value added as a percentage of GDP

$\beta_1, \dots, \beta_4$ = coefficients of determination.

μ_t = the error term.

Specifying the model in log form for Vector autoregression, the SVAR is thus specified in this study as:

$$IDG =\beta_0+ \beta_1COR + \beta_2SML + \beta_3FIIM + \beta_4lnDC + \mu_t \tag{8}$$

Results

Descriptive Statistics of the Variables

Table 1 is the descriptive statistics of the dataset collected for this study indicating 28 observations that represent the years covered by the study from 1996 to 2023. The maximum value of corruption index (COR) was 0.28 in 2016, this high record may have resulted from 2016 whistle blower policy of the government to expose corruption and increased government's deficit financing efforts coinciding with political campaigns by which illicit finance exchanges transpired. The maximum Domestic Credit (DC) was ₦69914.01 billion in 2023 which may be attributed to the loan-to-Deposit Ratio directive encouraging increased credits to the real sector. In addition, comparatively the higher budgetary allocation in 2023 surpassing preceding years also contributed to year accounting for the maximum value of domestic credit over the study period. Interest Rates (FIIM) attained its maximum at 30.60% in 2017, and this was the monetary policy committee’s decision outcome to cut down on the high demand for loans. In 1996, the maximum value based on the percentage of total credit to small and medium enterprises (SML) at 16.60% and industrial growth (IDG) at 37.44% is most likely rooted in the inflationary pressures of the preceding year.

Table 1
Descriptive Statistics

	COR	DC	FIIM	IDG	SML
Mean	0.206429	12514.25	24.37964	27.22675	3.362143
Media	0.240000	4535.512	23.55500	27.22778	0.545000
Maximum	0.280000	69914.01	30.60000	37.44548	16.60000
Minimum	0.070000	-650.3744	18.36000	18.17313	0.070000
Std. Dev.	0.064015	16948.14	3.838122	4.413034	4.808009
Skewness	-0.801316	1.825718	0.081799	0.256011	1.342848
Kurtosis	2.274634	6.139984	1.753812	3.020871	3.577194
Jarque-Bera	3.610347	27.05789	1.843039	0.306368	8.803801
Probability	0.164446	0.000001	0.397914	0.857972	0.012254
Sum	5.780000	350398.9	682.6300	762.3491	94.14000
Sum Sq. Dev.	0.110643	7.76E+09	397.7419	525.8216	624.1577
Observations	28	28	28	28	28

On the other hand, COR recorded its minimum value of 0.07% in 1996 being the first year of compiling the corruption index by Transparency International, this least value may be due to inadequate awareness and recording of such circumstances, the minimum value of DC at ₦-650.3744 in 2007 may be attributed to the global financial crisis which made domestic credit inadequate thus, resulting to its external sourcing. In addition, the minimum value of FIIM at 18.36% in 2007 is also not far-fetched from the global credit crunch which may have resulted to the fall in lending rate. Also, the minimum values of IDG and SML at 18.17% and 0.07% in 2016 may have resulted from lesser spending in the year after the electioneering year of 2015, hence the least industrial growth and loans to the specified enterprises in Nigeria.

The skewness of these data indicated that COR was skewed to the left at -0.801316 while DC and SML were skewed to the right at 1.825718 and 1.342848. FIIM and IDG at 0.081799 and 0.256011 respectively are symmetrically distributed. The Kurtosis of COR and FIIM at 2.274634 and 1.753812 are platykurtic, DC and SML are leptokurtic at 6.139984 and 3.577194 respectively while IDG at 3.020871 is mesokurtic. The probability values of the Jarque-Bera Statistics of COR, FIIM and IDG at 0.164446, 0.397914 and 0.857972 respectively indicates the normality of the variables' distribution while the Jarque-Bera Statistics of DC and SML had probability values of 0.000001 and 0.012254 indicating non-normal distribution, however, non-normality of dataset does not stop further analysis of data.

Pre-Test Statistics Results

Table 2
Stationarity Test Results of Variables

Variables in the Model	ADF Test Statistics	Probabilities	Stationarity
IDG	-4.295193	0.0025	I(1) ^a
COR	-3.684587	0.0410	I(0) ^b
SML	-5.447652	0.0009	I(1)
FIIM	-7.571860	0.0000	I(1)
LnDC	-4.005108	0.0214	I(1)

From Table 2, the variables of industrial growth, loan, lending rate and domestic credit have probability values of 0.0025, 0.0009, 0.000, and 0.0214, which are less than 5% at the first difference implies that IDG, FIIM and LnDC are respectively stationary at the first difference. On the other hand, the probability value of 0.0410 for corruption is less than 5% implying that it is stationary at level. On the other hand, Table 3 shows the least AIC at 5.472826 indicating that the lag of two is optimal for the regression. Similarly, other tests aside Log-Likelihood also indicates that the lag of two years is optimal with indications of asterisks. Lag 2 is therefore the optimal lag for the regression of the model.

Table 3
Lag Selection Criteria

Lag	Log-likelihood	Likelihood Ratio	Final Prediction Error	Akaike Information Criterion	Schwarz Information Criterion	Hannan Quinn Information Criteria
0	-147.1825	NA	0.083505	11.706340	11.948290	11.776010
1	-58.56707	136.3314	0.000653	6.812852	8.264502	7.230875
2	-16.14674	48.94654*	0.000218*	5.472826*	8.134184*	6.239201*

Note * =
optimal lag

Table 4
Cointegration Results

Hypothesized Cointegrating Equation(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Probability Values. **
At most 1 *	0.837540	118.5831	63.87610	0.0000
At most 2 *	0.778426	73.15004	42.91525	0.0000

At most 3 *	0.592085	35.47503	25.87211	0.0024
At most 4 *	0.406847	13.05759	12.51798	0.0406

Note p < 0.05

Table 4 however, indicates that the probability of the test statistics are 0.000, 0.000, 0.0024 and 0.0406 which are less than 5% significance level meaning that at most 4 equations are cointegrated indicating that the variables have long-run relationship.

Discussion of Findings

Response of Industrial Growth to Corruption and Financial Intermediation

Based on the various tests carried out and the nature of this study, it is imperative that the relationship existing among the variables of interest should be examined through their various responses or reactions to each other. The responses of industrial growth to corruption and financial intermediation are mixed. However, industrial growth responds positively to shocks from corruption in the short and long run, implying that innovation in corruption increases industrial growth as shown in Figure 1. Figure 2 and 3 also showed that industrial growth in Nigeria responds positively to shocks from loans and lending rates both in the short run and the long run, these imply that innovation in loans and lending rates increases industrial growth.

Figure 1

Response of Industrial Growth to Corruption

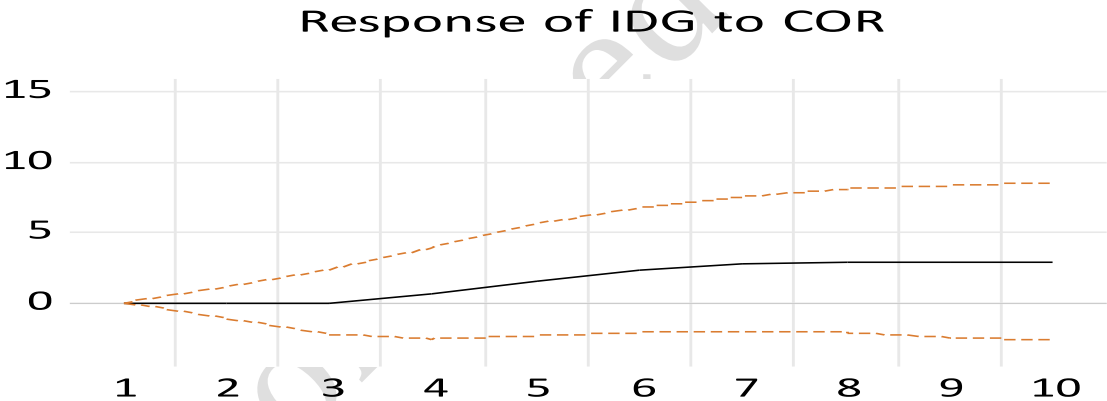


Figure 2

Response of Industrial Growth to Loans to Small and Medium Enterprises in Nigeria

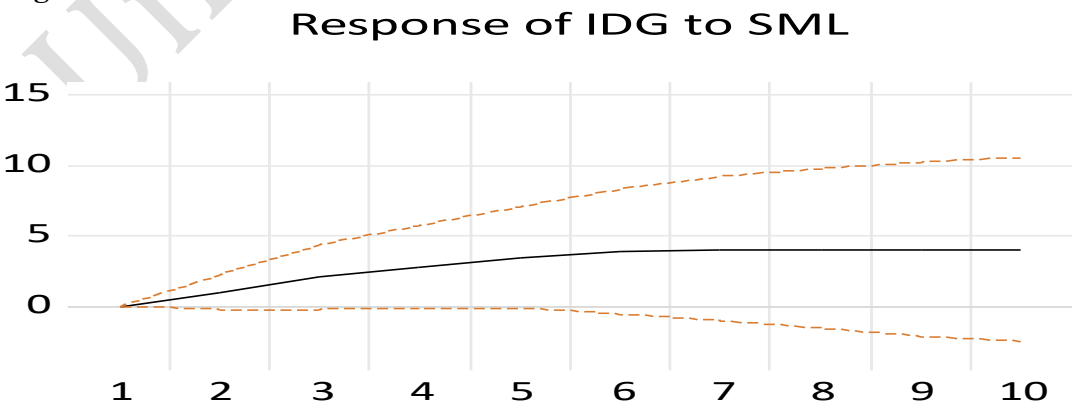


Figure 3

Response of Industrial Growth to Lending Rate

Response of IDG to FIIM

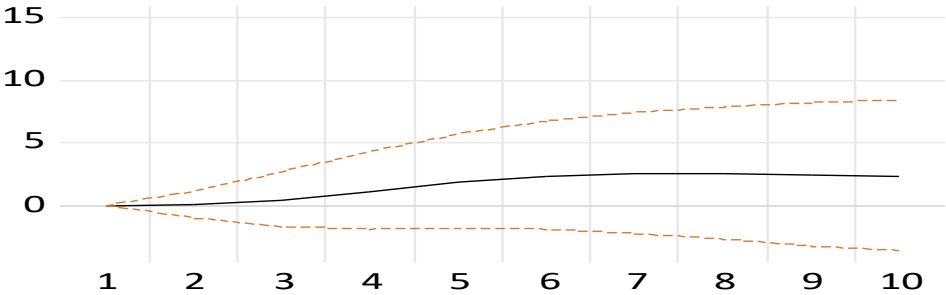
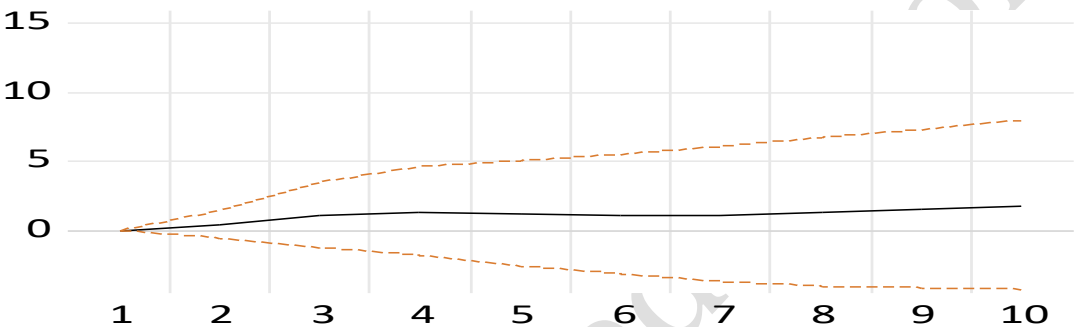


Figure 4
Response of Industrial Growth to Domestic Credit
Response of IDG to LnDC



In the short run, the first four years indicates that the effect of innovations in domestic credit on industrial growth is positive. However, the shocks from the fifth to seventh year affected industrial growth negatively, and from the eighth year, there was a positive response to industrial growth that was minimal compared to the initial increases; thus implying that innovation in domestic credit increases industrial growth initially, but in the long run, the increases are minimal as exhibited in Figure 4 above.

Response of Financial Intermediation to Corruption

In this case, the reactions of loan, lending rates and domestic credits to the spate of corruption are presented in Figures 5-7 respectively. On this note, the responses of loans and lending rates to shocks in corruption are positive over a ten-year forecast shown in Figures 5 and 6 respectively whereas the domestic credit's response to shocks in corruption is negative in the first two years. However, it subsequently becomes positive to the third year through to the tenth year of the forecast (Figure 7).

Figure 5
Response of Loans to Corruption
Response of SML to COR

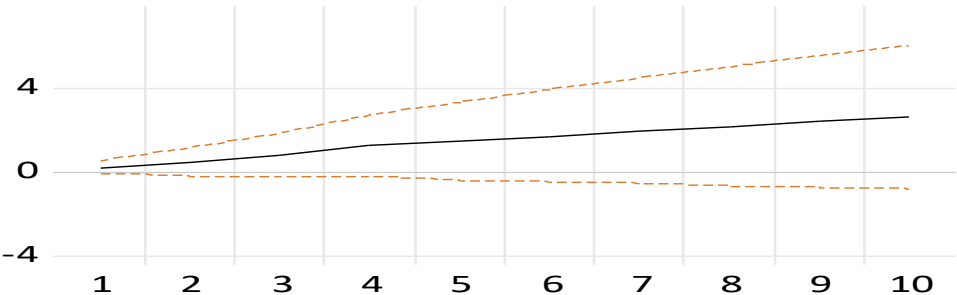


Figure 6
Response of Lending Rate to Corruption
Response of FIIM to COR

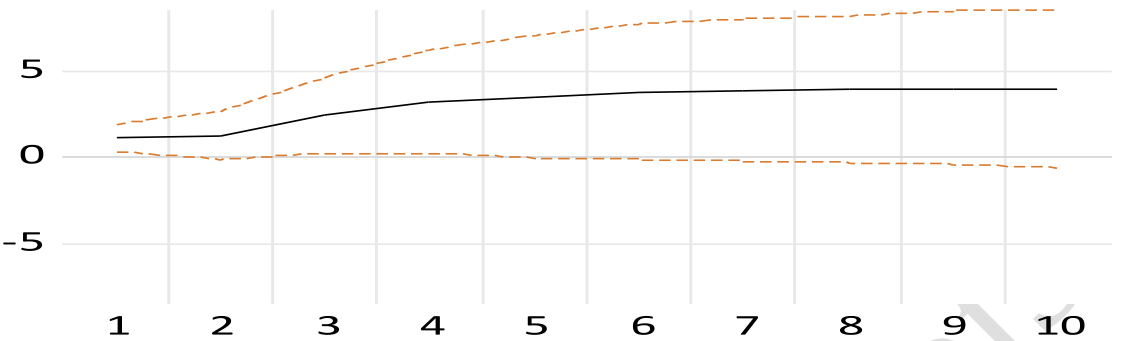
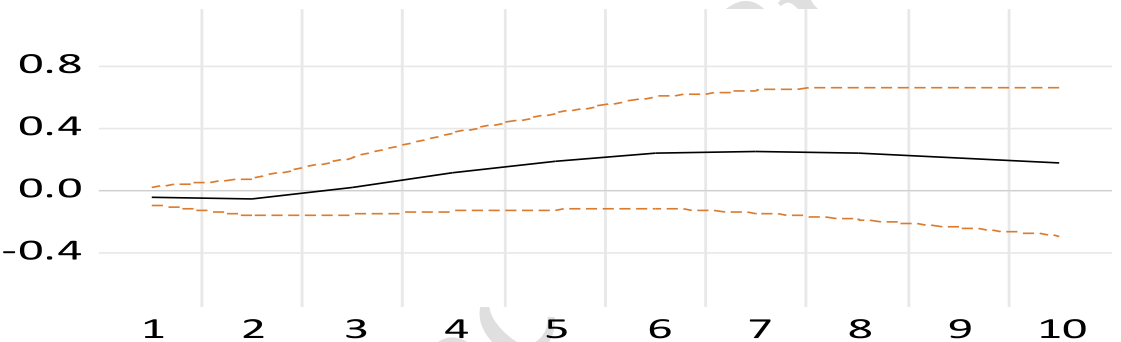


Figure 7
Response of Domestic Credit to Corruption
Response of LNDC to COR



Response of Corruption to Financial Intermediation

The extent to which the level of corruption has equally responded to financial intermediation through loans, lending rates and domestic credit has given such negative results indicating that corruption tends to negatively affects financial intermediation and hence, industrial growth. This overall result conforms to the findings of (Mauro, 2004; Subair, 2012, 2013; Abdullahi *et al.*, 2023; Struthmann *et al.*, 2024) that in the short run, corruption could be beneficial but harmful in long run for sustainable financial system and industrial development. Corruption responds negatively to shocks from loans in the short and long run, this implies that innovation in corruption decreases loans in Nigeria as shown in Figure 8. Further to this, the effects of lending rate and domestic credit on corruption are negative throughout the ten years of the forecast as exhibited by Figures 9 and 10.

Figure 8
Response of Corruption to Loans in Nigeria

Response of COR to SML

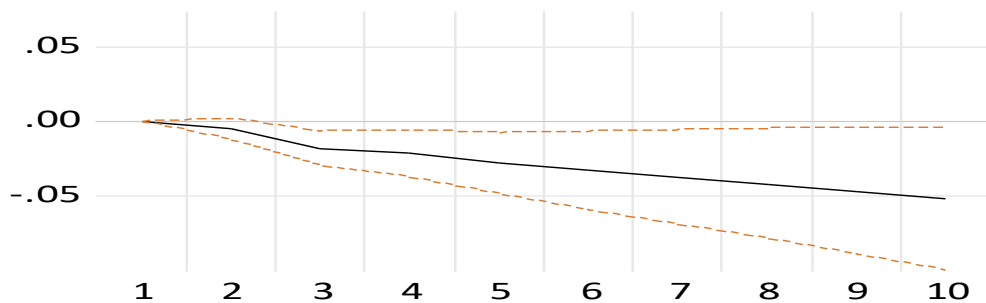


Figure 9

Response of Corruption to Lending Rates in Nigeria

Response of COR to FIIM

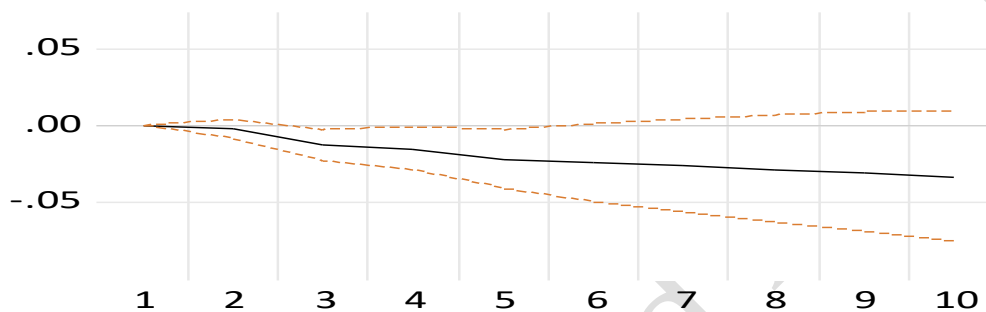


Figure 10

Response of Corruption to Domestic Credit

Response of COR to LnDC

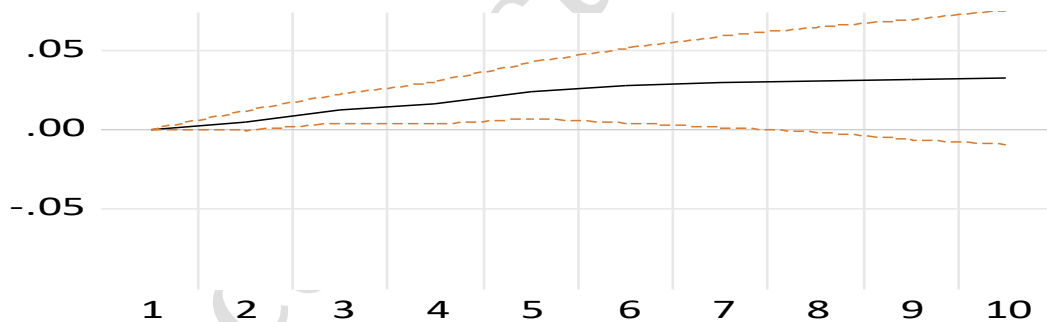


Table 5

SVAR Result

	IDG	COR	SML	FIIM	LnDC
IDG	1	0	0	0	0
COR	0.000926 (0.4015)	1	0	0	0
SML	0.075464 (0.1741)	-12.98630 (0.1824)	1	0	0

FIIM	0.073556 (0.3824)	-42.90506 (0.0036)	- 1.893636 (0.0000)	1	0
LnDC	0.018686 (0.0505)	2.133323 (0.2614)	- 0.054988 (0.2951)	0.012439 (0.5707)	1

The restrictions imposed on the recursive matrix in Table 5 shows that the independent variables of COR, SML, FIIM and LnDC have no contemporaneous response to IDG. One percent positive shock in COR and SML results in significant impacts of -42.90% and -1.89% on FIIM; this implies that an increase in corruption and loans affect lending rates negatively at 42.9% and 1.89%. in the short-run, the contemporaneous effect on COR, SML, FIIM and LnDC from own shocks are -0.002, -0.254, -0.810 and -0.052. Interpreting these results by reversal of signs as required by the SVAR framework, indicates that all variables in the estimated model respond positively to a one percent increase in their shocks.

The Transmission effect from Table 5 is shown as: $LnDC \Rightarrow \overleftarrow{FIIM} \Leftarrow SML \Rightarrow$
COR IDG

The contemporaneous transmission analysis indicates that domestic credit insignificantly results in a 0.012% fall in lending rate; as the lending rate significantly results in a 1.893% increase in loans; as loans increase, this insignificantly results in a 12.986% increase in corruption, resulting in the decrease of industries in Nigeria at 0.000926%; this means that increasing domestic credit results in negative pass-through effects on lending rate while increasing loans and corruption, which transmits to the decline of industries in Nigeria.

Diagnostic Tests

Having regressed the model at the lag of 2, the Rao F-Statistics at 0.805992 has a probability value of 0.7021 at lag 2, which is not less than 5%, implies that the model's residuals are not autocorrelated in Table 6.

Table 6
Serial Correlation Test

Lag	LRE* stat	Degree of freedom (Df)	Probabilities	Rao F- stat	Df	Probabilities
1	35.40846	25	0.0811	1.643810	(25, 23.8)	0.1146
2	21.65230	25	0.6557	0.805992	(25, 23.8)	0.7021

Table 7
Normality Test

Component	Jarque-Bera Test Statistics	Df	Probabilities
1	0.633386	2	0.7286

2	3.767507	2	0.1520
3	4.809807	2	0.0903
4	1.744431	2	0.4180
5	5.386000	2	0.0677
Joint	16.34113	10	0.0903

The Jarque-Bera statistics of the joint component is 16.34113 with a probability value at 0.0903, where 0.09 is greater than 5% significance level, implies that the model is normally distributed in Figure 7.

Table 8
Heteroscedasticity Test Result

Joint test: Chi-sq	Degree of Freedom	Probability
332.1482	300	0.0976

The VAR Residual Heteroskedasticity Test Statistics of 332.1482 has a probability value of 0.0976, which is greater than 5% significance level; this means that the model's residuals are homoscedastic and which is the desired result as shown Figure 8. Summarily, the specified model residuals passed the diagnostic tests of autocorrelation, normality and heteroscedasticity.

Model Stability Test.

Figure 11
AR Roots Graph
Inverse Roots of AR Characteristic Polynomial

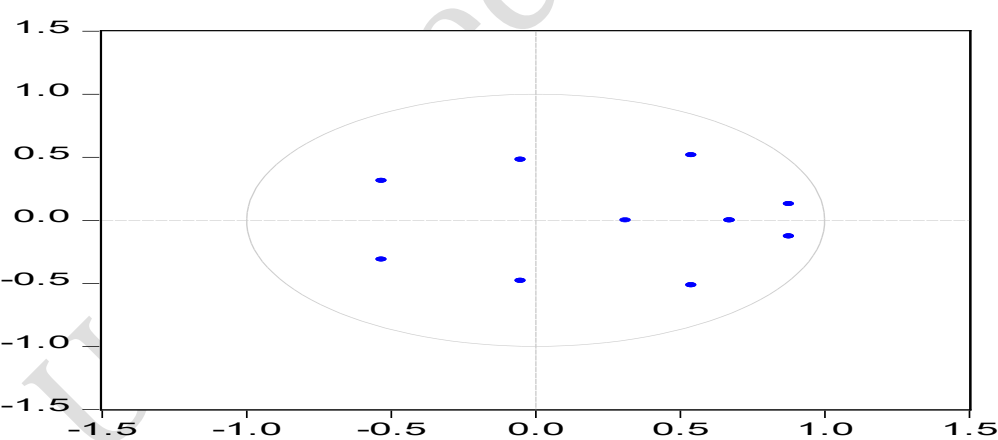


Figure 11 is the graph of the inverse roots indicating that no root lies outside the circle. This implies that the specified model is stable and thus provided the desired result.

Conclusion and Policy Recommendations

The interactions between financial intermediation, industrial growth and corruption in Nigeria is established by this study: corruption, loans and lending rates affect industry growth positively; this positive effect of financial intermediation on industrial growth aligns with the findings by Enilolobo *etal.*, (2024) and Adeleye *etal.*, (2020). However, the finding that corruption positively affect industrial growth, contradicts the results of Abdullahi *etal.*, (2023) that corruption, financial

intermediation and economic growth in Nigeria are negatively related. The effect of domestic credit on industrial growth was positive at the initial and end periods of the forecasted ten-year period but negative in the middle of the forecast period.

The positive effects of corruption on lending rates and loans capture the response of financial intermediation to corruption. In addition, the response of domestic credit to innovations in corruption was initially negative; it became positive at the midpoint of the ten-year forecast and subsequently became negative until the tenth year of the forecast. Short and long-run shocks from loans and lending rates impacted corruption negatively while shocks from domestic credit in Nigeria impacted corruption positively. Similar to the impact of loans and lending rates on corruption in this study, Majeed and McDonald (2021) found that financial intermediation impacted negatively on corruption. The contemporaneous result indicates that increased corruption and loans will increase lending rates. In contrast, the contemporaneous transmission analysis indicates that domestic credit negatively passes through lending rate to increase loans and corruption, which in turn results in a decline of industries in Nigeria.

It can be concluded that in as much as corruption was found to have industrial growth, it was also found that the transmission effect from financial intermediation through corruption to industrial growth is negative. It is therefore suggested that macroeconomic variables of domestic credit and loans be increased to reduce lending rates which will in turn minimize corruption to improve the growth of industries in Nigeria. In addition, since corruption is prevalent in Nigeria and positively impacts industrial growth, that positive impact can be harnessed while indirectly using macroeconomic policy of financial intermediation as suggested above in reducing spate of corruption in Nigeria.

References

- Abdullahi, S. I., Shuaibu, M., Yusufu, M., Shehu, K. K., & Rafay, A. (2023). Economic growth, financial development and bank failure: The case of corruption in Nigeria. *In Concepts, Cases, and Regulations in Financial Fraud and Corruption (pp. 144-163)*. IGI Global.
- Adeleye, N., Osabuohien, E., & Asongu, S. (2020). Agro-industrialisation and financial intermediation in Nigeria. *African Journal of Economic and Management Studies*, 11(3), 443-456.
- Adeyinka, A. J., Akanmu, P. M., & Innocent, I. O. (2019). Financial intermediation in deposit money banks and the Nigerian economy. *The Journal of VN Karazin Kharkiv National University. Series: International Relations. Economics. Country Studies. Tourism*, 10, 66-83.
- Babatunde, O., & Oyedokun, G. E. (2022). Financial intermediation and Nigerian economic growth. *International Journal of Social Sciences and Management Review*, (5)11-17.
- Bayar, G. (2005). The role of intermediaries in corruption. *Public Choice*, 122(3), 277-298.
- Boerner, K., & Hainz, C. (2009). The political economy of corruption and the role of economic opportunities 1. *Economics of Transition*, 17(2), 213-240.
- Central Bank of Nigeria (2023). *Annual Statistical Bulletin*. Abuja: CBN.

- Edirisuriya, P. (2017). Financial deepening, economic growth and corruption: The case of Islamic banking. *Review of Economics and Finance*, 12, 2-11.
- Egunjobi, T. A. (2013). An econometric analysis of the impact of corruption on economic growth in Nigeria. *Journal of Business Management and Economics*, 4(3), 054-065.
- Enilolobo, O. S., Esedeke, J. F., Nnoli, I. T., Olowo, O. S., & Hassan, C. O. (2024). Financial intermediation and agro-industrialization in Sub-Saharan. *Africa International Journal of Social Science, Technology and Economics Management* 1(2) Winter / Spring 2024 174 DOI: <https://doi.org/10.59781/OKRI4290>
- Gbadebo, A. D. (2024). Theories of financial intermediation: Evaluation and empirical relevance. *Journal of Law and Sustainable Development*, 12(9), e3950-e3950.
- Gorton, G., & Winton, A. (2002). Financial intermediation. *Working Paper No. 8928*, Cambridge, MA: NBER.
- Ijeoma, C. (2023). Financial Inter-mediation Indicators and Economic Growth, the Nigerian Experience (1990–2018). Available at SSRN 3619564.
- Ikon, M. A., & Chika, C. A. (2018). Small and medium scale enterprises and industrial growth in Nigeria. *International Journal of Small Business and Entrepreneurship Research*, 6(6), 1-13.
- Index Mundi (2024). Nigeria-Industry, value added (current LCU). www.Indexmundi.com
- Leff, N. H. (1964). Economic development through bureaucratic corruption. *American behavioral scientist*, 8(3), 8-14.
- Levine, R., Loayza, N., & Beck, T. (2000). Financial intermediation and growth: Causality and causes. *Journal of Monetary Economics*, 46(1), 31-77.
- Madume, J. V. & Dibiah, S. (2023). The effects of financial intermediation on economic growth in Nigeria: An empirical analysis. *Research Gate* 7, 241-252.
- Majeed, M. T., & MacDonald, R. (2011). Corruption and financial intermediation in a panel of regions: Cross-border effects of corruption. *Scottish Institute for Research in Economics (SIRE Discussion) Papers 2011-67*, 1-34.
- Mauro, P. (1995). Corruption and growth. *Quarterly Journal of Economics*, 110, 691-702.
- Mauro, P. (2004). The persistence of corruption and slow economic growth. *IMF Staff Papers*, 51, 1-18.
- McKinnon, R.I. (1973) *Money and Capital in Economic Development*. Washington DC: The Brookings Institution.
- Rajan, R. G. & Zingales, L. (1998). Financial dependence and growth. *American Economic Review*, 88(3), 562-583.

- Rose-Ackerman, S. (1994). Reducing bribery in the public sector. *Budapest Institute for Constitutional and Legislative Policy*.
- Scholtens, B., & Van Wensveen, D. (2003). The theory of financial intermediation: An essay on what it does (not) explain (No. 2003/1). *SUERF Studies*. www.econstor.eu
- Struthmann, P., Walle, Y. M., & Hertwartz, H. (2024). Corruption control, financial development and growth volatility: Cross country evidence. *Journal of Money, Credit and Banking*, 56(7), 1833-1860.
- Subair, K. (2012). Resource endowment, public spending and corruption in Nigeria: A multivariate analysis. In H. Mohammed, T. M. Aluaigba, & Kabir, A (Eds) *Corruption, Governance and Development in Nigeria: Perspectives and Remedies*. Kano: Aminu Kano Centre for Democratic Research and Training, Bayero University, 55 – 76.
- Subair, K. (2013). On the consistency of economic growth with corruption in Nigeria. *Journal of Economics* 4(2), 183-195.
- Subair, K., & Soyebbo, Y. A. (2020). Banks intermediation and stock prices of deposit money banks in Nigeria: VECM and variance decomposition approach. *Jinnah Business Review*, (8)1, 102-112.
- Tanzi, V. (1998). Corruption around the world: Causes, consequences, scope, and cures. *Staff papers*, 559-594.
- Transparency International (2024). Corruption Perceptions Index. <https://www.transparency.org/en/cpi/2024>
- Uju, A. & Ugochukwu, P. O. (2021). Effect of monetary policy on industrial growth in Nigeria. *International Journal of Entrepreneurship and Business Innovation*, 4(1) 47-60
- World Development Indicators (2024). World Bank Data Bank. <https://databank.worldbank.org>