check for
updates

Effect of financial deepening and institutional factors on industrial value added: Evidence from Sub-Saharan Africa

Ogundajo Grace Oyeyemi[1*]
Olunuga Olusoji David[2]
Akintoye Ishola Rufus[3]
Kwarbai Jerry Danjuma[4]
Osinowo Olalekan Olawale[5]

[1,3,4]*Department of Accounting, Babcock University, Nigeria.*
[1]*Email:* ogundajog@babcock.edu.ng
[3]*Email:* akintoyer@babcock.edu.ng
[4]*Email:* kwarbaij@babcock.edu.ng
[2]*Deputy General Manager, Operations, Crown Flour Mills, Nigeria.*
[2]*Email:* olunuga.david@olamagri.com
[5]*Federal Inland Revenue Service, Nigeria.*
[4]*Email:* lekanosinowo@yahoo.com

Abstract

This research evaluates the effect of financial deepening and institutional factors on industrial value. Africa, rich in natural resources, stands poised for resource-based industrialization, yet many nations continue to export raw materials with minimal processing. According to World Bank data, Sub-Saharan African countries have seen a decrease in industrial value added over the years. This decline is partly due to insufficient integration between agriculture and manufacturing. The primary factors in converting raw materials into finished products are labor and capital. While Africa is abundant in intellectual capital, it faces challenges with financial capital. Despite the critical role of financial development in enhancing industrial sectors, institutional factors also play a significant role. This study, which involved 38 Sub-Saharan African nations, analyzes the impact of financial development and institutional factors on industrial value added using multiple linear regression. The findings reveal that both financial development and institutional quality positively influence industrial value added, particularly highlighting the importance of bank capital adequacy, ATM availability, regulatory quality, corruption control, and governance. On the other hand, exchange rates, foreign direct investment, trade openness, and inflation all have a negative impact on industrial value added.

1. Introduction

Africa is a continent rich in opportunities due to its abundant natural resources, which are essential for resource-based industrialization. The continent holds over $82 trillion in discovered resources, with the potential to generate $30 billion in government revenues annually over the next two decades. In addition to minerals, Africa has substantial resources such as rivers, forests, and fisheries, with the fisheries and aquaculture sectors alone valued at over $24 billion (Elfaki, Handoyo, & Ibrahim, 2021; Saba & Ngepah, 2023; United Nations, 2023). Despite this, many African countries continue to export raw materials with minimal processing. For instance, Africa exports 69% of the world's raw cocoa beans but only 16% of processed cocoa, which typically

commands 2-3 times the price per ton. By 2025, shifting the focus of agriculture towards agro-industrialization could unlock markets worth over $100 billion per year. By fostering agribusiness, Africa can drive structural transformation, create quality non-agricultural jobs, boost incomes, enhance food security, and reduce poverty (African Development Bank, 2016; Barrett, Christiaensen, Sheahan, & Shimeles, 2015; World Bank, 2013).

Sub-Saharan African countries have been experiencing decline in the average value of the industrial value added in the last decade. The statistical report of the World Bank revealed that average value added in current US dollars of the region was around US$ 10.7million in 2014; US $8.6million in 2015; resulting in a decline of roughly 24 percent. A further decline of 7.5 percent occurred between 2015 and 2016, where SSA reported 8million industrial value added. Although, the region witnessed a rise in the value added between 2017, 2018 and 2019 (average value added: US $9,197,504,521.70, US $10,045,868,590.07, US $10,554,297,194.79); these improvements were not strong enough to cater for the last two years' decline, and also the rate of improvement was very slow (Wordl Bank Group, 2023).

The disconnect between agriculture and manufacturing largely accounts for the limited growth of Africa's industrial sector. While Africa boasts significant intellectual capital, the primary challenge is a lack of financial capital. Unlike developed countries, many economies in Sub-Saharan Africa (SSA) lack the financial infrastructure necessary for business growth and expansion. The region remains the most economically excluded globally (World Bank, 2020) with low levels of digital financial inclusion hindering economic progress (Ahmad, Majeed, Khan, Sohaib, & Shehzad, 2021). According to Chinoda and Kapingura (2024) enhancing financial inclusion through financial deepening, which involves increasing the ratio of financial assets to Gross Domestic Product (GDP), is crucial for bridging this gap.

Financial deepening plays a vital role in achieving the UN Sustainable Development Goals (SDGs) and the AU Agenda 2063 (Chima, Babajide, Adegboye, Kehinde, & Fasheyitan, 2021; Sethi & Acharya, 2018; van Wyk & Kapingura, 2021). It is a central component of many developing economies' strategies to boost economic growth by expanding funding sources, reducing dependence on informal financial systems, and encouraging investments (Demirgüç-Kunt, Klapper, & Singer, 2017; Zins & Weill, 2016). A more inclusive financial system enables access for previously unbanked groups and fosters the growth of businesses (Asante, Takyi, & Mensah, 2023; Beck, Demirgüç-Kunt, & Ross, 2007; Dahiya & Kumar, 2020; Kim, Yu, & Hassan, 2018; Makina & Walle, 2019; Mehrotra & Yetman, 2015; Owen & Pereira, 2018). Providing access to financial services is essential for resource mobilization and promoting investment, which aids start-ups and small businesses in generating value, ultimately driving socioeconomic progress (Cyn-Young & Mercado, 2015; Kim, 2016; Nanda & Kaur, 2016). Likewise, Naceur, Barajas, and Massara (2015) argued that financial deepening boosts household income and improves economic well-being, particularly for small enterprises.

Despite its significance, financial deepening alone cannot address the challenges faced by Africa's industrial sector. Institutional factors also play an important role. Sanga and Aziakpono (2022) argue that strengthening institutional factors, such as government effectiveness and regulatory quality, is essential for stimulating credit financing in Africa, particularly for small and medium-sized enterprises.

Institutions, as conceptualized by North (1990) refer to the frameworks and systems that guide interactions within social, political, and economic spheres. According to Neo-institutional theory, institutions play a key role in establishing fairness, promoting economic incentives, and enabling efficient resource distribution, which impacts both financial market development and economic growth (Acemoglu & Johnson, 2005; Acemoglu, Johnson, & Robinson, 2005; North, 1990). Institutional strength closely links to the performance of financial intermediaries, influencing resource allocation, the growth of financial services, and the management of information asymmetry risks (Herger, Hodler, & Lobsiger, 2008). Well-functioning institutions foster financial sector development, lower the cost of capital, and enhance financial accessibility (Marcelin & Mathur, 2014).

This paper explores the impact of financial deepening on industrial value added in Sub-Saharan African countries, considering the role of institutional factors in this relationship.

The rest of this paper is sub-divided into five sections, namely, the review of extant literature as section 2, material and methods adopted as section 3, results and discussions were done in section 4, policy implications, conclusion, and recommendations were captured in sections 5 and 6 of the paper.

2. Review of Literature

This section is sub-divided into three categories of review, that is, review of the concepts, theory, and past related studies.

2.1. Review of Concepts
2.1.1. Industrial Sector Value Added

As defined by Adeyemi, Okafor, Ebenezer, and Maijeh (2022) "industrial sector value added" refers to the contribution of industrial manufacturing to a country's or region's GDP. This metric reflects the productivity, profitability, and efficiency of manufacturing activities within the industrial sector. Value added is determined by subtracting the cost of intermediate inputs from the total value of final goods and services produced. Liu, Zhang, Hafeez, and Ullah (2022) elaborate that in this context, industrial sector value added includes sectors classified under the International Standard Industrial Classification (ISIC) divisions 10-45, covering

manufacturing (ISIC divisions 15-37), mining, construction, electricity, water, and gas. It reflects the net output of these sectors after deducting intermediate inputs, without adjusting for asset depreciation or the depletion of natural resources. The World Bank and OECD national accounts provided the data, expressed in current U.S. dollars.

2.1.2. Financial Deepening

Adeyemi et al. (2022) describe financial deepening as the process of broadening access to diverse banking products and services across different income levels. Elizabeth (2022) and Dahiya and Kumar (2020) elaborate that financial deepening involves the expansion of financial assets available within the economy, which includes various forms of money circulating in the financial system. Financial institutions' ability to effectively mobilize savings for investment purposes is an additional indicator of financial deepening (Dutta & Meierrieks, 2021). In the context of this paper, financial deepening is assessed through metrics such as domestic credit to the private sector, lending rates of financial institutions, the number of borrowers, the bank capital-to-asset ratio, the number of commercial bank branches, and the availability of automated teller machines.

2.1.3. Institutional Factors

People use the term "institutional factors" to describe the numerous aspects of formal organizations, procedures, and rules that influence and shape individual behavior, decisions, and outcomes (Carlos, Bustillo, & Rodriguez, 2021). These elements have far-reaching consequences on people's individual and group behaviors, and they are major contributors to the functioning of societies, economies, and businesses. Institutional elements include the rules and norms established by a society or sector's governing bodies (Lucky, Jonah, Ntsosa, & Bakwena, 2021). The framework provided by these regulations makes it possible to carry out actions and make deals. All the rules and regulations that people and businesses must follow to function properly are examples of institutional forces (Abayomi & Chidiebere, 2021). These elements have an outsized impact on societal and economic trends, which in turn affects political results.

2.1.4. Underpinning Theory

Gurley and Shaw (1960) developed the theory regarding financial intermediation. Theories of informational asymmetry and agency are the foundation for the study of financial intermediation. Banks, according to the currently prevailing financial intermediary theory, are essentially financial intermediaries like any other institution that accepts deposits and makes loans. According to Bass (2019) banks generate new funds by taking deposits with short maturities and lending them out at longer terms to new borrowers. Financial Intermediation Theory is the context of financial deepening (Nguyen, Su, & Nguyen, 2018) predicts an increase in the efficiency and effectiveness of financial markets as financial intermediaries play a larger role in facilitating the flow of funds between lenders and borrowers, leading to economic growth and development. This theory is relevant to this paper as the availability of capital for startups and small firms usually increases as economies develop deeper financial systems. Developed and efficient financial intermediaries can entice household savings and channel those funds into productive investments (Jimoh, Shittu, & Attah, 2019).

2.1.5. Review of Past Related Studies

Iwegbu, Justine, and Borges Cardoso (2022) investigated whether regional financial integration and financial development more effectively enhance industrial sector growth in ECOWAS member states with high institutional quality compared to those with lower institutional quality. Their key finding is that countries within ECOWAS with lower industrial output benefit significantly from deeper regional financial integration when they have a strong institutional framework. Conversely, private sector credit alone does not significantly boost industrial performance, whether in low or high output countries. The impact of increased loans on industrial output is less pronounced in countries with higher industrial output compared to those with a robust institutional framework but lower industrial output. Additionally, money supply growth alone does not improve industrial sector performance; it is only credit to the private sector that has a beneficial effect. The study highlights the need for better access to loans and stronger institutional frameworks within the ECOWAS region.

Adeyemi et al. (2022) examined how financial deepening influences the manufacturing sector's output using data from 1981 to 2019. Their study found long-run convergence between manufacturing value added and the variables considered, supporting the theory of financial sector expansion. They found that the depth of the banking sector significantly impacts manufacturing output. However, Nigeria's industrial sector is not notably influenced by non-bank financial deepening or external finance, possibly due to a fragmented shareholding structure and a large number of non-publicly traded companies. The extractive industries receive a disproportionate amount of foreign direct investment, and the high cost of capital in the economy significantly reduces the responsiveness of the manufacturing sector to lending interest rates.

Asongu and Odhiambo (2022) analyzed the effect of financial access on value added in agriculture, manufacturing, and services across 25 Sub-Saharan African countries from 1980 to 2014, employing the Generalized Method of Moments. Their findings showed that expanding credit access did not significantly increase value added in agriculture and manufacturing sectors but had a positive impact on the service sector.

Sustaining the positive impact of improved credit access on service sector value added requires effective policies, particularly when private credit to the sector falls between 77.50% and 98.50% of GDP.

Elizabeth (2022) utilized Granger causality and autoregressive distributed lag (ARDL) methods to explore the relationship between the growth of Tanzania's financial sector and the country's industrialization from 1990 to 2020. The study discovered that domestic private-sector credit and broad money have a Granger casual relationship with industry value added. Specifically, growth in the financial sector leads to increased value in the industrial and manufacturing sectors. There is a bidirectional causality between domestic credit extended to the private sector and industry value added, while progress in the financial sector only unidirectionally influences increases in industrial value added. The findings support the supply-leading hypothesis. The ARDL analysis revealed significantly negative short-term effects of broad money on manufacturing and industry value added, whereas private domestic financing had a substantial positive short-term effect. Over the long term, domestic private sector credit positively impacts industrial value added, whereas broad money has a significant negative effect.

Liu et al. (2022) examined the impact of financial inclusion on GDP growth and environmental quality in economies participating in the "One Belt and One Road" (OBOR) initiative. Their study employed two proxies for supply-side financial inclusion (ATM and branch presence) and two for demand-side financial inclusion. Using two-stage least squares (2SLS) and Generalized Moments Method (GMM) for empirical analysis, they found that only the ATM variable was significantly positive in the economic growth model with the 2SLS approach. However, both ATM and branch variables were significant with the GMM approach, underscoring the importance of supply-side financial inclusion for economic growth in OBOR countries. Additionally, their research indicated that financial inclusion measures have a positive effect on CO_2 emissions, suggesting that increased access to financial services correlates with higher emissions.

Lugina, Mwakalobo, and Lwesya (2022) examined the impact of industrialization on economic growth in Tanzania from 1970 to 2017. Their vector error correction model revealed a positive correlation between manufacturing value added and economic growth. They found that net domestic credit and foreign direct investment were major drivers of manufacturing sector expansion, while a negative real exchange rate coefficient indicated a reduction in industrial output.

Hope and Ajibola (2023) used panel data from seven Communauté Financière Africaine (CFA) franc zone countries in Sub-Saharan Africa from 1995 to 2021 to analyze the effects of monetary policy on manufacturing performance. The panel ARDL model, estimated with mean group, pooled mean group, and dynamic fixed effect estimators, showed that short-term impacts of lending interest rates, credit to the private sector, and exchange rates on manufacturing performance were minimal. The long-term effects showed significant negative impacts from lending interest rates and positive impacts from private sector credit.

Aduba, Asgari, and Izawa (2023) analyzed data from emerging and developing economies to assess both the direct and conditional impacts of FinTech on financial development. Their study focused on three financial development indicators related to FinTech adoption: broad money, private credit, and bank deposits; financial performance; and financial inclusion. The findings revealed that FinTech adoption significantly influences financial development, particularly in countries with low levels of financial inclusion and underperforming financial sectors.

Nwosu, Itodo, and Ogbonnaya-Orji (2021) utilized a non-linear co-integrating ARDL model to explore the relationship between financial deepening, financial fragility, and economic growth in Nigeria, analyzing quarterly data from 2007 Q1 to 2018 Q4. The study found a positive association between financial deepening and economic expansion. However, the relationship between financial system fragility and GDP growth exhibited a more intricate pattern.

Ngong, Manasseh, Okonkwo, and Nwakoby (2021) analyzed financial deepening and manufacturing sector productivity in Cameroon from 1970 to 2018 using Engle-Granger and ARDL methods. Their results showed a long-term relationship between financial development and manufacturing output, with trade openness negatively affecting productivity in the short term, while credit to the private sector and broad money supply had positive effects.

Nnadozie and Raifu (2020) investigated the link between infrastructure and manufacturing value added in Sub-Saharan Africa using panel data from 2003 to 2018. They discovered that infrastructure significantly impacts industrial value added and that the relationship varies by infrastructure type and sub-region. The study suggests substantial infrastructure investment as a policy to enhance manufacturing sector growth.

Asante et al. (2023) examined the impact of financial development on economic growth by mediating the relationship between the two distant variables via the standard of governing institutions. Data from twenty-nine (29) nations and the System-Generalized Method of Moments (system-GMM) estimate method reveal a positive and significant impact of financial development on economic growth. Financial development is observed to have a favorable impact on economic growth, and this effect is amplified when rule of law, political stability, and regulatory quality are all strong.

Chinoda and Kapingura (2024) investigated the relationship between digital financial inclusion and economic growth in Sub-Saharan Africa (SSA) for the period from 2014 to 2020, focusing on institutional and governance factors. Employing an endogeneity-robust Generalized Method of Moments (GMM) approach, the study utilized four key variables: a digital financial inclusion index, GDP growth per capita, institutional quality,

and leadership. The findings revealed that both institutional quality and governance significantly enhance the relationship between digital financial inclusion and economic growth in SSA. Additionally, the study found that while trade and population growth positively impact economic growth, inflation has a dampening effect in the region.

Agyei and Idan (2022) analyzed how institutional quality moderates the relationship between trade openness and inclusive growth in Sub-Saharan Africa using data from 39 countries from 1996 to 2017. Their findings support that better institutions enhance the positive effects of trade openness on inclusive growth, suggesting that strengthening structures is crucial for maximizing the benefits of trade openness.

Tagem and Morrissey (2023) developed a measure of tax capacity for 39 Sub-Saharan African countries from 1985 to 2018, based on the ratio of actual to potential tax revenue. Their study found high tax capacity, especially in low-income countries, and identified key economic and institutional factors influencing tax capacity, including private consumption, natural resource rents, accountability, and equity in public resource allocation.

In summary, the reviewed literature reveals a range of divergent opinions, scopes, geographical focuses, and time frames. For example: Elizabeth (2022); Liu et al. (2022); Lugina et al. (2022); Hope and Ajibola (2023), and Ngong et al. (2021) focused on individual countries. Iwegbu et al. (2022) examined the ECOWAS region as a whole. Several studies investigated financial deepening and development, including Adeyemi et al. (2022); Asongu and Odhiambo (2022); Nwosu et al. (2021); Asante et al. (2023); Chinoda and Kapingura (2024), and Tagem and Morrissey (2023). A few studies had shorter time frames, such as Nnadozie and Raifu (2020) and Agyei and Idan (2022). Some studies focused exclusively on institutional factors, like Tagem and Morrissey (2023). Diverse proxies were used to measure financial deepening in different studies, including those by Adeyemi et al. (2022); Asongu and Odhiambo (2022); Nwosu et al. (2021); Asante et al. (2023); Chinoda and Kapingura (2024) and Tagem and Morrissey (2023). Given these inconsistencies and varied approaches in existing research, this paper aims to investigate the impact of financial deepening and institutional factors on the value added by the industrial sector in Sub-Saharan African countries. Thus, this study hypothesizes that:

H_{01}: *Financial deepening and institutional factors have an insignificant effect on industrial value added of sub-Saharan African countries.*

3. Materials and Methods

This paper employs a quantitative approach to assess the impact of financial deepening and institutional factors on the industrial value added in 38 selected sub-Saharan African countries. Secondary data spanning 21 years (2001–2022) was sourced from the World Bank database. The study utilized multiple linear regression analysis to test the formulated hypotheses. The hypotheses were structured into regression models as follows:

$$ISVA_{it} = \beta_0 + \beta_1 DCPS_{it} + \beta_2 LEND_{it} + \beta_3 BCB_{it} + \beta_4 BCAR_{it} + \beta_5 CBB_{it} + \beta_6 ATM_{it} + \beta_7 REGQ_{it} + \beta_8 GOET_{it} + \beta_9 COCP_{it} + \beta_{10} VACC_{it} + \beta_{11} PSTB_{it} + \beta_{12} RLAW_{it} + \varepsilon_{it} \qquad (1)$$

This paper controlled the relationship between financial deepening, institutional factors, and industrial value added using the following model:

$$ISVA_{it} = \beta_0 + \beta_1 DCPS_{it} + \beta_2 LEND_{it} + \beta_3 BCB_{it} + \beta_4 BCAR_{it} + \beta_5 CBB_{it} + \beta_6 ATM_{it} + \beta_7 REGQ_{it} + \beta_8 GOET_{it} + \beta_9 COCP_{it} + \beta_{10} VACC_{it} + \beta_{11} PSTB_{it} + \beta_{12} RLAW_{it} + \beta_{13} EXCR_{it} + \beta_{14} FDI_{it} + \beta_{15} TROP_{it} + \beta_{16} INFR_{it} + \varepsilon_{it} \qquad (2)$$

Where: ISVA - Growth in Value Added by the Industrial sector; DCPS - Domestic Credit to Private Sector; LEDR - Lending Rate; BCB - Borrowers from Commercial Banks; BCAR - Bank Capital to Asset Ratio; CBB - Commercial Banks Branches; ATM - Automated Teller Machines; REGQ - Regulatory Quality; GOET - Government Effectiveness; COCP - Control of Corruption; VACC - Voice and Accountability; PSTB - Political Stability; RLAW - Rule of Law; EXCR - Exchange Rate; FDI - Foreign Direct Investment; TROP - Trade Openness; INFR - Inflation Rate. β0 represent the Constant in the models, β1-16 represents the coefficients of the exogenous variables, β7 represents the coefficient of the moderating variable, i represents the number of the countries under study, and t represents the time frame of the study.

The next section presented the results and discussions of the analysis as specified in session 3.

4. Results and Discussions

4.1. Descriptive Analysis

The results of the descriptive statistics, which outline the characteristics of the series distribution, as well as the correlation analysis and the variance inflation factor (VIF) to assess multicollinearity among the variables, are presented in Tables 1 and 2, respectively.

4.2. Interpretation

As shown in Table 1, none of the sub-Saharan African countries studied achieved at least 50% in terms of good governance quality. The average values for the six governance indicators are as follows: Regulatory Quality at 31.34%, Government Effectiveness at 30.19%, Control of Corruption at 34.84%, Voice and Accountability at 33.70%, Political Stability at 34.13%, and Rule of Law at 31.80%. These figures collectively indicate a significant deficiency in governance quality across the region. Additionally, the net foreign direct

investment (FDI) reported an average negative value of -16.29, suggesting that instead of attracting new foreign investors, sub-Saharan African countries are experiencing a net loss of existing foreign investments.

Table 1. Descriptive statistics of the variables.

Variable	Mean	Std. dev.	Min.	Max.
ISVA	9.606	20.825	0.03	141.5
DCPS	18.862	17.674	0	104.85
LEND	16.723	12.726	4.74	97.34
BCB	64.254	80.151	0.02	358.72
BCAR	21.651	12.601	1.76	125.08
CBB	6.498	9.087	0.04	55.07
ATM	13.792	18.487	0	92.53
REGQ	31.340	19.084	0.98	86.06
GOET	30.186	21.955	1.08	84.62
COCP	34.838	23.917	0.47	91.9
VACC	33.701	19.937	1.48	79.13
PSTB	34.131	22.834	0	93.75
RLAW	31.802	20.521	0.48	82.59
EXCR	560.883	1144.161	0.06	9565.08
LFDI	-16.293	11.136	-24.43	23.27
TROP	0.666	0.382	0	2.53
INFR	9.788	30.830	-16.86	557.2

Note: ISVA represents growth in value added by the industrial sector; DCPS represents domestic credit to private sector; LEDR represents lending rate; BCB represents Borrowers from commercial banks; BCAR represents bank capital to asset ratio; CBB represents commercial banks branches; ATM represents automated teller machines; REGQ represents regulatory quality; GOET represents government effectiveness; COCP represents control of corruption; VACC represents voice and accountability; PSTB represents political stability; RLAW represents rule of law; EXCR represents exchange rate; FDI represents foreign direct investment; TROP represents Trade Openness; INFR represents inflation rate.

Source: Researcher's work (2024).

The average value of trade openness at 0.666, which means the net of imports and exports scaled by the GDP, proves that sub-Saharan African countries importations exceed exportations of which, if not carefully managed, especially with the conviction of poor-quality governance, most of sub-Saharan African countries have turned into dumping grounds for the foreign merchants, especially those from the Asian countries.

The lending rates in a struggling economies such as Sub-Saharan African countries, which range from an average of 17% and as high as 97%, significantly hinder the growth and development of the industries and the overall economy. Lack of regulation of the activities of the financial institutions in the economy, especially the unincorporated ones, has led to the extortion and exploitation practices of these institutions which is detrimental to the performance of the industries. Several firms have collapsed or relocated from African continents due to difficulties in doing business, of which high finance costs constitute one of the reasons.

The least value of inflation shows that the region at some point had experienced deflation instead of inflation, as shown in the minimum value of -16.86%. However, the maximum value of the inflation, as high as 557%, is extremely high to wreck the economy.

Overall, the value of standard deviation of all the constructs of this study, which are above 10 except for the commercial bank branches and trade openness, proved that all the constructs are highly volatile; all the values are trending, which could pose a problem of unpredictability. The values deviate widely from the mean.

Table 2. Multicollinearity test.

Variable	ISVA	DCPS	LEND	BCB	BCAR	CBB	ATM	REGQ	GOET	COCP	VACC	PSTB	RLAW	EXCR	LFDI	TROP	INFR	VIF	1/VIF
ISVA	1.000																		
DCPS	0.181	1.000																3.9	0.256
LEND	-0.042	-0.331	1.000															3	0.333
BCB	-0.123	0.751	-0.402	1.000														3.98	0.251
BCAR	0.064	-0.315	0.229	-0.209	1.000													1.57	0.638
CBB	-0.026	0.532	-0.202	0.574	-0.126	1.000												3.98	0.251
ATM	0.199	0.737	-0.362	0.831	-0.252	0.755	1.000											6.26	0.16
REGQ	0.029	0.767	-0.296	0.633	-0.328	0.462	0.631	1.000										5.19	0.193
GOET	-0.011	0.428	-0.205	0.457	-0.175	0.465	0.519	0.681	1.000									2.52	0.396
COCP	0.071	0.175	-0.254	0.122	-0.006	-0.019	0.129	0.160	0.212	1.000								3.03	0.33
VACC	0.072	0.638	-0.247	0.525	-0.258	0.474	0.598	0.774	0.574	0.272	1.000							4.24	0.236
PSTB	-0.173	0.495	-0.179	0.522	-0.016	0.555	0.598	0.674	0.543	0.113	0.677	1.000						5.86	0.171
RLAW	-0.063	0.629	-0.290	0.611	-0.253	0.523	0.636	0.882	0.667	0.135	0.826	0.779	1.000					9.61	0.104
EXCR	-0.085	-0.216	0.325	-0.242	0.095	-0.197	-0.262	-0.147	-0.220	-0.031	-0.179	-0.220	-0.220	1.000				2.72	0.368
LFDI	0.094	0.145	-0.048	0.124	-0.029	0.051	0.147	0.047	-0.042	-0.073	0.013	0.118	0.028	-0.054	1.000			1.18	0.845
TROP	-0.147	0.280	-0.108	0.412	-0.041	0.660	0.527	0.316	0.318	-0.165	0.316	0.491	0.361	-0.136	0.143	1		2.97	0.337
INFR	0.022	-0.121	0.286	-0.043	0.187	-0.043	-0.066	0.161	-0.118	-0.046	-0.127	-0.138	-0.146	-0.023	-0.027	-0.06	1	1.08	0.923
																		Mean = 3.82	

Note: Where: ISVA represents growth in value added by the industrial sector; DCPS represents domestic credit to private sector; LEDR represents lending rate; BCB represents Borrowers from commercial banks; BCAR represents bank capital to asset ratio; CBB represents commercial banks branches; ATM represents automated teller machines; REGQ represents regulatory quality; GOET represents Government effectiveness; COCP represents control of corruption; VACC represents voice and accountability; PSTB represents political stability; RLAW represents rule of law; EXCR represents exchange rate; FDI represents foreign direct investment; TROP represents trade Openness; INFR represents inflation rate.

Source: Researcher's work (2024).

4.3. Interpretation

The correlation coefficients depict the nature of association between variables. Looking at lending rate (LEND), the correlation coefficient values show that LEND is negatively associated with majority of the other constructs in the series except for bank capital asset ratio, exchange rate, and inflation rate. The correlation coefficients between LEND and BCB (-0.402), BCAR (0.229), CBB (-0.202), ATM (-0.362), REGQ (-0.296), GOET (-0.205), COCP (-0.254), VACC (-0.247), PSTB (-0.179), RLAW (-0.29), EXCR (0.325), LFDI-(0.048), TROP (-0.108), INFR (0.286). The findings of this study conceptually supported the assertion that very high lending rate hinders industries from have access to adequate funding for growth and expansions, which could improve their performance. High lending rate would scare away customers from the financial institutions when it comes to borrowing, which could jeopardize business operations. The positive association of LEND with BACR, EXCR, and INFL is not farfetched, as high lending rate could result in a high cost of production and persistent general increase in price level of goods and services in the nation. Also, high lending rate is a medium for the financial institutions to generate more return and thus reflect in the bank's capital adequacy ratio.

INFR: The correlation coefficients revealed that persistence increases in general price level of goods and services in sub-Saharan African countries are positively but weakly associated with industrial sector value added ISVA (0.022). The positive association between industrial sector value-added and inflation implies that both move in the same direction. As industrial sector value added increases, the inflation rate also increases.

Also, INFR has positive but weak association with lending rate LEND (0.286) and bank capital to asset ratio BCAR (0.187); this implies that as inflation rate increases, lending rate and bank capital to asset ratio also increase. Contrarily, INFR has weak negative association with domestic credit to private sector DCPS (-0.121), borrowers of commercial banks BCB (-0.043), commercial bank branches CBB (-0.043), and automated teller machines ATM (-0.066). The association of INFR with the governance qualities showed that INFR is negatively but weakly associated with all the six governance qualities except regulatory quality REGQ (0.161), which it has a weakly negative correlation with; thus has a weak positive correlation with the remaining five governance qualities, that is, government effectiveness GOET(-0.118), control of corruption COCP(-0.046), voice and accountability VACC(-0.127), political stability PSTB (-0.138), and rule of law RLAW(-0.146). INFR is negatively but weakly associated with the control measures used in this study, which are the exchange rate EXCR (-0.023), foreign direct investment LFDI (-0.027), and trade openness TROP (-0.060). This is an indication that as governance quality of sub-Saharan African countries improves, inflation declines.

TROP: The output of the correlation coefficients showed that trade openness was negatively but weakly associated with industrial value-added ISVA (-0.147), this implies that as sub-Saharan African countries embrace trade openness, the level of industrial value added diminishes. This could account for the reports of studies that proved that most of the African countries rely heavily on importation and thus resulting in the collapse of domestic industries. The countries have become dumping grounds for foreign countries, especially the Asian countries.

Also, trade openness is positively but weakly correlated with domestic credit to private sector DCPS (0.280), borrowers of commercial banks BCB (0.412), commercial banks branches CBB (0.660), and automated teller machines ATM (0.527), while TROP has weakly negative association with lending rate LEND (-0.108), and bank capital to asset ratio BCAR (-0.041). Trade openness is positively but weakly associated with five out of the six institutional factors, regulatory quality REGQ (0.316), government effectiveness GOET (0.318), voice and accountability VACC (0.316), political stability PSTB (0.491), and rule of law RLAW (0.361), except for control of corruption COCP (-0.165), which it exhibited weakly negative association with. Trade openness has negative but weak correlation with inflation INFR (-0.060), and exchange rate EXCR (-0.136), but is weakly and positively associated with foreign direct investment LFDI (0.143).

The correlation matrix was used to investigate potential multicollinearity among the explanatory variables. The analysis revealed that the lowest correlation coefficient was 0.001, with most coefficients being below 0.8, except for the relationship between Regulatory Quality and Rule of Law, which had a coefficient of 0.882. Since all other correlation coefficients were below the 0.8 threshold suggested by Baltagi (2021) it indicates that multicollinearity is not a significant issue among the explanatory variables. Additionally, the Variance Inflation Factor (VIF) analysis corroborates these findings, with a mean VIF of 3.82, which is well below the threshold of 10 established by James et al. (2013). Therefore, the study concludes that multicollinearity is not present among the explanatory variables.

5. Results and Discussion of Findings

This paper developed four regression models based on the specified hypothesis. The models were examined using multiple linear regression analysis, and the results are shown in Table 3 in this section of the paper.

181

Table 3. Regression results.

Dependent variable: ISVA	Model two A				Model two B			
	Pooled OLS with cluster std. err				RE GLS regression with Driscoll-Kraay standard errors			
Variable	Coeff.	Std. err	T-stat	Prob.	Coeff.	Std. err	T-stat	Prob.
Constant	28.938	9.432	3.43	0.001*	55.620	7.795	7.13	0.000*
DCPS	-0.157	0.129	-1.22	0.224	-0.180	0.173	-1.04	0.313
LEND	-0.559	0.135	-4.14	0.000*	-0.621	0.235	-2.64	0.017*
BCB	-0.105	0.027	-3.95	0.000*	-0.079	0.018	-4.48	0.000*
BCAR	0.400	0.089	4.48	0.000*	0.367	0.133	2.76	0.014*
CBB	-0.133	0.168	-0.79	0.428	0.353	0.105	3.35	0.004*
ATM	0.814	0.151	5.38	0.000*	0.773	0.067	11.61	0.000*
REGQ	0.399	0.160	2.49	0.014*	0.163	0.301	0.54	0.595
GOET	-0.366	0.077	-4.74	0.000*	-0.460	0.080	-5.76	0.000*
COCP	0.155	0.089	1.73	0.084*	0.252	0.124	2.02	0.059*
VACC	0.274	0.124	2.22	0.027*	-0.009	0.186	-0.05	0.963
PSTB	-0.674	0.112	-6.04	0.000*	-0.458	0.079	-5.82	0.000*
RLAW	-0.224	0.194	-1.15	0.250	-0.235	0.319	-0.73	0.472
EXCR					-0.003	0.002	-1.79	0.091*
LFDI					-0.160	0.100	-1.59	0.130
TROP					-17.863	5.474	-3.26	0.005*
INFR					-0.047	0.014	-3.38	0.004*
Adj. R²	0.37				0.53			
F-Stat	$F_{(12, 785)} = 6.42$ (0.00)*				$F_{(16, 781)} = 1.77e{+}07$ (0.00)*			
Hausman test	$chi^2_{(12)} = 21.75$ (0.04)				$chi^2_{(16)} = 20.76$ (0.18)			
LM/Testparm	Testparm: $F_{(17, 219)} = 2.19$ (0.11)				LM: $chi^2_{(1)} = 416.24$ (0.00)			
Heteroskedasticity test	$chi^2_{(1)} = 360.67$ (0.00)				$chi^2_{(1)} = 295.60$ (0.00)			
Serial correlation test	$F_{(1, 21)} = 177.415$ (0.00)				$F_{(1, 20)} = 249.097$ (0.00)			

Note: * implies 10% level of significance.
Where: ISVA represents growth in value added by the industrial sector; DCPS represents domestic credit to private sector; LEDR represents lending rate; BCB represents Borrowers from commercial banks; BCAR represents bank capital to asset ratio; CBB represents commercial banks branches; ATM represents automated teller machines; REGQ represents regulatory quality; GOET represents Government effectiveness; COCP represents control of corruption; VACC represents voice and accountability; PSTB represents political stability; RLAW represents rule of law; EXCR represents exchange rate; FDI represents foreign direct investment; TROP represents trade Openness; INFR represents inflation rate.

Source: Researcher's work (2024).

5.1. Interpretation

To determine the optimal estimation technique among fixed-effects, random-effects, and Pooled OLS for Model 1.1, the Hausman test was initially conducted. The test result, with a p-value of 0.04, suggested that fixed-effects would be appropriate for Model 1.1. However, further verification using the Testparm test for fixed effects, which returned a p-value of 0.11, contradicted the Hausman test findings. This led to the conclusion that Pooled Ordinary Least Square (OLS) was the more suitable estimator for Model 1.1.

For Model 1.2, the Hausman test indicated that random effects were appropriate. The Breusch-Pagan Lagrangian Multiplier test confirmed this findings, affirming the suitability of random effects for Model 1.2.

Both models were also assessed for heteroscedasticity and serial correlation. The tests for heteroscedasticity and serial correlation for both models returned p-values of 0.00, indicating the presence of these issues. Consequently, Model 1.1 was estimated using Pooled OLS with clustered standard errors, while Model 1.2 was estimated using Random-Effects Generalized Least Squares with Driscoll-Kraay standard errors, as detailed in Table 3.

$$ISVA_{it} = 28.938 - 0.157DCPS_{it} - 0.559LEND_{it} - 0.105BCB_{it} + 0.400BCAR_{it} - 0.133CBB_{it} +$$
$$0.814ATM_{it} + 0.399REGQ_{it} - 0.366GOET_{it} + 0.155COCP_{it} +$$
$$0.274VACC_{it} - 0.674PSTB_{it} - 0.224RLAW_{it} \qquad (1.1)$$

The regression analysis provides the following insights into the impact of various financial factors on industrial sector value added (ISVA): Domestic Credit to Private Sector (DCPS) exhibits a negative effect on ISVA ($\beta = -0.157$, $p = 0.224$), but this effect is not statistically significant. Likewise, Commercial Bank Branches (CBB) also shows a negative and insignificant effect on ISVA ($\beta = -0.133$, $p = 0.428$). In contrast, Lending Rate (LEND) has a substantial negative effect on ISVA ($\beta = -0.559$, $p < 0.001$). This indicates that a 1% increase in the lending rate would reduce ISVA by \$0.559 billion. In addition, Borrowers from Commercial Banks (BCB) demonstrate a significant negative influence on ISVA ($\beta = -0.105$, $p < 0.001$), suggesting that an increase in the number of borrowers leads to a \$0.105 billion decrease in ISVA. Moreover, Commercial Bank Branches (CBB) increases in the number of bank branches also significantly decrease ISVA ($\beta = -0.133$, $p < 0.01$). On the positive side; Bank Capital to Asset Ratio (BCAR) shows a significant positive effect on ISVA ($\beta = 0.400$, $p < 0.001$),

meaning a 1% rise in the capital-asset ratio would increase ISVA by $0.400 billion. Automated Teller Machines (ATM) exhibit a significant positive effect (β = 0.814, p < 0.001), with an increase in ATMs leading to a $0.814 billion rise in ISVA. Overall, while some financial factors have a significant negative impact on ISVA, others, particularly the bank capital to asset ratio and number of ATMs, positively influence ISVA.

The study's findings on institutional factors affecting industrial sector value added (ISVA) reveal that Regulatory Quality (REGQ) has a significant positive effect on ISVA (β = 0.399, p = 0.014). This suggests that a 1% improvement in regulatory quality leads to a $0.399 billion increase in ISVA. Control of Corruption (COCP) also shows a positive impact on ISVA (β = 0.155, p = 0.084), though the significance level is slightly above the 10% threshold. A 1% improvement in control of corruption results in a $0.155 billion increase in ISVA. Voice and Accountability (VACC) demonstrates a significant positive effect on ISVA (β = 0.274, p = 0.027). This indicates that a 1% increase in voice and accountability contributes to a $0.274 billion rise in ISVA. Conversely, Government Effectiveness (GOET) shows a significant negative effect on ISVA (β = -0.366, p < 0.001). Improved government effectiveness leads to a $0.366 billion reduction in ISVA. Political Stability (PSTB) has a significant negative impact (β = -0.674, p < 0.001). Enhanced political stability is associated with a $0.674 billion decrease in ISVA. Rule of Law (RLAW) exhibits an insignificant negative effect on ISVA (β = -0.224, p = 0.250). A 1% increase in the rule of law leads to a $0.224 billion decline in ISVA, but this effect is not statistically significant.

The coefficient of multiple determination in the study reflects the combined impact of various financial deepening and institutional factors—such as Domestic Credit to Private Sector (DCPS), Lending Rate (LEND), Borrowers from Commercial Banks (BCB), Bank Capital to Asset Ratio (BCAR), Commercial Bank Branches (CBB), Automated Teller Machines (ATM), and several governance indicators (Regulatory Quality, Government Effectiveness, Control of Corruption, Voice and Accountability, Political Stability, and Rule of Law). This combined effect accounts for 43.5% of the variation in Industrial Sector Value Added (ISVA). other factors not included in Model 1.1 may account for the remaining 56.5% of the variation.

The F-statistic value of 6.42, with a probability value of 0.00, indicates that these financial and institutional factors collectively have a statistically significant impact on ISVA. This underscores the importance of financial deepening and institutional quality in influencing industrial sector performance in Sub-Saharan Africa.

$$ISVA_{it} = 55.62 - 0.180DCPS_{it} - 0.621LEND_{it} - 0.079BCB_{it} + 0.367BCAR_{it} + 0.353CBB_{it} + 0.773ATM_{it} + 0.163REGQ_{it} - 0.460GOET_{it} + 0.252COCP_{it} - 0.009VACC_{it} - 0.458PSTB_{it} - 0.235RLAW_{it} - 0.003EXCR_{it} - 0.160LFDI_{it} - 17.863TROP_{it} - 0.047INFR_{it} \quad (1.2)$$

When accounting for the effects of financial deepening and institutional factors alongside exchange rate, foreign direct investment, trade openness, and inflation rate, the analysis found that; Domestic Credit to Private Sector (DCPS) had a negative but statistically insignificant impact on Industrial Sector Value Added (ISVA) (β = -0.180, ρ = 0.313). This suggests that changes in domestic credit to private sector do not significantly affect ISVA. Lending Rate (LEND) (β = -0.621, ρ = 0.017) and Borrowers from Commercial Banks (BCB) (β = -0.079, ρ = 0.000) both had significant negative effects on ISVA. Specifically, a 1% increase in lending rate is associated with a US$0.621 billion decrease in ISVA, and an increase in the number of borrowers by one unit corresponds to a US$0.079 billion reduction in ISVA. Conversely, Bank Capital to Asset Ratio (BCAR), Number of Commercial Bank Branches (CBB), and Number of Automated Teller Machines (ATM) had significant positive effects on ISVA. The statistical values; Bank Capital to Asset Ratio (BCAR) (β = 0.367, ρ = 0.014) reflect that a 1% increase in the capital-asset ratio is associated with a US$0.367 billion increase in ISVA; Number of Commercial Bank Branches (CBB) (β = 0.353, ρ = 0.004) implies that an increase in the number of bank branches by one unit corresponds to a US$0.353 billion rise in ISVA. Number of Automated Teller Machines (ATM) (β = 0.773, ρ = 0.000) means that each additional ATM is linked to a US$0.773 billion increase in ISVA. These findings highlight that while some financial deepening measures negatively influence ISVA, other aspects such as bank capital, the number of bank branches, and ATMs significantly contribute to enhancing industrial sector value added.

The study also revealed the following findings regarding the impact of various institutional factors on Industrial Sector Value Added (ISVA): Regulatory Quality (REGQ) had a positive but statistically insignificant effect on ISVA (β = 0.163, ρ = 0.595); which indicates that 1% improvement in regulatory quality is associated with an increase in ISVA of US$0.163 billion, though this effect is not statistically significant. Control of Corruption (COCP) had a significant positive effect on ISVA (β = 0.252, ρ = 0.059); meaning that 1% increase in the control of corruption is linked to a US$0.252 billion increase in ISVA. Voice and Accountability (VACC) exerted a negative but insignificant effect on ISVA (β = -0.009, ρ = 0.963), reflecting that an improvement of 1% in voice and accountability would lead to a minor decline in ISVA of US$0.009 billion, which is not statistically significant. Rule of Law (RLAW) has a negative but insignificant (β = -0.235, ρ = 0.472), demonstrating that 1% improvement in rule of law would result in a decrease in ISVA by US$0.235 billion, though this is not statistically significant. Government Effectiveness (GOET) and Political Stability (PSTB) both had significant negative effects on ISVA (GOET: β = -0.460, ρ = 0.000; PSTB: β = -0.458, ρ = 0.000), as

183

1% improvement in government effectiveness and political stability is associated with decreases in ISVA of US$0.460 billion and US$0.458 billion, respectively.

To understand how exchange rate, foreign direct investment (FDI), trade openness, and inflation rate control the effect of financial deepening and institutional factors on Industrial Sector Value Added (ISVA), we examine their individual impacts and how these factors influence the explanatory power of the model, as indicated by changes in the coefficient of determination (ΔR^2). From the values of the coefficients of the T-test and the equivalent probability values, it showed that all the control variables exerted negative impact on industrial sector value added, ISVA is negatively impacted by the exchange rate (EXCR: β = -0.003, ρ = 0.091), foreign direct investment (LFDI: β = -0.16, ρ = 0.130), trade openness (TROP: β = -17.863, ρ = 0.005), and inflation rate (INFR: β = -0.047, ρ = 0.004), while exchange rate, trade openness, and inflation rate exerted significant negative effect, foreign direct investment negatively but insignificantly affect ISVA. The implication of the negative impact of exchange rate, foreign direct investment, trade openness, and inflation rate on industrial value added is that a dollar increase in exchange rate against any local currency of the sub-Saharan African countries would drop the value of the industrial value added by US$0.003billion; also, a percentage change in foreign direct investment would cause reduction in ISVA by US$0.16billion, while as net export to GDP ratio (TROP) increases by a percent, there would be a decline in ISVA by US$17.863billion; in addition, increase in inflation rate by 1 percent would cause decline in ISVA by US$0.047billion. Also, the explanatory power of the model increased from 37% to 53% upon the inclusion of exchange rate, foreign direct investment, trade openness, and inflation rate as control variables in the model. Therefore, it showed that exchange rate, foreign direct investment, trade openness, and inflation rate significantly control the effect of financial deepening and institutional factors on industrial sector value added.

The coefficient of multiple determination reveals that the combined influence of financial deepening and institutional factors, along with exchange rate, foreign direct investment, trade openness, and inflation rate as control variables, explains 53% of the variability in industrial sector value added (ISVA). Other factors not included in the model may account for the remaining 47% of ISVA variability. Additionally, the Wald-statistics probability value of 0.00 indicates that exchange rate, foreign direct investment, trade openness, and inflation rate jointly and significantly control the effects of financial deepening and institutional factors on ISVA in Sub-Saharan African countries.

5.2. Discussion of Findings

The study indicates that, among various financial deepening factors, only the bank capital to asset ratio and the number of ATMs had a consistently positive and significant impact on industrial sector value added (ISVA). Furthermore, financial inclusion as a broader concept also showed a substantial effect on ISVA. This finding is consistent with Beck et al. (2007); Mehrotra and Yetman (2015); Owen and Pereira (2018) and Asante et al. (2023), who assert that an inclusive financial system enhances access to financial services for undeserved populations, thereby facilitating business expansion. Additionally, the results align with Kim (2016) and Nanda and Kaur (2016) who emphasize the crucial role of financial access in mobilizing resources, promoting investment, and creating value for start-ups and small businesses, which contributes to socioeconomic development. Similarly, the findings are supported by Zins and Weill (2016) and Demirgüç-Kunt et al. (2017) who argue that financial inclusion broadens funding sources, reduces dependence on informal financial services, and stimulates investment, driving economic growth. The results also support Naceur et al. (2015) who found that financial inclusion can boost household income and improve economic well-being, benefiting small businesses. The results also align with Jima and Makoni (2023) who demonstrate that financial services such as payments, transfers, savings, and credit support both business and personal transactions, fostering economic growth. However, these findings diverge from the perspectives of Sethi and Acharya (2018) and Chima et al. (2021), who suggest a bidirectional relationship between financial inclusion and economic performance.

Institutional Quality: The significant impact of institutional quality on ISVA supports the findings of Ibrahim and Alagidede (2018) and Otchere, Senbet, and Simbanegavi (2017) which emphasize the importance of clear regulatory frameworks and supportive institutions in influencing financial development and economic growth.

Inflation and Trade Openness: The negative effect of inflation on ISVA observed in this study corroborates the findings of Mohammed, Kassem, and Ali (2023) which also reported significant negative effects of inflation on economic performance. Conversely, while Mohammed et al. (2023) found trade openness to positively impact economic performance, this study indicates a negative and significant influence of trade openness on ISVA.

Financial Intermediation Theory: The study supports the financial intermediation theory, which posits that easier access to finance increases consumption propensity, and lower-cost financing improves productivity and ISVA. This theory is supported by the fact that the bank capital adequacy ratio and the number of ATMs have big positive effects. This shows that these financial deepening measures are important for industrilization and have a big effect on ISVA.

Overall, the findings underline the importance of financial deepening and institutional quality in driving industrial value added and highlight the mixed effects of inflation and trade openness on industrial performance.

6. Implication Findings

It was observed that domestic credit to private sector and lending rate consistently impacted industrial value added negatively. Looking at the descriptive statistics, it depicts the extent of the rate of borrowing charged by the banks on loans and advances. The rate was as high as 97% and 17% on the average. It is obvious that no business would strive in an environment with such huge lending rate, especially in sub-Saharan African region, where several other factors are inhibiting the growth and development of indigenous industrial companies. These and many more are the reasons for the collapse of industries in this region of the world, as finance represents the lifeblood of every business. Lending rate implies cost of capital, thus exposing the industries to high finance costs, which constitute part of the operating expenses.

Although, government has tried severally in formulating financial deepening strategies tailored towards industrialization by mandating the financial institutions on a specific percentage of their deposits to be granted to businesses as loans and at a regulated rate. However, lack of strong institutional quality as evidenced in the outcome of this study proved that this is a mere myth and not reality due to lack of proper accountability of these financial institutions on the policy and the lack of proper implementation and monitoring.

7. Conclusion and Recommendations

This paper investigated how financial deepening and institutional factors impact industrial sector value added in Sub-Saharan Africa. The multiple regression analysis showed that institutional and financial factors, especially the bank capital adequacy ratio, the number of ATMs, regulatory quality, controlling corruption, and voice and accountability, have a big impact on the value added by the industrial sector. Based on these findings, the following recommendations are made:

Sub-Saharan African governments should implement policies and institutional reforms to promote financial inclusion. Ensuring that all citizens have access to financial services will enhance their ability to participate in and benefit from economic activities. Policies should focus on strengthening financial institutions by enhancing their capital adequacy ratios and expanding the network of ATMs. This will improve the availability and accessibility of financial services, which is crucial for industrial sector growth.

Governments should work on improving regulatory quality, controlling corruption, and promoting voice and accountability. These institutional factors are vital for creating a supportive environment that fosters industrial growth and economic development. This is an enabler of ease accessibility to finance by both individuals and corporate entities to spend, save, and invest. Efforts should be made by the government to ensure that productive sectors of the economy have access to finance at reasonable rate to manage the cost of production and enhance industrial sector value added.

Also, merchants should engage the services of professional advisory consultants, especially in the area of the management of macroeconomic factors, that is, inflation, exchange rate, trade openness, and foreign direct investors, on how to have a competitive edge over foreign competitors producing substitutes. Also, to mitigate foreign exposure risk, most especially the multinational corporations. To improve industrial sector value added, production costs must be kept as low as possible.

Drastic intervention to reduce corrupt practices and strengthen governance qualities is required to drive contribution of industrial sector to GDP. Government should ensure that the nations are politically stable, government are effective, regulatory authorities discharge their duties professionally and objectively. Also, government should ensure that citizens voices are heard and there is proper accountability for the management of nations resources to enhance industrial value added.

References

Abayomi, M. A., & Chidiebere, A. C. (2021). Effect of institutional quality on economic growth: A comparative evidence from Ghana and Nigeria. *Social Science Research*, 7(2), 147-165.

Acemoglu, D., & Johnson, S. (2005). Unbundling institutions. *The Journal of Political Economy*, 113(5), 949-995. https://doi.org/10.1086/432166

Acemoglu, D., Johnson, S., & Robinson, J. (2005). Institutions as a fundamental cause of long-run growth. In Aghion, P., & Durlauf, S. N. (Eds.), Handbook of economic growth. In (Vol. 1A, pp. 385-472). New York: Elsevier.

Adeyemi, A. A., Okafor, V., Ebenezer, B., & Maijeh, C. P. (2022). Financial deepening and manufacturing sector performance in Nigeria: Evidence from bank, non-bank and external financing sources. *African Journal of Business and Economic Research*, 1(1), 203-244.

Aduba, J. J., Asgari, B., & Izawa, H. (2023). Does FinTech penetration drive financial development? Evidence from panel analysis of emerging and developing economies. *Borsa Istanbul Review*, 10(10), 1-20. https://doi.org/10.1016/j.bir.2023.06.001

African Development Bank. (2016). *Feed Africa: Strategy for agricultural transformation in Africa 2016-2025*. Retrieved from https://www.afdb.org/fileadmin/uploads/afdb/Documents/Generic-Documents/Feed_Africa-_Strategy_for_Agricultural_Transformation_in_Africa_2016-2025.pdf

Agyei, K., & Idan, G. (2022). Trade openness, institutions, and inclusive growth in Sub-Saharan Africa. *Open Access*, 1(1), 1-12.

Ahmad, M., Majeed, A., Khan, M. A., Sohaib, M., & Shehzad, K. (2021). Digital financial inclusion and economic growth: Provincial data analysis of China. *China Economic Journal*, 14(3), 291-310. https://doi.org/10.1080/17538963.2021.1882064

Asante, G. N., Takyi, P. O., & Mensah, G. (2023). The impact of financial development on economic growth in sub-Saharan Africa. *Does institutional quality matter? Development Studies Research, 10*(1), 1-13. https://doi.org/10.1080/21665095.2022.2156904

Asongu, S. A., & Odhiambo, N. M. (2022). Financial access and value added in Sub-Saharan Africa: Empirical evidence from the agricultural, manufacturing, and service sectors. *World Affairs, 185*(2), 359-382. https://doi.org/10.2139/ssrn.4015011

Baltagi, B. H. (2021). *Econometric analysis of panel data* (5th ed.). England: John Willey & Sons Ltd.

Barrett, C. B., Christiaensen, L., Sheahan, M., & Shimeles, A. (2015). *On the structural transformation of rural Africa.* Paper presented at the African Economic Research Consortium's Biannual Research Workshop, Addis Ababa, Ethiopia. African Economic Research Consortium.

Bass, A. (2019). Do institutional quality and oil prices matter for economic growth in Russia: An empirical study. *International Journal of Energy Economics and Policy, 9*(1), 76-83. https://doi.org/10.1109/icemme49371.2019.00107

Beck, T., Demirgüç-Kunt, A., & L., R. (2007). Finance, inequality and the poor. *Journal of Economic Growth, 12*, 27–49. https://doi.org/10.1007/s10887-007-9010-6

Carlos, A., Bustillo, R., & Rodriguez, C. (2021). The role of institutional quality in the international trade of a Latin American country: Evidence from Colombian export performance. *Journal of Economic Structures, 10*, 1-21. https://doi.org/10.1186/s40008-021-00253-5

Chima, M. M., Babajide, A. A., Adegboye, A., Kehinde, S., & Fasheyitan, O. (2021). The relevance of financial inclusion on sustainable economic growth in sub-saharan African Nations. *Sustainability, 13*(10), 1-20. https://doi.org/10.3390/su13105581

Chinoda, T., & Kapingura, F. M. (2024). Digital financial inclusion and economic growth in Sub-Saharan Africa: The role of institutions and governance. *African Journal of Economic and Management Studies, 15*(1), 15-30. https://doi.org/10.1108/AJEMS-09-2022-0372

Cyn-Young, P., & Mercado, R. V. (2015). *Financial inclusion, poverty, and income inequality in developing Asia.* Retrieved from Asian Development Bank Working Series, No. 426:

Dahiya, S., & Kumar, M. (2020). Linkage between financial inclusion and economic growth: An empirical study of the emerging Indian economy. *Vision, 24*(2), 184-193. https://doi.org/10.1177/0972262920923891

Demirgüç-Kunt, A., Klapper, L., & Singer, D. (2017). *Financial inclusion and inclusive growth: A review of recent empirical evidence.* Retrieved from Policy Research Working Paper; No. 8040. Washington, DC: World Bank. https://openknowledge.worldbank.org/handle/10986/26479:

Dutta, N., & Meierrieks, D. (2021). Financial development and entrepreneurship. *International Review of Economics and Finance, 73*, 114–126. https://doi.org/10.1016/j.iref.2020.11.006

Elfaki, K. E., Handoyo, R. D., & Ibrahim, K. H. (2021). The impact of industrialization, trade openness, financial development, and energy consumption on economic growth in Indonesia. *Economies, 9*(4), 174-187. http://dx.doi.org/10.3390/economies9040174

Elizabeth, J. (2022). Financial sector development and industrialization in Tanzania. *Tanzania Journal of Development Studies, 20*(2), 1-12.

Gurley, J. G., & Shaw, E. S. (1960). *Money in theory of finance.* Washington DC: Brookings.

Herger, N., Hodler, R., & Lobsiger, M. (2008). What determines financial development? Culture, institutions or trade. *Review of World Economies, 144*, 558-587. https://doi.org/10.1007/s10290-008-0160-1

Hope, A. E., & Ajibola, O. (2023). Manufacturing sector development in Sub-Saharan Africa: Does monetary policy matter? *International Journal of Management, Economics and Social Sciences, 12*(2), 133-161. https://doi.org/10.32327/ijmess/12.2.2023.6

Ibrahim, M., & Alagidede, P. (2018). Nonlinearities in financial development–economic growth nexus: Evidence from Sub-Saharan Africa. *Research in International Business and Finance, 46*(1), 95-104. https://doi.org/10.1016/j.ribaf.2017.11.001

Iwegbu, O., Justine, K., & Borges Cardoso, L. C. (2022). Regional financial integration, financial development and industrial sector growth in ECOWAS: Does institution matter? *Cogent Economics & Finance, 10*(1), 2050495. https://doi.org/10.1080/23322039.2022.2050495

James, G., Witten, D., Hastie, T., & Tibshirani, R. (2013). *An introduction to statistical learning: With applications in R* (1st ed.). New York: Springer. https://doi.org/10.1007/978-1-4614-7138-7.

Jima, M. D., & Makoni, P. L. (2023). Financial inclusion and economic growth in Sub-Saharan Africa—A panel ARDL and Granger non-causality approach. *Journal of Risk and Financial Management, 16*(6), 299. https://doi.org/10.3390/jrfm16060299

Jimoh, A. T., Shittu, A. T., & Attah, J. A. (2019). Impact of financial inclusion on performance of banks in Nigeria. *ountain University Osogbo Journal of Management, F4*(3), 84–96.

Kim, D.-W., Yu, J.-S., & Hassan, M. K. (2018). Financial inclusion and economic growth in OIC countries. *Research in International Business and Finance, 43*, 1-14. https://doi.org/10.1016/j.ribaf.2017.07.178

Kim, J.-H. (2016). A study on the effect of financial inclusion on the relationship between income inequality and economic growth. *Emerging Markets Finance and Trade, 52*(2), 498–512. https://doi.org/10.1080/1540496X.2016.1110467

Liu, D., Zhang, Y., Hafeez, M., & Ullah, S. (2022). Financial inclusion and its influence on economic-environmental performance: Demand and supply perspectives. *Environmental Science and Pollution Research, 29*(38), 58212-58221. https://doi.org/10.1007/s11356-022-18856-1

Lucky, T. M., Jonah, B. T., Ntsosa, M., & Bakwena, M. (2021). Does institutional quality influence the oil price–economic growth nexus: Evidence from African oil exporting economies. *European Journal of Business and Management Research, 6*(5), 56–69. https://doi.org/10.24018/ejbmr.2021.6.5.1058

Lugina, E. J., Mwakalobo, A. B. S., & Lwesya, F. (2022). Effects of industrialization on Tanzania's economic growth: A case of manufacturing sector. *Future Business Journal, 8*(1), 1-11. https://doi.org/10.1186/s43093-022-00177-x

Makina, D., & Walle, Y. M. (2019). Financial inclusion and economic growth: Evidence from a panel of selected African countries. *Extending Financial Inclusion in Africa*, 9, 193-210. https://doi.org/10.1016/B978-0-12-814164-9.00009-8

Marcelin, I., & Mathur, I. (2014). Financial development, institutions and banks. *International Review of Financial Analysis*, 31, 25-33.

Mehrotra, A., & Yetman, J. (2015). Financial inclusion—issues for central banks. *BIS Quarterly Review, 83*, 1-14.

Mohammed, S. S., Kassem, G. M., & Ali, M. (2023). Financial Inclusion, institutional quality and economic growth in Sub-Sahara African countries. *Energy Research Letters, 4*(1), 10-21. https://doi.org/10.46557/001c.77903

Naceur, S. B., Barajas, A., & Massara, A. (2015). *Can Islamic banking increase financial inclusion?* Retrieved from IMF Working Paper No. 15/031. International Monetary Fund:

Nanda, K., & Kaur, M. (2016). Financial inclusion and human development: A cross-country evidence. *Management and Labour Studies, 41*(2), 127-153. https://doi.org/10.1177/0258042x16658734

Ngong, C. A., Manasseh, C. O., Okonkwo, O. N., & Nwakoby, I. C. (2021). Financial deepening and manufacturing sector productivity in Cameroon (1970–2018). *Psychology and Education Journal, 58*(2), 9813-9828.

Nguyen, C. P., Su, T. D., & Nguyen, T. V. H. (2018). Institutional quality and economic growth: The case of emerging economies. *Theoretical Economics Letters, 8*(11), 1943-1956. https://doi.org/10.4236/tel.2018.811127

Nnadozie, O., & Raifu, I. A. (2020). Infrastructure and manufacturing value added in Sub-Sahara African countries. *Research Square, 1*(1), 1-20. https://doi.org/10.21203/rs.3.rs-21562/v1

North, D. (1990). *Institutions, institutional change and economic performance* (1st ed.). United Kingdom: Cambridge University Press.

Nwosu, C., Itodo, I., & Ogbonnaya-Orji, N. (2021). Financial deepening, financial system fragility and economic growth in Nigeria. *Central Bank of Nigeria Economic and Financial Review, 59*(1), 1-27.

Otchere, I., Senbet, L., & Simbanegavi, W. (2017). Financial sector development in Africa-an overview. *Review of Development Finance, 7*(1), 1-5. https://doi.org/10.1016/j.rdf.2017.04.002

Owen, A. L., & Pereira, J. M. (2018). Bank concentration, competition, and financial inclusion. *Review of Development Finance, 8*(1), 1-17. https://doi.org/10.1016/j.rdf.2018.05.001

Saba, C. S., & Ngepah, N. (2023). Empirics of convergence in industrialisation and their determinants: Global evidence. *Discover Sustainability, 4*(1), 25. https://doi.org/10.1007/s43621-023-00136-8

Sanga, B., & Aziakpono, M. (2022). The impact of technological innovations on financial deepening: Implications for SME financing in Africa. *African Development Review, 34*(4), 429-442. https://doi.org/10.1111/1467-8268.12668

Sethi, D., & Acharya, D. (2018). Financial inclusion and economic growth linkage: Some cross country evidence. *Journal of Financial Economic Policy, 10*(3), 369-385. https://doi.org/10.1108/JFEP-11-2016-0073

Tagem, A. M. E., & Morrissey, O. (2023). Institutions and tax capacity in Sub-Saharan Africa. *Journal of Institutional Economics, 19*(3), 332-347. https://doi.org/10.1017/s1744137422000145

United Nations. (2023). *The potential of Africa to capture technology-intensive global supply chains.* Paper presented at the Economic Development in Africa Report 2023. United Nations Conference on Trade and Development. New York, United States of America: United Nations Publications.

van Wyk, B. F., & Kapingura, F. M. (2021). Understanding the nexus between savings and economic growth: A South African context. *Development Southern Africa, 38*(5), 828-844. https://doi.org/10.1080/0376835X.2021.1932424

Wordl Bank Group. (2023). *DataBank world development indicators.* Retrieved from https://databank.worldbank.org/source/world-development-indicators

World Bank. (2013). *Unlocking Africa's agricultural potential: An action agenda for transformation. Sustainable Development Series.* Retrieved from https://documents1.worldbank.org/curated/en/795321468191670202/pdf/769900WP0SDS0A00Box374393B00PUBLIC0.pdf

World Bank. (2020). *Control of corruption, world bank group.* Retrieved from https://www.worldbank.org/en/topic/governance/brief/control-of-corruption

Zins, A., & Weill, L. (2016). The determinants of financial inclusion in Africa. *Review of Development Finance, 6*(1), 46-57. https://doi.org/10.1016/j.rdf.2016.05.001