



**FINANCIAL DEVELOPMENT, GOVERNMENT FUNDING AND
INFRASTRUCTURAL DEVELOPMENT IN SOUTH AFRICA**

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Abstract

The purpose of this paper is to identify the driving elements of the South African financial sector. While South Africa's financial sector appears robust, there exists a dearth of empirical research investigating the determinants of its development. Thus, this work assesses how two critical factors: Infrastructure development, and government funding levels affect financial development (FD) in South Africa using annual data from 1990 to 2024. Preliminary findings show that the series are integrated, and they are cointegrated. Results from regression analysis suggest that the government funding exerts a positive and statistically significant influence on financial development across most indicators. Conversely, advanced infrastructure development, government funding and openness to trade are associated with a more developed financial sector. The implications of these findings are essential for policymakers and stakeholders in understanding the factors that drive financial development in South Africa. The study recommends that, among others, policymakers should prioritize investments in both physical and digital infrastructure, particularly in telecommunications.

Keywords: *Financial development, Government funding, Infrastructural development, South Africa*

Introduction

In every economy, a financial development (FD) is necessary in order to achieve the desired level of economic development (Giri et al., 2023). The fact that financial development allows effective and efficient credit screening has been argued by scholars like Schumpeter (1911)

since the beginning of the twentieth century, which in turn promotes productivity and growth. Financial development leads to the start of growth in a given economy as observes Levine (1997) as a result of the growth of savings which serves as a catalyst to investment. It also focusses on risk and optimises risk-return distribution (Adu et al., 2013). FD is a development contributor as it promotes inflow of foreign capital and the optimal use of capital (Manigandan et al., 2023). In addition, it alleviates poverty and inequality through providing access to finance to poor households built up of vulnerable households and through providing the possibility to hedge against shocks (Xu et al., 2023).

Other researchers have established that financial development promotes research and development (Huang, 2010; Kapidani and Luci, 2019), hence economic growth. As a result, an increase in the financial sector of many countries has been pursued to enjoy the benefits associated. Theories have been developed on possible causes of financial development, and there is empirical research aimed at finding the factors that can make finance develop at varying levels in countries (Anyangwe et al., 2022; Bekele, 2023). In the case of most of African countries, the financial sector has been sufficiently poor that most banks became insolvent, others developed as troubled institutions. South Africa is one of the regional states that seem to have a sound financial sector (FSCA, 2022).

The ratio of inward credit to GDP in recent decades has been more than 100 percent (World Bank, 2023). According to some researchers, the financial sector in South Africa has been favorable by the fact the state is a developing nation (Abiodun and Temidayo, 2022; Asafo-Adjei et al., 2021). It is timely to determine the elements that have led to creation of robust financial sector in the nation, as well as those that are trailing. Empirical studies have found that there are many factors that have an impact on financial development among them being inflation, trade openness, interest rates, and GDP (Asratie, 2021; Ashour et al., 2023; Nsiah and Tweneboah, 2023; Zhang and Liang, 2023). Nonetheless, the results are still conflicting because of the opposing evidence. Besides that, although there is controversy surrounding the issue of how infrastructural development (ID) affects financial development (Mohanty and Bhanumurthy, 2019; Tsaurai, 2025), the influence of ID on the FD of South Africa is insufficiently understood.

The construction of infrastructures can also hinder FD by the resource-curse hypothesis (Udeagha and Breitenbach, 2023; Kwakwa et al., 2023). On the other hand, infrastructure may also facilitate financial growth by offering facilities which facilitate business activities in the

industry (Rafailov, 2019). The efficiency of consumers has grown due to technological advancement, especially in infrastructure, and, thus, leads to the significant investment of countries that want to capitalize on such technology (Syarifuddin & As'ad, 2024). The infrastructure investment has attributed to a 120 percent increase in the infrastructure investment, as South Africa is a major infrastructure country in the continent and experienced an increase in the year 2010 of about R 12 trillion and in 2021 of about R 25 trillion (World Bank, 2023). The amount spent on infrastructural development in the country rose to R 23 trillion in 2015 to R 46 trillion in 2018 (Independent Communications Authority of South Africa, 2020). However, how this infrastructural development can influence the FD of the country has not been known yet. Another variable, the government funding, was not empirically analyzed as well, where the government spending can have either positive or negative impact on financial development. High government expenditure could require extra cost.

In this case, the state can borrow locally thereby tightening local businesses and decreasing the demand of financial services by the local businesses. Alternatively, the state funding will have a positive impact on the financial growth, as it will enlarge the operations of local companies and thereby their requirements of any financial support (Wasnik and Jain, 2023; Rafailov, 2019). The government spending in South Africa has been on the increase since the amount of US\$37.1billion spent by the country in 1990 to US\$69billion in 2020 (World Bank, 2023). Its level of influence over FD in the country is yet to be researched. A robust financial sector helps South African government to support its long term and medium economic objectives (Republic of South Africa, 2023). In this regard, evidence-based policy-making requires the study of the dynamics of the financial growth of the country today. Such analysis needs to pay attention to significant variables that have been neglected in the literature. Based on the aforementioned, the following are the research questions for this study:

- a) What effect do infrastructural development affect South Africa's financial development?
- b) To what extent does government funding affect South Africa's financial development?

The article contributes three substantive items to the literature: (1) Although much scholarly research has investigated the determinants of the financial development of African countries (Emmanuel et al., 2023; Xu and Wubishet, 2024; Okafor, 2023), more empirical evidence based on the connection of government support, infrastructural development, and financial

development still lacks South Africa. South Africa has been one of the most developed economies in Africa, and thus the experiences in this country are specifically informative to the continent in general. (2) The empirical tests to be carried out in this research will determine the role of government financing and infrastructural development that has often been ignored in previous studies on the financial development of South Africa. The past literature on the topic has generally utilized one or two proxies of financial development. Contrarily, this article makes use of six alternative measures thus countering any potential difference in measurement which could have resulted into inconclusive findings in previous research. Use of several proxies enables the policymakers to discover specific areas of finance that are valuable to invest in which will result in more favourable funding results and advances in infrastructure.

Review of literature and hypothesis development

The variables that can affect financial development in a particular country are government financing and infrastructural development. In that regard, the given paper will overview the literature available to establish the level at which the financial development of a country is predisposed by the influence of natural resources, the scale of governing, and the scale of infrastructure. The literature review has not revealed a significant amount of the original investigations devoted to the needs of South Africa, which supports the current study as a novel domain of investigation into the impact of government support on financial development and infrastructure promotion. The rest of the literature review has been divided into two parts. The initial part will deal with the role of infrastructure in financial development, whereas the second section will touch on the overall effects of infrastructure of a country in financial development.

2.1. Infrastructure Development and Financial Development

A growing amount of academic interest has been focused on how infrastructural development impacts financial development in various economies (Abeka et al., 2021; Fan and Chan-Kang, 2008; Landau, 2013; Mahmoudzadeh et al., 2013; Mohmand et al., 2017; Tariq et al., 2019). According to other research, it is probable that investments in physical infrastructure and information and communication technology (ICT) will boost financial development through the creation of better access to markets, greater transmission of information, and financial inclusion (Abeka et al., 2021). According to Omowole et al. (2023), the change in the financial sector was majorly in the new infrastructure especially in the ICT sector to ensure efficiency

in its operations and the provision of more services. Koldovskiy (2024) also purported that ICT infrastructure decreased the information asymmetry and transaction costs thus spurring financial intermediation. Bernards and Campbell-Verduyn (2019) have also shown that infrastructure has the capacity to expand auditing, enhance innovation in financial products and institutional efficiency particularly in the ICT sector.

Moreover, Munira (2025) has noted that the application of mobile and digital technologies has been positive in driving the economy and dynamism in financial markets because it allows real-time transactions and expands access to customers. However, other researchers also warned that in case of too much government expenditure on infrastructure, the activity of the private sector might be inhibited, which might in turn slow down the economic and financial growth (Landau, 2013; Mahmoudzadeh et al., 2013). However, a positive contribution of infrastructure was mentioned by Mohanty and Bhanumurthy (2019), who proposed that proper infrastructure development spurred private investment in capital and financial market penetration.

This is further supported by empirical studies that have been done in Africa. Abeka et al. (2021) discovered that the telecommunications infrastructure in Sub-Saharan Africa boosts financial development, and reasoned that policies to widen both digital and physical access framework are imperative in deepening the financial markets. It can be said in the same way that mobile banking and digital infrastructure have a positive influence on the development of financial sector in Ghana, as stated by Anyangwe et al. (2022). The authors found that in Africa, access and financial depth continue to increase with the development of ICT, especially when there is the presence of strong regulatory bodies (Raifu et al., 2023). The assertion of ICT advancement enhancing financial growth in urban centres was also confirmed by Tchamyu et al. (2018), but Ofori et al. (2022) established the opposite effect, thus, the moderation of institutional quality and country location.

The issue still under discussion of whether investment growth will always enhance financial growth depends on the quality and nature of the investment. An efficient and productive infrastructure is probably to increase the financial output, but inefficient or poorly controlled investment could have nothing, or opposite impact.

Hypothesis 1: *Improvement in infrastructural development has a strong positive relationship with financial development.*

2.2. Government Funding and Financial Development

Government funding is a facet focal point in as far as the level of financial development (FD) in the country is concerned. Varied literature has argued that with an efficient direction and focal allocation, a government expenditure can have the ability to hasten financial deepening through improving the productive potential of an economy (Adu et al., 2013; Levine, 1997; Giri et al., 2023). Public financing has an influence on FD through various channels of transmission. First of all, due to the directing of the public expenditure into productive investment and capital works, it can prompt the activity of the private sector and increase the credit demand, as well as reinforce the financial intermediation (Ataguba, 2023; Asafo-Adjei et al., 2021). Also, the direct allocation of funds to specific economic sectors of such strategic priorities as manufacturing, agriculture, or infrastructure creates a facilitating environment in which financial institutions can expand their offering of products and diversify their credit portfolio (Alshubiri et al., 2020; Nsiah and Tweneboah, 2023).

On the other hand, these gains can be tampered by lavish or uneconomical state expenditure. The government can increase spending, which is to a great extent funded by domestic borrowing, and this development, researchers like Al-Majali (2018) and Kulu et al. (2022) contend, can suppress investment in the private sector and dry up credit to productive enterprises. The latter crowding-out effect can reduce the efficiency of capital allocation among the financial sector (Adu et al., 2013; Anyangwe et al., 2022). Moreover, it can lead to macroeconomic instability, attracting the loss of investor confidence, and slowing down the evolution of the financial system because of poor financial management and misappropriation of government funds (Abiodun and Temidayo, 2022; Ashour et al., 2023).

There is still a heterogeneous empirical of interaction between government spending and FD. As an example, the studies conducted by Mateen et al. (2025) and Asafo-Adjei et al. (2021) show that state spending on productive sectors increases financial development by having a positive effect on financial inclusion and mobilization of capital. Conversely, studies by Zhang and Liang (2023) and Asratie (2021) have shown that higher borrowing by individuals and expansion of fiscal deficits is likely to weaken FD which redirects finance to the private sector. Furthermore, Giri et al. (2023) argue that the quality of fiscal institutions and the success of government spending determines the public funding effect on FD greatly. Lack of transparency and accountability can encourage rent-seeking and inefficiency instead of financial growth

because increased spending can lead to rent-seeking (Uras et al., 2020; Natision et al., 2022; Liu et al., 2020).

Regarding the case of South Africa in particular, the public spending has increased significantly since the overthrow of apartheid, and it has increased since 1990 by US 37.1billion up to 2020 (US 69billion) and above (World Bank, 2023). Even though this expansion is based on the idea of inclusive growth and development of infrastructure, this issue is still controversial about its efficiency in enhancing financial development. It is postulated by some scholars as the country has investment, which has been extensive in the form of the public sector, has aided FD by promoting the demand of capital by the private sector and increasing the availability of finance to the businesses (FSCA, 2022; Republic of South Africa, 2023) and others as holds that regularly troubled fiscal deficits have limited investment in the business sector.

In general, the role of government financing in the financing of financial development is usually comprehended to depend on the efficiency, transparency within government expenditure, as well as their orientations. Effective government subsidies are able to stimulate the money market and deepen the financial market when the subsidies are well-placed, and more so can be counter-productive as the subsidies are continued when they have no impact whatsoever on the financial market.

Hypothesis 2: *There is a positive relationship between government funding and financial development in South Africa.*

Methodology

Empirical Specifications

The research seeks to examine the impact of infrastructural development and government funding on financial development (FD) in South Africa. Based on the objective and previous studies (Levine, 1997; Adu et al., 2013; Kapaya, 2023), the South African financial development can be approximated by estimating the effect of trade openness and inflation, two of the macroeconomic forces found in earlier empirical study papers (Ibrahim & Sare, 2018; Menyah et al., 2014; Asante et al., 2023). The functional relationship is thus expressed as:

$$FD = f(GF_t, ID_t, TO_t, INF_t) \quad (1),$$

where GF, ID, TO, and INF represent government funding, infrastructural development, trade openness, and inflation, respectively. Specifying Equation (1) within a Cobb–Douglas

production function framework and linearizing by taking the natural logarithm of all variables gives:

$$\ln FD_t = \alpha + \sigma \ln GF_t + \gamma \ln ID_t + \phi \ln TO_t + \beta \ln INF_t + \mu_t \quad (2),$$

where $\ln$ denotes the natural logarithm, and $\sigma, \gamma, \phi, \beta$, and α are parameters to be estimated. This model structure aligns with the empirical approaches of Asratie (2021), Nsiah and Tweneboah (2023), and Zhang and Liang (2023), who employed similar functional specifications in assessing the macroeconomic drivers of financial development across emerging economies.

Data and Estimation Approach

The information used in the study was obtained in The World Bank (2023) World development indicators 1990-2024. The time to select was informed by the fact that equally comparable data was available on all the variables that were used in the analysis. Some of the indicators introduced to measure financial development (FD) were used according to the methodological decisions made in the past (Adu et al., 2013; Mohieldin et al., 2019); that is, a measure of domestic credit to the private sector as a percentage of GDP and domestic credit to the private sector supplied by banks. Through Principal Component Analysis (PCA), these actuals were, in a Composite Financial Development Index (FINDEX), to integrate the overall development of finance throughout the chosen period of time (Giri et al., 2023).

Total government expenditure as a proportion of the GDP was operationalised as a form of government funding (GF); based on the methods used by Acemoglu and Johnson (2005) and Boschini et al. (2013); it is a proxy measure of both fiscal health and the overall effects of government spending on the financial sector. Infrastructure development (ID) was estimated using gross fixed capital formation (as a percentage of GDP) and further developing it with government investment in the sectors of transport and communication, which was the practices of Abeka et al. (2021) and Irfan and Ahmad (2022). Trade openness (TO) was a metric of imports and exports as a proportion of GDP, following the previous assumptions of Ibrahim and Sare (2018) and Menyah et al. (2014), whereas the inflation (INF) served as a control variable, as it has been previously determined to have an effect on financial stability (Asratie, 2021; Nsiah and Tweneboah, 2023).

In order to have statistical reliability, all time-series data were evaluated on the assessment of stationarity through unit-root tests. The procedure that was used to test the unit root and structural breaks consisted of the Augmented Dickey-Fuller (ADF) test where the null

hypothesis of the test included the non-stationarity. In the cases where non-stationarity was observed to exist in level series, first-difference changes were made with the aim of converting level series to the desired level of stationarity and consequently estimated spurious regression outcomes (Phillips and Perron, 1988).

Results and analysis

Table 1. Descriptive Statistics

Variable	Mean	Median	Maximum	Minimum	Std. Dev.	Skewness	Kurtosis
CPS	106.2581	117.0954	142.422	0	30.62879	-2.37698	8.978879
CPSB	57.29106	59.75637	70.38188	0	11.4575	-3.64057	19.11081
BM	59.67517	65.23814	74.03883	41.51655	10.79432	-0.27005	1.502958
FDI	1.375953	0.903381	9.660265	-0.06007	1.801161	3.170237	14.38337
GF	17.96177	17.90056	20.62034	15.86074	1.225586	0.067174	2.013481
ID	16.35381	15.92217	21.61482	13.05137	1.968418	0.580796	2.797667
INF	6.571533	5.780169	15.33478	-0.69204	3.305272	0.846163	4.141261
TO	50.18786	50.75966	65.97452	34.32135	8.865635	-0.12458	2.141977
Observations	35	35	35	35	35	35	35

Source: Author's Compilation (2025).

Unit root and cointegration results

Table 2 shows the outcome of the unit-root test. They disclose that with an exception of FDI, CPSB, and TO, which are held at the same level, the rest of the variables have non-stationarity at the level thus, all of them have unit roots in their level forms. Nevertheless, when differentiated initially, all variables achieve the state of stationarity, which proves that the variables of interest are integrated of order one, $I(1)$. This result suggests that the series are ready to be introduced further econometric analysis, which is the test of the long run relationships.

The evidence of the long-run estimation (Table 3) shows there is a long-run relationship between the financial development (FD) and its determinants in South Africa. These results indicate that the bank credit to the private sector, (CPSB), foreign direct investment, (FDI), the size of the government, (GF) and the level of institutional development, (ID) have positive and

significant impact on financial development, thus supporting the argument that an increase in these variables increases the level of financial development in the long run. On the other hand, the negative and significant coefficients of inflation (INF) and broad money (BM) indicate that the financial sector development is hampered by money growth and increase in prices. The coefficient on trade openness (TO) is negative but it is not statistically significant at the 5% mark. All in all, these results suggest that the dynamics of long run financial development of South Africa is largely dependent on the interplay of investment flows, the quality of institutions, the size of the fiscal, and stability of the monetary policies.

Regression results

This part of the chapter considers the long-run effect of some of the macroeconomic variables to the development of finance in South Africa by utilizing the FMOLS and DOLS estimation methods. These are the results of Table 3 and Table 4 respectively. Comparison of the two estimators indicates that there is very broad similarity in the relationships but the coefficient has been found to vary greatly and have a significant difference across the methodologies.

Government expenditure (GF), infrastructural investment (ID), foreign direct investment (FDI), and bank credit to the private sector (CPSB), based on the estimates offered by FMOLS (Table 3) are all said to have advantages on financial development, but the effect is positive and statistically significant. Broad money (BM), on the other hand, and inflation (INF) have both negative and significant consequences on financial development. The coefficient of trade openness (TO) is negative, and statistically not significant. The implication of these findings is that investment flows, institutional quality, and government intervention are the driving powers in the development of the financial sector whereas inflationary pressures and over-monetary growth are the discouragement factors.

On the contrary, the DOLS estimates (Table 4) denote that all the explanatory variables are not statistically significant with the exception of the significant negative impact of foreign direct investment (FDI) on the financial development. Even though a majority of the signs of the variables are consistent with findings obtained under FMOLS, the reduced significance obtained under DOLS indicates that the model may be specification sensitive in the long run. On the whole, both estimators indicate that there is a long-run relationship between financial development and the macroeconomic variables of the South African case.

Table 2. Result of unit root (stationarity) test.

ADF test t- statistic		
Variable	At Level t- statistics	At First Difference t-Statistic
CPS	-1.232212	-9.301064
CPSB	-4.248513	-16.20919
BM	-1.829084	-4.671309
FDI	-5.569950	-5.561220
GF	-2.031826	-6.117802
ID	-2.372738	-3.873836
INF	-2.721959	-6.073326
TO	-3.294759	-4.683753

Source: Author's Compilation (2025).

Table 3. Regression results from FMOLS

Std.				
Variable	Coefficient	Error	t-Statistic	Prob.
CPSB	1.337091	0.193143	6.922817	0
BM	-2.23753	0.37173	-6.01923	0
FDI	7.215291	0.942007	7.659486	0
GF	9.439832	1.606347	5.876583	0
ID	14.24515	1.098706	12.96538	0
INF	-6.81733	0.776315	-8.78166	0
TO	-0.65248	0.383619	-1.70086	0.1009
C	-172.331	31.28026	-5.50925	0
Mean dependent				
R-squared	0.50332	var		107.2675
Adjusted R-squared	0.369599	S.D. dependent var		30.49275
S.E. of regression	24.21058	Sum squared resid		15239.96
Long-run variance	74.8744			

Table 4. DOLS results

Variable	Std.			
	Coefficient	Error	t-Statistic	Prob.
CPSB	1.034139	0.88164	1.172972	0.3255
BM	-0.14425	0.346397	-0.41642	0.7051
FDI	-10.167	2.96214	-3.4323	0.0415
GF	-3.83027	3.361731	-1.13938	0.3373
ID	2.260997	2.052466	1.1016	0.3511
INF	-0.35546	1.531536	-0.23209	0.8314
TO	1.537588	1.054198	1.458537	0.2408
C	31.41452	53.45121	0.587723	0.598
R-squared	0.988146	Mean dependent var		113.9718
Adjusted R-squared	0.877505	S.D. dependent var		14.17941
S.E. of regression	4.962683	Sum squared resid		73.88467
Long-run variance	12.20724			

The empirical data suggests that government spending has a positive and statistically significant impact on financial development in most of the indicators, which support the hypothesis that fiscal administration has the potential of pushing growth in the financial sector. This is evidenced by the fact that the South African government is actively encouraging financial development using expenditure by the government since the larger expenditure is, the better financial intermediation and depth of markets are.

The foreign direct investment (FDI) also has varied results with conflicting figures generated by using alternative estimations methods: the FMOLS output confirms a positive and strong negative change whereas the Dols finds negative and significant. This implies that, despite the presence of FDI in future development of finance, there might be model-specific or short-term effects of FDI depending on the make up of investment and the home ground of financial sector. Besides, the two variables, inflation and money supply are negatively correlated with significant statistically significant correlations meaning that the increase in price levels and excessive money supply is a challenge to the efficiency of the financial sector. The openness of trade, though the negative value, is not significant which means that its role in the financial development of South Africa may be indirect or weak. Altogether, the sources point out

government spending, investments into infrastructure, and foreign capital as primary in drivers of financial development of the South African economy in the long-term, and macroeconomic instability inhibits development.

Discussion

Study findings indicate that macro-economic and institutional factors have statistically significant effects on the different variables of financial development in South Africa. The empirical evidence according to FMOLS estimation has shown that foreign direct investment, government support as well as infrastructure development have strong and positive impacts on FD hence confirming the hypothesis that sound fiscal management, good institutional structures and inflow of foreign capital bring about increase in the financial sector. The state of South Africa is deduced to have been the focal point in promoting FD by way of government expenditure and development of infrastructure. Through proper regulation measures, financial prudence, and provision of investor friendly environment, the government has stimulated the penetration of financial markets. These results positively correspond to the previous studies conducted by Costa and Santos (2013), Huang (2010), and Rathinam and Raja (2010) pointing out at the role of governmental intervention and institutional efficiency in determining the work of the financial sector.

Conversely, the empirical evidence shows that both the inflation (INF) and broad money (BM) have negative and statistically significant effects on FD i.e., high money growth and permanent price volatility discourages the development of the financial sector. Such results are in line with the literature (e.g., Mlachila and Ouedraogo, 2019; Hussain et al., 2023), which claimed that macro-economic instability deters investment and decreases credit supply in the emerging economies. The negative effect of inflation, in particular, is the basis of the explanation of the rationality of price-stability policies which would create confidence in the financial system.

On the other hand, the DOLS estimation gives a poor result, with no significant variables except the probability of FDI as it has a negative and significant coefficient. This deviation to the FMOLS estimates could be either due to model specification or dynamic to the data implying that the long run effect of FDI on FD can be sensitive to policy and structural shocks to the South African economy. However, the consistent applicability of FDI in the two models brings forth the impact of FDI in the aspect of performance in the financial sector.

The openness of trade (TO) is a negative and statistically insignificant term in the FMOLS model, which can indicate that it has an insignificant direct effect on the financial development. However, the available literature (Ibrahim and Sare, 2018; Menyah et al., 2014) suggests that trade openness has the potential to facilitate financial development partly by facilitating investment flows and connections in the capital markets. Thus, policies that will ensure transparency and at the same time, domestic financial stability are also important in the long-term sectoral development. Overall, the findings are strong confirmations that the key long-run factors of South African financial development are foreign investment, institutional quality, and government size, and inflation and money supply are the key restrictions. There is an appreciable emphasis in the evidence demonstrating that the macro-economic stability, good governance and a sound fiscal prudence are central factors in enhancing the financial sector of the nation towards deepening and stability.

Conclusion and policy implications

This paper discussed the effects of government finance to financial development and infrastructural development in South Africa. The results were derived using annual data between the years 1990 and 2024 and the UAE showed that the primary driver of financial development resulted in openness to trade, the development of infrastructure, and government spending.

The government expenditure on South Africa according to the study has a positive effect on financial development and credit the value that is added to productive parts of the economy by the implementation of favorable fiscal policy. Stated differently, when there is more government spending, there is a stimulation of financial intermediation and credit supply. The policymakers would have to respond to the maintenance of such a trend by making sure that the state funds are well spent and distributed on growth-related activities. This should reduce corruption and promote transparency in the management of public assets such that fiscal inefficiency that may pose a threat to financial development can be avoided. Political stability and institutional fidelity are also necessities in that faith in investors is instilled and the financial system is free to flourish where there is political stability.

Furthermore, the study has indicated that infrastructural investment especially telecommunications have played a role in enhancing a financial depth. The physical and digital infrastructure investments can close the urban-rural divide hence integrating the unbanked into

the financial ecosystem. Development of the telecommunication infrastructures and the growth of the availability of cheaper internet should therefore be among the priorities of governments. This will facilitate online banking, electronic payment, and general financial inclusion and will help minimize cost on transactions among consumers and the financial institutions.

The government spending has to remain focused on productive sectors like education, health, transport, electricity since these directly and indirectly increase human capital, institutional capacity which are necessary towards financial development. Similarly, the claim that trade openness is positively correlated with the financial development suggests that the openness of the trade can be improved by reducing tariffs and barriers to trade and trigger foreign investment and better cross-border direction of financial flows. Financial system will be further enhanced by keeping the macro-economic policies, low inflation rates, and the healthy regulatory climate.

Limitations and avenues for future research

Similar to all empirical work, the research has some limitations that need to be highlighted in making sense of the findings. These limitations do not undermine the validity of the research but are aspects of future academic inquiry. The first limitation is that the research covered only South Africa, which constrains the external validity of the findings. Future research can replicate this research for other nations in Africa or use a panel data set in an attempt to offer comparative evidence regarding the impact of government investment and infrastructure development on financial growth across varying economic environments.

Second, although the present study used secondary data and econometric estimators like FMOLS and DOLS to control for long-run relations, estimation had taken a linear relationship for public expenditure, infrastructure, and financial development. Future studies may investigate potential nonlinear dynamics or threshold effects—e.g., whether government spending affects financial development differently after some fiscal activity or infrastructural investment.

Third, the existing study concentrated primarily on aggregate measures of financial development. Future studies can break financial development down into sectors like banking, insurance, and capital markets to detect sector-specific reactions to government policy interventions and infrastructure development.

Finally, the other determinants of governance and institutions—regulatory quality, control of corruption, and political stability—were not included in the model as such but may be most vital in capturing variation in financial development. Their integration in subsequent research may help in building a more comprehensive view of the relationships between fiscal policy, infrastructure, and the financial system.

References

- Abeka, J. M., Andoh, E., Gatsi, G. J., & Kawor, S. (2021). Financial development and economic growth nexus in SSA economies: The moderating role of telecommunication development. *Cogent Economics & Finance*, 9(1), 1862395. <https://doi.org/10.1080/23322039.2020.1862395>
- Abiodun, S., & Temidayo, O. Role of financial sector development in the nexus between inclusive growth and poverty: A regional Bekele, W. D. (2023). Determinants of financial inclusion: A comparative study of Kenya and Ethiopia. *Journal of African Business*, 24(2), 301–319. <https://doi.org/10.1080/15228916.2022.2078938>
- Acemoglu, D., & Johnson, S. (2005). Unbundling institutions. *Journal of Political Economy*, 113(5), 949–995. <https://doi.org/10.1086/432166>
- Adu, G., Marbuah, G., & Mensah, J. T. (2013). Financial development and economic growth in Ghana: Does the measure of financial development matter? *Review of Development Finance*, 3(4), 192–203. <https://doi.org/10.1016/j.rdf.2013.11.001>
- Al-Majali, A. (2018). Crowding Out Effect of Public Borrowing: The Case of Jordan. *International Review of Management and Marketing*, 8, 119-125.
- Alshubiri, F., Tawfik, O., & Jamil, S. (2020). Impact of petroleum and non-petroleum indices on financial development in Oman. *Financial Innovation*, 6, 1-22. <https://doi.org/10.1186/s40854-020-00180-7>.
- Anyangwe, T., Vanroose, A., & Fanta, A. (2022). Determinants of financial inclusion: Does culture matter? *Cogent Economics & Finance*, 10(1), 2073656. <https://doi.org/10.1080/23322039.2022.2073656>
- Asafo-Adjei, E., Boateng, E., Isshaq, Z., Idun, A. A. A., Owusu Junior, P., & Adam, A. M. (2021). Financial sector and economic growth amid external uncertainty shocks: Insights into emerging economies. *PLoS ONE*, 16(11), e0259303.
- 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), 2156904.
- Ashour, G. H., Sayed, M. N., & Abbas, N. A. (2023). Macro determinants of sustainable financial development in the Middle East and North Africa (MENA) region countries. *Management & Sustainability: An Arab Review*. <https://doi.org/10.1108/MSAR-03-2023-0015>
- Asratie, T. M. (2021). Determinants of financial development in Ethiopia: ARDL approach. *Cogent Economics & Finance*, 9(1), 1963063.

- Ataguba, J. E. (2021). The impact of financing health services on income inequality in an unequal society: The case of South Africa. *Applied Health Economics and Health Policy*, 19(5), 721–733.
- Bernards, N., & Campbell-Verduyn, M. (2019). Understanding technological change in global finance through infrastructures. *Review of International Political Economy*, 26, 773 - 789. <https://doi.org/10.1080/09692290.2019.1625420>.
- Boschini, A., Pettersson, J., & Roine, J. (2013). The resource curse and its potential reversal. *World Development*, 43, 19–41. <https://doi.org/10.1016/j.worlddev.2012.10.007>
- Emmanuel, O., Thierry, M., Christian, A., & Ludé, D. (2023). What drives financial market growth in Africa?. *International Review of Financial Analysis*. <https://doi.org/10.1016/j.irfa.2023.102990>.
- Fan, S., & Chan-Kang, C. (2008). Regional road development, rural and urban poverty: Evidence from China. *Transport Policy*, 15(1), 305–314. <https://doi.org/10.1016/j.tranpol.2008.12.012>
- FSCA. (2022). Financial sector outlook. <https://www.fsca.co.za/Documents/FSCA%20Financial%20Sector%20Outlook%20Study%202022.pdf>
- Giri, A. K., Mohapatra, G., & Debata, B. (2023). Technological development, financial development, and economic growth in India: Is there a non-linear and asymmetric relationship? *Journal of Economic and Administrative Sciences*, 39(1), 117–133. <https://doi.org/10.1108/JEAS-03-2021-0060>
- Huang, Y. (2010). Political institutions and financial development: An empirical study. *World Development*, 38(12), 1667–1677. <https://doi.org/10.1016/j.worlddev.2010.04.001>
- Ibrahim, M., & Sare, Y. A. (2018). Determinants of financial development in Africa: How robust is the interactive effect of trade openness and human capital? *Economic Analysis and Policy*, 60, 18–26. <https://doi.org/10.1016/j.eap.2018.09.002>
- Independent communications authority of south africa. (2020) Annual Performance Plan. Retrieved October 15, 2021, from <https://www.icasa.org.za/uploads/files/2020-21-Annual-Performance-Plan>
- Kapaya, S. M. (2023). Government expenditure impacts on financial development: Do population age structures moderations matter? *Review of Economics and Political Science*. <https://doi.org/10.1108/REPS-01-2023-0008>
- Kapaya, S. M. (2023). Government expenditure impacts on financial development: Do population age structures moderations matter? *Review of Economics and Political Science*. <https://doi.org/10.1108/REPS-01-2023-0008>
- Kapidani, M., & Luci, E. (2019). The effects on innovation from financial sector development: Evidence from developing countries. *Journal of Competitiveness*, 11 (2), 84–95.
- Koldovskiy, A. (2024). Strategic Infrastructure Transformation: Revolutionizing Financial Sector Management for Enhanced Success. *Acta Academiae Beregsasiensis. Economics*. <https://doi.org/10.58423/2786-6742/2024-5-323-332>.
- Kulu, E., Brafu-Insaidoo, W., Peprah, J., & Bondzie, E. (2022). Government domestic debt arrears and private investment in Sub-Saharan Africa. *African Journal of Economic and Management Studies*. <https://doi.org/10.1108/ajems-06-2021-0281>.

- Kwakwa, P., Dankwah, J., Boahen, E., & Hammond, P. (2023). Financial development in South Africa: The role of natural resources, IT infrastructure, and government size. *Cogent Economics & Finance*, 11. <https://doi.org/10.1080/23322039.2023.2281844>.
- Landau, D. (2013). Government expenditure and economic growth: A cross-country study. *Southern Economic Journal*, 49(3), 783–792. <https://doi.org/10.2307/1058716>
- Levine, R. (1997). Financial development and economic growth: Views and agenda. *Journal of Economic Literature*, 35(2), 688–726.
- Liu, T., Liu, Y., Ullah, B., Wei, Z., & Xu, L. (2020). The Dark Side of Transparency in Developing Countries: The Link between Financial Reporting Practices and Corruption. *CGN: Disclosure & Accounting Decisions (Topic)*. <https://doi.org/10.2139/ssrn.2905078>.
- Mahmoudzadeh, M., Sadeghi, S., & Sadeghi, S. (2013). Fiscal spending and crowding out effect:
- Manigandan, P., Alam, M. S., Alagirisamy, K., Pachiyappan, D., Murshed, M., & Mahmood, H. (2023). Realizing the sustainable development goals through technological innovation: Juxtaposing the economic and environmental effects of financial development and energy use. *Environmental Science and Pollution Research*, 30(3), 8239–8256. <https://doi.org/10.1007/s11356-022-22692-8>
- Mateen, M., Shaheen, W., & Shafi, N., (2025). Impact of Financial Factors on Digital Economy: Assessing The Role of Government Intervention and Literacy Rate. *Journal of Social & Organizational Matters*. <https://doi.org/10.56976/jsom.v4i2.208>.
- Menyah, K., Nazlioglu, S., & Wolde Rufael, Y. (2014). Financial development, trade openness and economic growth in African countries: New insights from a panel causality approach. *Economic Modelling*, 37, 386–394. <https://doi.org/10.1016/j.econmod.2013.11.044>
- Mohanty, R., & Bhanumurthy, N. (2019). Analyzing the Dynamic Relationships between Physical Infrastructure, Financial Development and Economic Growth in India. *Asian Economic Journal*. <https://doi.org/10.1111/asej.12190>.
- Mohieldin, M., Hussein, K., & Rostom, A. (2019). On financial development and economic growth in Egypt. *Journal of Humanities and Applied Social Sciences*, 1(2), 70–86. <https://doi.org/10.1108/JHASS-08-2019-0027>
- Mohmand, Y. T., Wang, A., & Saeed, A. (2017). The impact of transportation infrastructure on economic growth: Empirical evidence from Pakistan. *Transportation Letters*, 9(2), 63–69. <https://doi.org/10.1080/19427867.2016.1165463>
- Munira, M. (2025). Digital Transformation in Banking: A Systematic Review Of Trends, Technologies, And Challenges. *Strategic Data Management and Innovation*. <https://doi.org/10.71292/sdmi.v2i01.12>.
- Natision, A., Esien, E., Harjo, D., Agoestyowati, R., & Lestari, P. (2022). The Effect of Public Accountability and Transparency on State Financial Management Mechanism: A Quantitative Method Analysis. *Ilomata International Journal of Social Science*. <https://doi.org/10.52728/ijss.v3i1.433>.

- Nsiah, A. Y., & Tweneboah, G. (2023). Determinants of financial inclusion in Africa: Is institutional quality relevant? *Cogent Social Sciences*, 9(1), 2184305. <https://doi.org/10.1080/23311886.2023.2184305>
- Ofori, I., Osei, D., & Alagidede, I. (2022). Inclusive growth in Sub-Saharan Africa: Exploring the interaction between ICT diffusion, and financial development. *Telecommunications Policy*. <https://doi.org/10.1016/j.telpol.2022.102315>.
- Okafor, V., Olurinola, I., Bowale, E., & Osabohien, R. (2023). Financial development and income inequality in Africa. *Humanities and Social Sciences Communications*, 10, 1-10. <https://doi.org/10.1057/s41599-023-01810-y>.
- Omowole, B., Omokhoa, H., Ogundej, I., & Achumie, G. (2023). Redesigning Financial Services with Emerging Technologies for Improved Access and Efficiency. *International Journal of Management and Organizational Research*. <https://doi.org/10.54660/ijmor.2023.2.1.128-141>.
- Phillips, P. C., & Perron, P. (1988). Testing for a unit root in time series regression. *biometrika*, 75(2), 335-346.
- Rafailov, D. (2019). Impact of Financial Infrastructure on Financial Development. *Izvestia Journal of the Union of Scientists - Varna. Economic Sciences Series*. <https://doi.org/10.36997/ijusv-ess/2019.8.2.83>.
- Raifu, I., Okunoye, I., & Aminu, A. (2023). The effect of ICT on financial sector development in Africa: does regulatory quality matter?. *Information Technology for Development*, 30, 424 - 451. <https://doi.org/10.1080/02681102.2023.2233458>.
- Republic of South Africa. (2023) Economy and finance. <https://www.gov.za/about-sa/economy>
- Schumpeter, J. A. (1911). *The theory of economic development*. Harvard University Press.
- Syarifuddin, S., & As'ad, A. (2024). The Role of Technology and Infrastructure in Improving Operational Efficiency. *Bata Ilyas Educational Management Review*. <https://doi.org/10.37531/biemr.v4i2.2414>.
- Tariq, M., Xu, Y., Muhammad, F., & Alam, K. M. (2019). The dirty energy dilemma via financial development and economic globalization in Pakistan: New evidence from asymmetric dynamic effects. *Environmental Science and Pollution Research*, 26(25), 25500–25512. <https://doi.org/10.1007/s11356-019-05752-4>
- Tchamyou, V., Erreygers, G., & Cassimon, D. (2018). Inequality, ICT and Financial Access in Africa. *Cyberspace Law eJournal*. <https://doi.org/10.2139/ssrn.3285323>.
- Tsaurai, K. (2025). Impact of Infrastructure Development on Foreign Direct Investment in BRICS Countries. *Journal of Risk and Financial Management*. <https://doi.org/10.3390/jrfm18030152>.
- Udeagha, M., & Breitenbach, M. (2023). Exploring the moderating role of financial development in environmental Kuznets curve for South Africa: fresh evidence from the novel dynamic ARDL simulations approach. *Financial Innovation*, 9, 1-52. <https://doi.org/10.1186/s40854-022-00396-9>.
- Uras, B. (2020). Finance and development: Rethinking the role of financial transparency. *Journal of Banking & Finance*. <https://doi.org/10.1016/j.jbankfin.2019.105721>.

- Uras, B. (2020). Finance and development: Rethinking the role of financial transparency. *Journal of Banking & Finance*.
<https://doi.org/10.1016/j.jbankfin.2019.105721>.
- Wasnik, A., & Jain, A. (2023). Government Support for Startups: A Comprehensive Analysis of Funding Initiatives and the Role of the Indian Government in Nurturing the Startup Ecosystem. *Journal of Economics and Business*.
<https://doi.org/10.31014/aior.1992.06.03.523>.
- World Bank. (2023) World development indicators.
<https://databank.worldbank.org/source/world-development-indicators#>
- Xu, F., & Wubishet, A. (2024). Analysis of the Impacts of Financial Development on Economic Growth in East Africa: How Do the institutional qualities matter?. *Economic Analysis and Policy*. <https://doi.org/10.1016/j.eap.2024.04.002>.
- Xu, J., Weng, J., & Yuan, R. (2023). Impacts of financial development on the energy consumption in China from the perspective of poverty alleviation efficiency. *Environmental Science and Pollution Research*, 30, 63647–63660.
<https://doi.org/10.1007/s11356-023-26759-y>
- Zhang, C., & Liang, Q. (2023). Natural resources and sustainable financial development: Evidence from South Asian economies. *Resources Policy*, 80, 103282.
<https://doi.org/10.1016/j.resourpol.2022.103282>