

Modelling the financial intermediation function of banks and economic growth in sub-Saharan Africa

Financial
intermediation
and economic
growth

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Abstract

Purpose – The purpose of this study is to investigate the effect of financial intermediation functions of banks on economic growth in sub-Saharan Africa.

Design/methodology/approach – The study employs data from 11 sub-Saharan African countries over the period 1970–2016. Using broad money supply, bank credit to the private sector and bank deposits as financial intermediation measures, the authors apply the random effects (RE) technique based on the recommendation of the Breusch–Pagan test.

Findings – The results show that except for bank deposits, broad money supply and bank credit to the private sector significantly influence economic growth. While broad money has a negative relationship with growth, bank credit to the private sector and bank deposits are positively correlated with economic growth.

Originality/value – The relationship between financial intermediation and economic growth remains unsettled, as results vary across countries. Besides, in developing countries' perspective, extant studies are largely focused on individual countries to investigate the financial intermediation-growth nexus. In this study, the authors take a different direction by employing a panel approach and thus adding to the few cross-country studies on the subject matter. Also, unlike other studies that have focused on a single indicator of financial intermediation, this study uses three indicators of financial intermediation which broadly reflect the intermediation functions of banks.

Keywords Financial intermediation, Economic growth, Sub-Saharan Africa, Random effects

Paper type Research paper

1. Introduction

In the economic literature, the effect of financial development on economic growth has been a debatable issue. This controversy has divided economists into two schools of thought (Levine, 1997). Some economists, based on Schumpeter's (1912) view, argue that financial development improves economic growth. Others who lend support to Robinson (1952) posit that growth rather drives financial development. For the impact of financial markets on economic growth, there are also two main opinions based on the propositions of Miller (1998) and Lucas (1988). While Miller (1998) stresses that financial markets accelerate economic

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growth, [Lucas \(1988\)](#) considers the financial markets-economic growth relationship to be overly emphasized.

Undoubtedly, one of the key factors influencing a country's economic growth and development is the stability of the financial system, with sustainable financial intermediation. The role of financial intermediaries cannot be overemphasized. In every economy, banks and other financial institutions serve as the main financial intermediaries mobilizing savers' funds and then lending them to individual/corporate investors. They also provide sufficient liquidity and techniques for risk-sharing. Financial intermediation and economic growth nexus over the decade has received much research attention especially in developing economies. While some researchers evidenced a positive link between financial intermediation and economic growth, others reported a negative relationship. This study seeks to contribute to the existing literature by examining the impact of financial intermediation on economic growth in sub-Saharan Africa. The paper contributes significantly to the literature in two ways. First, unlike other studies that focus on a single country in developing countries' perspective, this paper employs a panel approach consisting of eleven (11) sub-Saharan African countries with data spanning 1970–2016. Second, the study uses three indicators of financial intermediation instead of a single measure. These measures include broad money supply, bank credit to the private sector and bank deposits.

Applying the random effects (RE) technique, the results show that bank credit to the private sector and broad money supply has a significant impact on economic growth.

The rest of the paper is organized as follows. [Section 2](#) outlines the literature review. In [section 3](#), the methodology is explained. [Section 4](#) discusses the findings, and [section 5](#) concludes the study with recommendations.

2. Literature review

2.1 Theoretical background

[Schumpeter \(1911\)](#) was among the earlier scholars to first point out the link between finance and economic growth, and this has continued to be a topical issue in both developed and emerging economies. An efficient financial sector, as postulated by [Schumpeter \(1911\)](#), is needed to promote real sector growth, which in turn leads to economic growth. This phenomenon is discussed under the theme “supply-leading hypothesis”. The hypothesis explains how financial deepening leads to increased economic growth through optimum resource allocation ([Hurlin and Venet, 2008](#)). The presence of a well-developed financial system aids in creating innovative financial products and services as well as their accessibility in anticipation of their demand by economic units. [Robinson \(1952\)](#) pioneered a contrary view on the “supply-leading hypothesis”, claiming that financial deepening is motivated by economic growth. This perspective is based on the “demand-following hypothesis”. It infers that the chain of causality runs from economic growth to financial deepening. As the economy grows, so does the market for financial services, which deepens the financial sector.

2.2 The empirical literature

In terms of empirical study, the impact of financial intermediation on economic growth has been examined at both cross-country and country-specific levels, with inconclusive results. In a cross-country study, [Atindehou et al. \(2005\)](#) for example, empirically tested the relationship between financial intermediation and economic growth using West African countries in the Economic Community of West African States (ECOWAS). The panel vector autoregressive (VAR) model results revealed that financial intermediation has a direct effect on economic growth in the majority of the countries in the study. [Adusei and Afrane \(2013\)](#) analyzed how credit union intermediation influences economic growth in a multi-country study.

The authors reported a significant positive impact of financial intermediation on economic growth using the generalized method of moments panel technique on annual data for the years 1995–2011. [Bogdan and Opris \(2013\)](#) utilized different econometric methods to assess the effect of financial intermediation on economic growth using data from 28 countries from 2001 to 2010 in both developed and developing countries. Employing various measures of intermediation, the authors concluded that the level of financial intermediation has a positive impact on growth. [Zaghdoudi et al. \(2013\)](#) examined the effect of banking intermediation on economic growth with data covering from 1990 to 2009 for 10 countries within the Middle East and North Africa (MENA) region. Applying the generalized method of moments technique, the study found that banking intermediation irrespective of the intermediation measure negatively drives economic growth. Using panel data from 1991 to 2011, [Seven and Yetkiner \(2016\)](#) examined the impact of financial intermediation in 146 countries by classifying these countries into low-, middle- and high-income countries. The findings established that banking development as a measure of financial intermediation has a positive effect on economic growth in low- and middle-income economies. However, in high-income nations, the effect of banking development on growth is negative. Furthermore, in both medium- and high-income countries, the results found that the development of the stock market (a proxy for intermediation) and economic growth showed a positive correlation.

For country-level studies, [Ventura \(2008\)](#) examined the impact of financial intermediation on Colombian economic growth. Applying the autoregressive distributed lag (ARDL) method, the results outlined that financial intermediation has a positive and significant effect on economic growth in both the short and long run. Using the Johansen cointegration method, [Murty et al. \(2012\)](#) examined the long-run impact of financial intermediation on growth in Ethiopia. The findings show that bank credit to the private sector, as a measure of financial intermediation, has a significantly positive long-run effect on economic growth. [Amaira and Amairya \(2014\)](#) employed the VAR technique to analyze the relationship between financial intermediation and economic growth in Tunisia for the period 1980–2011. The findings noted a positive effect of financial intermediation on economic growth. Using the ARDL model with data extending from 1978 to 2015, [Tursoy and Faisal \(2018\)](#) demonstrated that deposit growth (a measure of financial depth) influences economic growth in Cyprus. Using annual data from 1970 to 2017, [Yakubu et al. \(2021\)](#) examined the effect of financial intermediation on economic growth in Turkey. To determine the long-run and short-run relationship between the variables, the authors applied the ARDL bounds testing to cointegration. The study revealed that financial intermediation has a significant impact on economic growth in both the short and long run. The impact, however, is only positive in the short run.

Conversely to the preceding findings, [Acha \(2011\)](#) found no direct effect of financial intermediation on Nigeria's economic growth. Likewise, [John and Nwemezie \(2019\)](#) revealed that financial intermediation in Nigeria does not stimulate growth. In Ghana, [Yeboah \(2020\)](#) assessed the influence of financial intermediation on economic growth over the period 1993–2018. Applying the ARDL technique, the author found that financial intermediation overall reduces economic growth.

Per the literature review, the relationship between financial intermediation and economic growth remains unsettled, as results vary across studies. In addition, few studies have used panel data to investigate this nexus. We aim to contribute to the inconclusive debate by exploring how financial intermediation affects economic growth in sub-Saharan Africa, thus adding to the few cross-country studies on the subject matter.

3. Methodology

3.1 Sample and data

The study uses annual data of eleven sub-Saharan African countries covering the period 1970–2016. The data are collected from the World Development Indicators of the World

Bank. The sample countries and the period are based on data availability. The selected countries include Ethiopia, Ghana, Kenya, Malawi, Mauritius, Mozambique, Namibia, South Africa, Tanzania, Uganda and Zambia.

3.2 Description of variables

The variables included in the study are presented in [Table 1](#). Real gross domestic product (RGDP) is the dependent variable. The independent factors are broad money supply, bank credit to the private sector and bank deposit serving as financial intermediation measures.

3.3 Model and estimation technique

This study takes a panel approach and the model can be generally expressed as:

$$Y_{it} = \alpha + \beta'X_{it} + \varepsilon_{it} \quad (1)$$

where the dependent factor is Y and X signifies the explanatory factors. The cross-sectional dimension of our data is denoted by i and the time dimension is indicated by t . α , β and ε represent the constant, coefficients of the independent factors and error term, respectively.

To empirically analyze the impact of financial intermediation on economic growth, the model can be further expanded as:

$$RGDP_{it} = \alpha_0 + \beta_1 BM_{it} + \beta_2 BPC_{it} + \beta_3 BD_{it} + \varepsilon_{it} \quad (2)$$

We apply the fixed and RE techniques as our estimation strategies. These techniques consider the group and time effects of panel data which is ignored in the ordinary least squares (OLS) estimation. To choose an appropriate technique, we perform the [Hausman \(1978\)](#) test. A probability value (p -value) of less than 5% statistical significance suggests the preference of the fixed effects (FE) technique, and thus the RE assumptions are rejected. A p -value greater than 5% means rejection of the FE model, and the OLS or the RE model is chosen based on the Breusch–Pagan test results.

4. Empirical results

4.1 Descriptive statistics

[Table 2](#) illustrates the descriptive statistics of all the variables. It explains the average and SD values of the variables. RGDP shows an average of 22.11% with a SD of 55.54%. The mean of

Table 1.
Description of variables

Variable	Explanation	Source
RGDP	Real gross domestic product	WDI
BM	Broad money supply as a percentage of GDP	WDI
BPC	Bank credit to the private sector as a percentage of GDP	WDI
BD	Bank deposit as a percentage of GDP	WDI

Note(s): WDI = World Development Indicators, World Bank Group

Table 2.
Descriptive statistics

Variables	Obs.	Mean	Std. dev.
RGDP	517	22.110	55.539
BM	517	29.076	17.998
BPC	517	21.193	20.094
BD	517	38.369	77.331

broad money is 29.08%. Bank credit to the private sector and bank deposits have average values of 21.19% and 38.37%, respectively. The SD value of bank deposits shows higher volatility while broad money is less volatile.

4.2 Correlation analysis

In Table 3, the correlation analysis is presented. Kennedy (2003) recommends that for variables to be free from multicollinearity, the correlation coefficients should not be greater than 0.80. Given this benchmark, we argue that our variables show weak correlation, hence the absence of multicollinearity. The variance inflation factor (VIF) analysis was further used to test for multicollinearity, as recommended by Gujarati (2003). When the VIF is greater than 10 and the tolerance value is less than 0.10, multicollinearity is possible. Table 3 findings, on the other hand, show that there is no multicollinearity among the variables. The VIF values are all less than 10, and tolerance values are greater than 0.10.

4.3 Regression results

The regression analysis on the relationship between financial intermediation and economic growth is presented in Table 4. From the estimation, the FE technique is rejected as the probability value of the Hausman test exceeds 5% significance level. The significance of the Breusch–Pagan test at 5% level justifies the use of the RE technique. Thus, the interpretations of the results are based on the RE method. The R^2 value in the RE estimation shows that the financial intermediation indicators predict 58.1% variations in economic growth. The Wald test suggests that our estimated model is valid.

From the RE estimation, broad money supply has a negative significant impact on economic growth. This suggests that an increase in money supply decreases economic growth. Specifically, as money supply increases by a percentage, economic growth decreases by 1.54%. This finding contradicts economic theory and some empirical results (Chaitip *et al.*, 2015; Dingela and Khobai, 2017).

Variables	BM	BPC	BD	VIF	Tolerance
BM	1.000			1.37	0.730
BPC	0.516***	1.000		1.37	0.732
BD	0.118***	0.103**	1.000	1.02	0.984

Note(s): *** $p < 0.01$, ** $p < 0.05$

Table 3.
Correlation matrix and
variance inflation
factor analysis

Variables	Pooled OLS	Fixed effects	Random effects
BM	-2.013*** (0.101)	-1.398*** (0.191)	-1.536*** (0.170)
BPC	2.404*** (0.0905)	2.205*** (0.199)	2.281*** (0.172)
BD	0.0117 (0.0203)	0.0113 (0.0228)	0.0113 (0.0224)
C	29.25*** (3.019)	15.59*** (4.145)	18.00*** (6.508)
R^2	0.597	0.572	0.581
Breusch–Pagan test λ^2 (Prob. > λ^2)			287.80 (0.000)
Hausman test χ^2 (Prob. > χ^2)		4.05 (0.256)	
F-statistics (Prob. > F-stats.)	253.54 (0.000)	41.47 (0.000)	
Wald-test χ^2 (3) (Pro. > χ^2)			176.92 (0.000)
Observations	517	517	517

Note(s): *** $p < 0.01$ Standard errors in parentheses

Table 4.
Regression results

The results show a positive and significant effect of bank credit to the private sector on economic growth. A percentage increase in credit supply to the private sector boosts economic growth by 2.28%. This means that as bank credit is channeled to productive sectors, output is enhanced. The result is in line with the supply-leading hypothesis.

The findings further evidence a positive though an insignificant influence of bank deposit on economic growth. The insignificant effect of bank deposit shows that it does not matter for growth in the selected sub-Saharan African countries.

5. Conclusion and recommendations

In the literature, diverse opinions exist on the relationship between financial intermediation and economic growth. This study seeks to contribute to the ongoing debates on the finance-economic growth nexus by investigating the impact of financial intermediation on economic growth in sub-Saharan Africa using three financial intermediation measures. The results found that except for bank deposits, broad money and bank credit to the private sector significantly influence economic growth. While broad money has a negative relationship with growth, bank credit to the private sector and bank deposits are positively correlated with economic growth. Based on the findings, the study recommends that banks in sub-Saharan Africa should expand their scope of credit to the private sector to be used for economic activities in order to enhance economic growth. Also, policymakers including bank regulators need to implement policies that would facilitate banks' intermediation activities to boost economic growth.

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