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Does Financial Inclusion Affect Poverty? An Analysis of Developing Countries

Vinay Kumar[1a]

[1] Department of Liberal Arts, Indian Institute of Technology Bhilai, India

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This study examines the poverty level of developing countries in terms of banking sector development and financial inclusion factors, using the panel data of 68 developing countries from diverse sources. This study used a fixed effects panel data regression. The results revealed a negative relationship between poverty level and banking-centered financial development including financial inclusion.

I. Introduction

This study examines how financial inclusion influences poverty in developing countries. I hypothesize that increasing financial inclusion reduces poverty based on evidence from global research projects showing an association between financial exclusion levels and poverty or economic progress. Financial inclusion refers to the ease with which formal financial services, such as bank deposits, credit, insurance, etc., are available to all members of an economy. In other words, a high level of inclusivity in a financial society denotes that the conditions in which the vast majority of an economy's participants use formal financial institutions enable them to benefit from financial services and achieve capital stability (Kim et al., 2018). It is estimated that around 30% of the worldwide population is financially excluded and has financial stability issues (GPFI, 2011). Uddin et al. (2012) show that there is a link between poverty and financial progress. They conducted their study using data collected in Bangladesh from 1976 to 2010. The outcome established a relationship between the banking sector's long-term growth and poverty reduction.

In this context, this study is essential because financial inclusion may help alleviate poverty by improving deposit and credit facilities for the poor and optimizing resource allocation. The World Development Report underlines the value of improving poor people's access to financial services, particularly credit and risk insurance, to boost their productive assets, increase their output, and expand their chances for long-term sustainability (World Bank, 2001).

Secondary data were used for this study. The panel data employed in this study covers 50 years, from 1970 to 2020, and includes 68 developing countries. These findings make two contributions to the existing literature; first, I establish a link between financial inclusion and poverty in developing nations. The importance of financial inclusion was proclaimed as one of the nine essential principles of the global development agenda at the G20 Summit in Seoul, South Korea (GPFI: Global Partnership for Financial Inclusion, 2011). Financial inclusion promotes local savings, which leads to more direct investment in domestic producers (Mlambo & Ncube, 2011). Multilateral agencies help increase dependency on the financial sector to eliminate poverty and enhance social inclusion and equality. Financial inclusion continues to achieve attention across the globe (Raymond et al., 2014), addressing world poverty, financial gain inequality, slow development, and welfare. It is believed that once everyone gains access to financial services, their joint contributions to the economy can produce a quicker and more quantitative impact. The study on gauging financial inclusion is in its initial stages but is continuously developing.

The second contribution of this study is related to the integration of banking sector development; I have used banking sector development as a control variable to measure the impact of financial inclusion on poverty. I focused on the role of banking sector development, specifically across sixty-eight developing countries. Due to the rising level of financial inclusion, the banking sector receives attention regarding competition and efficiency. Mlambo & Ncube (2011) used firm-level data from 1999 to 2008 to examine the emergence of competition and efficiency in the banking sector in South Africa. The study found that while overall efficiency increased over time, the number of efficient banks decreased. Sarma (2012) states that because of high-income inequalities, a country with a developed financial sector cannot constantly be developed financially alone.

a Corresponding author email: vinayk@iitbhilai.ac.in

II. Literature Review

Compared to upper-medium and high-income countries, financial conditions are not good in poor and lower-middle-income countries. This situation can emerge through any circumstance; previous research has mostly focused on banking sector development, stock market development, and poverty (Boukhatem, 2016; Lucas, 1988; Pradhan & Kumar, 2022). The association between the financial sector and economic expansion has received much attention. Some studies (Andrianova & Demetriades, 2008; Levine et al., 2000) indicate that development can be explained by domestic savings, capital accumulation, technical innovation, income growth, and financial determination. However, the financial sector's growth context is predicted to result in financial inclusion circumstances, which indicates that financial inclusion has a significant positive impact on economic growth. Meanwhile, (Kim et al., 2018) report that panel Granger causality tests show that financial inclusion and economic growth are mutually related. The development context in the financial sector is expected to lead to financial inclusion conditions. In recent decades, financial participants have focused more on financial inclusion. This is due to data from global research projects showing a connection between financial exclusion levels and poverty or economic progress. However, to develop a comprehensive definition of financial inclusion, Sarma (2012) discussed several dimensions, including accessibility, availability, and usability of the financial services available for members of an economy.

Regarding the impact of financial inclusion on poverty and inequality, Omar & Inaba (2020) investigated the influence of financial inclusion on poverty reduction and income inequality reduction. They found that financial inclusion dramatically lowers poverty and reduces income disparity. Furthermore, extending financial inclusion to the marginalised population helps to maximise overall social well-being. The mechanism whereby financial institutions enable the transfer of financial resources from surplus to deficit units in the economy and improve financial intermediation and economic growth by reducing market flaws (Gurley & Shaw, 1955). According to Babajide et al. (2015), financial inclusion promotes local savings and improvement in local investment. Jalilian & Kirkpatrick (2005) investigate how financial development helps developing nations in reducing poverty. Studies show that financial sector expansion, up to a threshold level in economic development, lowers poverty by having a growth-enhancing effect. In a study ranging from 2008 to 2017, Vo et al. (2021) utilised a dataset of 3,071 banks. The results from a Generalized Method of Moments (GMM) show that a higher degree of financial inclusion positively and considerably impacts bank resilience. Ahamed & Mallick (2019) analysed panel data to assess a sample of 2,600 banks in 86 countries from 2004 to 2012 to study financial inclusion and bank stability. They indicated that greater bank stability is correlated with higher levels of financial inclusion. The positive correlation is especially evident for banks that operate in countries with superior institutional quality, which have larger customer deposit funding shares and lower marginal costs for providing banking services.

III. Research Methodology

A. Data

I have used secondary data to estimate the hypothesis. The panel data range from the 1970s to the 2020s and includes 68 developing countries. The data were collected from various sources, including the Central Bureau of Statistics, World Bank Indicators, the Financial Services Authority, and the Bureau of Statistics. A detailed explanation of the data and the definitions are available in Table 1.

B. Estimation technique

This study used the fixed effects estimation approach to determine individual effects on various cross-sections of poverty statuses which can be affected by financial inclusion and banking sector development factors. To estimate the parameters of different combinations of the variables of interest, I estimated the four fixed effects models for each alternative poverty measurement with multiple combinations of explanatory variables (e.g., poverty gap and headcount ratio). The four-equation specification shows the impact of the combination of independent and control variables of macroeconomic factors on poverty.

For the analysis, the fixed effects regression model has the following specifications:

$$\begin{aligned} LnPGAP_{it} = {} & \alpha_1 LnDWCB_{it} + \alpha_2 LnCBB_{it} \\ & + \alpha_3 LnBFCB_{it} + Ctrl \\ & + States + \epsilon_{it} \end{aligned} \quad (1)$$

$$\begin{aligned} LnPHR_{it} = {} & \beta_1 LnDWCB_{it} + \beta_2 LnCBB_{it} \\ & + \beta_3 LnBFCB_{it} + Ctrl \\ & + States + \epsilon_{it} \end{aligned} \quad (2)$$

where, *LnPGAP* and *LnPHR* are the two different poverty measurements - log of poverty gap and log of poverty headcount ratio, respectively; *LnDWCB* represents log of deposit with commercial banks), *LnCBB* denotes log of the number of commercial bank branches, and *LnBFCB* indicates log of the number borrower from commercial bank - represent three financial inclusion indicators; *Ctrl* is the vector of control variables such as *LnDCPS* (log of domestic credit to the private sector by banks), *LnUnemployment* (percentage of the total labour force), *LnRGDP* is Real GDP per capita growth, and *LnGEE* shows expenditure on education in log (percentage of GDP); and *States* is the dummy variables for different countries.

IV. Results and Discussions

The fixed effects model is analyzed using multiple regression in subsequent estimations. Two sets of models (1, 2, 3, and 4 as well as 5, 6, 7, and 8) are presented in this analysis concerning alternative measurements of poverty. The poverty gap and poverty headcount ratio are endogenous factors, and the regression findings indicate the impact of banking sector development is negatively related to poverty, and the result is significant in both models. The financial inclusion variables' coefficients are negative in the

Table 1. Summary statistics

Variables	Measures	Sources	Mean	Std. Dev.	Min	Max
Panel A: Dependent variables						
Poverty gap (PGAP)	The mean shortfall in income or consumption from the poverty level of $1.90 per day (2011 PPP).	World Bank indicator	6.719	9.938	0.1	62.2
Poverty Headcount Ratio (PHR)	The poverty headcount ratio at $1.90 a day is the percentage of the population living on less than $1.90 a day at 2011 international prices.	World Bank indicator	17.432	22.152	0.1	91.8
Panel B: Control variables						
Domestic credit to the private sector by banks (DCPS)	DCP/GDP used as the proxy for the banking sector development refers to the financial resources provided to the private sector as a percentage of GDP, including loans, trade credits, and other accounts receivable with a claim for repayment.	International Monetary Fund, International Financial Statistics and data files, and World Bank and OECD GDP estimate	28.393	26.719	0.498	182.433
Unemployment (percentage of the total labour force), (unemployment)	Net unemployed people out of the total labour force.	International Labour organization	14.049	10.63	0.37	60.83
Real GDP per capita growth (RGDP)	The annual growth rate of real GDP per capita is expressed as the percentage change in real GDP per capita between two consecutive years.	World Bank indicator	1.583	5.603	-64.99	53.97
Expenditure on education (Percentage of GDP), *(GEE)*	Total expenditure on education percentage of GDP.	World Bank indicator	3.873	1.954	0	44.33
Panel C: Explanatory variables						
Deposit with commercial banks (DWCB)	Accessibility: Deposits accounts with commercial bank per one thousand adults.	International Monetary Fund, Financial Access Survey	465.861	520.33	1.17	3383.36
Commercial bank branches (CBB)	Availability: Commercial bank branches per one hundred thousand population.	International Monetary Fund Financial Access Survey	9.929	9.625	0.36	68.81
Borrower from a commercial bank (BFCB)	Usability: Borrower from the commercial bank per one thousand adults.	International Monetary Fund, Financial Access Survey	140.125	169.873	0.38	871.79

This table reports selected descriptive statistics (mean, standard deviation (SD) min and max) of data used in this study. We categorise data into three samples: Panel A reports the endogenous variables (*LnPGAP and LnPHR*), while the control variables (*LnDCPS, LnUnemployment, LnRGDP, LnGEE*) are given in Panel B. Panel C reports a descriptive statistics of explanatory variables (*LnDWCB, LnCBB, LnBFCB*).

Table 2. Fixed effects result

	LnPGAP (1)	*LnPGAP* (2)	*LnPGAP* (3)	*LnPGAP* (4)	*LnPHR* (5)	*LnPHR* (6)	*LnPHR* (7)	*LnPHR* (8)
LnDCPS	-1.254***	-1.531***	-1.746***	-1.406***	-1.534***	-1.966***	-2.108***	-0.999*
	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)	(0.045)
LnDWCB	-0.352***	-0.431***	-0.396***	-0.436**	-0.123	-0.105	-0.076	-0.349
	(0.004)	(0.007)	(0.007)	(0.050)	(0.366)	(0.558)	(0.662)	(0.172)
LnCBB	0.0350	0.016	0.148	-0.693	-0.082	-0.213	-0.119	-1.078**
	(0.891)	(0.959)	(0.610)	(0.135)	(0.781)	(0.550)	(0.734)	(0.042)
LnBFCB	0.249**	0.436***	0.402***	0.372**	0.108	0.324*	0.295*	0.212
	(0.048)	(0.006)	(0.007)	(0.033)	(0.459)	(0.077)	(0.099)	(0.297)
LnRGDP		-0.142	-0.064	-0.037		0.0807	0.139	0.047
		(0.273)	(0.601)	(0.770)		(0.569)	(0.319)	(0.728)
LnUnemployment			-0.444***	-0.471**			-0.354*	-0.195
			(0.007)	(0.018)			(0.069)	(0.388)
LnGEE				-0.631				-0.320
				(0.201)				(0.541)
F-value	17.82	12.41	13.11	10.45	18.94	13.62	12.72	7.20
Adj R^2	0.302	0.284	0.377	0.483	0.441	0.370	0.428	0.570

This table reports the fixed effects regression results for two sets of equations. Each regression equation has four sets of models. *, **, and *** denotes statistical significance at 1%, 5%, and 10% levels, respectively.
Notes: *P*-value in parentheses. $^{*}p < 0.10$, $^{**}\ p < 0.05$, $^{***}\ p < 0.01$

first set of the "Poverty Gap" model, indicating that more financial inclusion lowers the level of poverty. This is consistent with studies done by Beck et al. (2007), Ahlin & Jiang (2008), and Odhiambo (2010) that examined how the growing financial sector reduces poverty. Accessibility was significant and negative in the 1st set of models, but availability was significant—only for the regression results of PHR (8)—and negative in the 2nd set of models. Usability, which was unexpectedly significant and positive, may be explained by unproductive use of financial resources. Otherwise, a lack of human capital, different educational levels across the country, or slow banking sector development led to this outcome. Regarding control variables, per capita GDP growth had a negative but insignificant effect on poverty level. The unemployment level showed a significantly negative effect on poverty level. Expenditure on education had a negative and the unemployment significant effect on poverty level.

V. Conclusions

In conclusion, this research paper provides empirical evidence of a negative relationship between financial inclusion factors and poverty level. Additionally, banking sector development shows a negative relationship with poverty. Financial inclusion contributes significantly to poverty reduction, irrespective of the indices of poverty level and utilisation of financial inclusion. Reducing poverty levels in the banking sector and developing financial inclusion enhances poor people's accessibility to a variety of financial options and increases their ability to start new businesses and improve small and medium-scale enterprises. Financial inclusion is an issue that negatively impacts the poor in society and decelerates banking sector development. Although, banking sector development in developing economies has a substantial impact on the poor and supports the benefits of financial inclusion. It states that a small change in banking sector development may have a significant impact on poverty reduction.

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