

## Financial Development: Does it Contribute to Poverty Reduction in Developing Countries?

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### ABSTRACT

This paper employs panel estimation techniques to investigate how a detailed index of financial development comprised of multiple indicators of financial deepening influences the prevalence of poverty in a selected twenty developing countries from 2004 to 2021. The results of the selected fixed effect model indicate the significant effect of financial development index on alleviation of poverty. The application of the Robust Least Square technique further strengthens our findings. Thus, governments should pursue financial development policies that facilitate access to financial services by low-income and financially disadvantaged families, like the establishment of more banks, microfinance institutions, and mobile banking solutions. The achievement of the Sustainable Development Goals (SDGs) will result from increased financial inclusion.

### ملخص

تستخدم هذه الورقة تقنيات تقدير القائمة لبحث كيفية تأثير المؤشر التفصيلي للتنمية المالية الذي يتكون من مؤشرات متعددة للتعميق المالي على انتشار الفقر في عشرين دولة نامية من عام 2004 إلى 2021. وتشير نتائج نموذج التأثير الثابت المختار إلى التأثير الكبير لمؤشر التنمية المالية على التخفيف من حدة الفقر. إن تطبيق تقنية المربعات الصغرى القوية يعزز النتائج التي توصلنا إليها. لذلك يتعين على الحكومات اتباع سياسات التنمية المالية التي تسهل الوصول إلى الخدمات المالية للأسر ذات الدخل المنخفض والمحرومة ماليا، مثل إنشاء المزيد من البنوك، ومؤسسات التمويل الأصغر، والحلول المصرفية عبر الهاتف المحمول. وتحقيق أهداف التنمية المستدامة رهين بمدى زيادة الشمول المالي.

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## RÉSUMÉ

Ce document utilise des techniques d'estimation par panel pour étudier comment un indice détaillé de développement financier composé de multiples indicateurs d'approfondissement financier influence la prévalence de la pauvreté dans une sélection de vingt pays en développement entre 2004 et 2021. Les résultats du modèle à effet fixe sélectionné indiquent l'effet significatif de l'indice de développement financier sur la réduction de la pauvreté. L'application de la technique des moindres carrés robustes renforce encore nos conclusions. Par conséquent, les gouvernements devraient poursuivre des politiques de développement financier qui facilitent l'accès aux services financiers pour les familles à faible revenu et financièrement défavorisées, comme la création d'un plus grand nombre de banques, d'institutions de microfinance et de solutions bancaires mobiles. La réalisation des objectifs de développement durable (ODD) résultera de l'augmentation de l'inclusion financière.

**JEL Classification:** G20, J36, O15

**Keywords:** Financial Development, Poverty, Developing Countries

### 1. Introduction

Market failures and flaws in the financial system, which frequently hinder those who cannot borrow for investment for future earnings, are fundamental causes of poverty (Stiglitz, 1998). By promoting economic growth, financial development can also indirectly affect the quality of life of those with low incomes (World Bank, 2001, b).

This paper intends to explore financial development and poverty nexus in developing nations (as categorized by the World Bank)<sup>4</sup>. This study uses data from 20 developing countries from 2004-2021 and employs panel estimation techniques, which limited studies have utilized. Further, this study formulates a detailed index of financial development using principal component analysis by considering several indicators explaining financial deepening.

Financial development generally includes the process of augmenting and enhancing financial institutions and services, including but not limited to

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<sup>4</sup> List of sample countries is provided in appendix

banks, microfinance organizations, and credit unions. The improved availability of financial services facilitates the ability of individuals, particularly those residing in economically deprived places, to efficiently engage in saving, borrowing, investing, and effectively managing their financial resources. Access to savings accounts and credit can be crucial for those experiencing poverty, enabling them to effectively manage their spending patterns and engage in productive investments. Ultimately, this financial inclusion can contribute to their upward socioeconomic mobility, improving their overall living conditions and a potential escape from the cycle of poverty.

Holden and Prokopenko (2001) noted that financial development promotes economic growth by alleviating poverty and generating employment opportunities for the impoverished. Arestis and Caner (2004) contended that giving the poor enough access to consumption-smoothing mechanisms is crucial to reducing poverty. Numerous measures must be considered to accomplish this goal. The first step in facilitating small-scale debtors is to revise how financial institutions evaluate credit to determine lending requirements. The second step is to provide the institutional and legal foundation needed for practices of alternate lending, like group lending. The availability of funding and credit services is as important as safety nets and education for those living in poverty.

Beck *et al.* (2007) highlighted two channels through which development in the financial sector impacts poverty: Firstly, boosting economic development and secondly through, decreasing inequality. Using the OLS regression technique, some studies have empirically demonstrated that advancement in the financial sector contributes to poverty depletion in developing nations (Jalilian Kirkpatrick, 2001; Beck *et al.*, 2004). According to the Financial Development Report 2019/2020, financial crises exposed significant deficiencies in regulations of the market and legislation and reopened policy discussions on finance. To promote the coordinated formulation and implementation of effective regulatory, supervisory, and financial sector policy scale on a global scale, G-20 has given this responsibility to the Financial Stability Board.

Studying the relationship between financial development (FD) and poverty reduction in developing countries is crucial for several reasons. Firstly, FD provides individuals and businesses with better access to capital. This access can help entrepreneurs start or expand businesses,

leading to job creation and income generation, ultimately reducing poverty. Secondly, the impact of FD on poverty is closely linked to the concept of financial inclusion, and this inclusivity can empower people economically and help them lift themselves out of poverty. A developed financial sector can channel funds towards productive activities such as agriculture, small and medium enterprises (SMEs), and infrastructure projects. This allocation of resources to productive sectors stimulates economic growth and enhances income opportunities for the poor. Fourthly, A well-developed financial system provides mechanisms for risk mitigation, preventing individuals from falling deeper into poverty due to unexpected events. Further, understanding the role of FD in poverty reduction contributes to achieving sustainable development goals (SDGs) that most developing countries are trying to attain.

Considering the level of financial development and its relation to the incidence of poverty in the panel of developing countries using a broad index covering different features of the prevailing financial systems highlighting their functions of financial intermediation, reduction of transaction cost, provision of liquidity, efficient allocation of funds and risk management is important for evaluating a more appropriate nature of the underlying relationship.

The study is distinctive because this paper uses different and unique indicators of the banking sector that have not been used before. These indicators highlight different features of financial system highlighting the role of the financial sector as the intermediary. Moreover, the study analyzes panel data from 20 developing countries used in limited studies. Further, to examine poverty incidence, this study uses the most recent poverty line of \$2.15, recently updated by the World Bank in 2022, and increased it from \$1.90 using 2017 Purchasing Power Parities (Filmer *et al.* 2022).

Development in the financial system is important because of the efficacy of a financial system in its ability to allocate resources more efficiently, facilitating the transfer of funds from savers to borrowers who can utilize the capital productively. The strategic deployment of resources towards businesses that exhibit high potential and productivity can foster economic progress and generate avenues for individuals to alleviate poverty.

The availability of finance facilitated by a robust financial infrastructure can empower individuals to initiate or enhance entrepreneurial ventures. The pursuit of entrepreneurship has the potential to provide employment opportunities, encompassing not only the entrepreneurs themselves but also the individuals they hire. The establishment of employment possibilities serves as a direct means to alleviate poverty, as it offers income prospects for individuals currently unemployed or working in positions that do not fully use their skills and abilities.

This study would be helpful for public policy making because promoting the financial sector has a pivotal role in eliminating poverty in developing nations. Financial development also relates to sustainable development because it increases economic growth through higher industry production and literacy rates, thus boosting sustainable development (Ozili, 2022).

## **2. Literature Review**

The promotion of savings and investment is encouraged through financial development, fostering capital formation. The availability of financial institutions increases the likelihood of individuals engaging in saving practices, enabling them to allocate funds towards investments in education, healthcare, and income-generating endeavors. These investments can potentially increase earnings and, as a result, contribute to eliminating poverty.

If financial liberalization is not accompanied by changes to address information issues, it will benefit the wealthy, and income inequality will increase (Banerjee and Newman, 1993; Galor and Zeira, 1993; Piketty, 1997). According to some arguments, one of the primary causes of ongoing poverty is a lack of access to financing (Levine, 2008).

The theory makes contradictory predictions regarding how financial development will affect the income level of the poor and its distribution. According to Singh and Huang (2011), if financial markets were ideal, people would be able to afford possibilities based only on their own talent and initiative for education, training, or business ownership rather than on the wealth of their parents. Households may benefit the most when financial markets develop and financial access increases for the people who had no prior access to finance. According to this theory, lowering

poverty would equalize chances through promoting financial development.

No clear consensus has been reached in current papers on the connection between poverty and financial progress. Some contend that by enabling more entrepreneurs to acquire funding, capital distribution is accelerated by financial development, which has a huge impact on those with low incomes (Jauch and Watzka, 2016). Others contend that the wealthy and well-connected are the main beneficiaries of financial sector changes (Singh and Huang, 2015).

Empirical research has yielded mixed results. According to research by Beck *et al.* (2007), Honohan (2004), and Jalilian and Kirkpatrick (2002), the level of financial intermediation significantly boosts the income of those who are in poverty. Kraay (2002) calculated the financial depth by dividing total bank assets by commercial bank assets and dividing the measure of the financial development (M2) by Gross Domestic Product in order to investigate the changes in absolute poverty in a sample of developing nations. According to the findings, poverty is decreased through financial progress.

Guillaumont-Jeanneney and Kpodar (2008) also discovered how financing contributes to reducing poverty. According to their analysis of a sample of emerging nations, there is a link between progress in financial sectors and poverty if the ratio of liquid liability (M3) to GDP is used to gauge financial development. The association is statistically insignificant when private credit is used as a substitute. The potential causal relationships between financial development and poverty in developing countries were empirically investigated by Perez-Moreno (2011). By adapting the normal Granger causality test to perform short-time analyses, Author employed an altered version of the test, and the findings supported the idea that financial development during the 1970s and 1980s, as indicated by the percentage of GDP that was made up of liquid financial system assets or by money and quasi-money, was responsible for the decline in moderate poverty.

Using two-stage least squares, Donou-Adonsou and Sylwester (2016) examined the financial development and poverty linkages in 71 developing countries between 2002 and 2011. When the poverty

headcount ratio and the poverty gap are utilized as indicators of poverty, the authors discovered that financial progress lowers poverty. According to other studies, there was no discernible impact on poverty in the case of the squared poverty gap. Other studies (including Boukhatem, 2016; Khan and Khan, 2023) examined how financial development aids with regard to lowering poverty in developing nations using GMM techniques.

Financial development and poverty in Africa from 1996 to 2015 was reviewed by Segun *et al.* in 2022. The findings indicated that while relative poverty remains unaffected, financial development has a lower influence on poverty. Private lending helps people out of poverty, while overall financial development does not impact African countries. In a different study, LU and Dilanchiev (2022) used panel data from 1996 to 2020 and a new generation causality analysis to investigate the financial development and poverty relation in the growing black sea economies. The authors concluded that increasing per capita household consumption expenditure through domestic loans to the private sector effectively reduced poverty.

Considering the reviewed literature, our study has a contributory role by providing extensive coverage of relevant indicators through a composite index, more carefully capturing the stance of financial deepening or financial development. The index includes broad coverage of indicators of financial development, including private credit by deposit money banks, deposit money bank assets, deposit money bank assets to deposit money bank and central bank assets, domestic credit to the private sector, financial system deposits to GDP, central bank assets to GDP, private credit by deposit money banks and other financial institutions to GDP, liquid liabilities to GDP, Life insurance premium volume to GDP, nonlife insurance premium volume to GDP, Insurance company assets to GDP and bank branches. This index aids in analyzing how financial development affects poverty in 20 developing economies.

### **3. Methodology**

The problem of poverty is significant because it involves broader prospects than a lack of income and other financial and productive resources to ensure sustainable livelihoods. The financial development Index that we made in this study is created from several important indicators, i.e., private credit by deposit money banks, deposit money

bank assets, deposit money bank assets to deposit money bank and central bank assets, domestic credit to the private sector, financial system deposits to GDP, central bank assets to GDP, private credit by deposit money banks and other financial institutions to GDP, liquid liabilities to GDP, Life insurance premium volume to GDP, non-life insurance premium volume to GDP, Insurance company assets to GDP and bank branches. These most important financial development indicators deeply affect the poverty level in developing countries.

$$POV_{it} = FD_{it} + GRPGDP_{it} + INF_{it} + PGR_{it} + ADR_{1it} + ADR_{2it} + \varepsilon_{it}$$

Where,

$POV_{it}$  = poverty headcount ratio

$FD_{it}$  = Financial Development Index

$GRPGDP_{it}$  = Growth of per capita gross domestic product

$INF_{it}$  = Inflation Rate

$PGR_{it}$  = Population Growth Rate

$ADR_{1it}$  = Dependency ratio the population of working age under 15

$ADR_{2it}$  = Ratio of dependents older than 64 to the working age population

$\varepsilon_{it}$  = stochastic disturbance term

#### 4. Data and Variables

Data are a vital part of any research work. For reliable estimates, we need representative data. For this purpose, the study utilizes World Development Indicators (WDI) data. Research is based on imbalanced panel data from 2004 to 2021. This is the most comprehensive data for the said topic because the financial development index is constructed from many indicators that affect poverty at the micro level. Further, it covers the annual data of 20 developing countries. Following table 1 describes the variable description.



**Table 1:** Variables Description, Notations and Sources

<b>Variable</b>	<b>Notation</b>	<b>Description</b>	<b>Source</b>
<b>Poverty Headcount ratio</b>	<i>POV</i>	Percentage of the population that is in poverty. We are utilizing a \$2.15 per day poverty threshold.	<i>WDI</i>
<b>Financial Development</b>	<i>FD</i>	Financial Development Index, created from a number of indicators of financial development (discussed in methodology) using principal component analysis.	<i>WDI</i>
<b>Per Capita Gross Domestic Product</b>	<i>Per Capita GDP</i>	Gross Domestic Product is divided by the population.	<i>WDI</i>
<b>Population Growth rate</b>	<i>PGR</i>	It is yearly Population growth rate that is the expanding growth of the average population from year t to t-1 in terms of percentage.	<i>WDI</i>
<b>Inflation rate</b>	<i>INF</i>	Annual percentage change in the cost to the average consumer of acquiring goods and services that may be fixed or changed at specified intervals, such as yearly.	<i>WDI</i>
<b>Age Dependency Ratio<sub>1</sub></b>	<i>ADR<sub>1</sub></i>	The ratio of younger dependents that are younger than 15, in a working population.	<i>WDI</i>
<b>Age Dependency Ratio<sub>2</sub></b>	<i>ADR<sub>2</sub></i>	The ratio of older dependents in a working population, that are older than 64.	<i>WDI</i>

#### 4.1 Summary Statistics

Table 2 provides variables description related to developing countries. A variable's average is measured by its mean value. The variable's standard deviation is used to calculate variable variations and quantify how much the variable deviates from its mean value. In a similar manner, the maximum and minimum values reveal the variables' highest and lowest values.

**Table 2:** Descriptive Statistics

Variable	Mean	Std. Dev	Min	Max
<b>POV</b>	5.495	6.443	0.1	39.9
<b>FD</b>	5.00	2.557	-3.396	10.173
<b>GRPGDP</b>	0.075	0.110	-0.427	0.458
<b>INF</b>	6.643	5.670		
<b>PGR</b>	1.264	0.661	-2.491	39.178
			-0.767	2.716
<b>ADR<sub>1</sub></b>	44.073	16.780	21.294	103.144
<b>ADR<sub>2</sub></b>	10.690	3.914	5.500	23.128

## 5. Empirical Results

This section presents the study's empirical results of developing countries. However, we started our analysis with a large sample of developing countries, but the unavailability of data for the construction of financial development index made us consider only 20 countries over the period 2004-2021 for analyzing the effect of financial development on the incidence of poverty. Our model of interest consists of the poverty headcount ratio (*POV*), as the dependent variable. We are using  $POV_{it}$  as the Headcount Ratio at \$2.15/per day for developing countries.

### 5.1: Results and Discussion

Table 3 presents the results to measure the links between financial development and poverty in 20 developing countries by employing fixed and random effects. Then, the Hausman test is applied. Table 3 declares the empirical findings .

H0: random effects is preferred, H1: fixed effects is preferred

**Table 3:** Impact of Financial Development on Poverty  
[Dependent Variable: Poverty Headcount Ratio (POV)]

	Fixed	random
	b/se	b/se
<b>FD</b>	-1.2149*** (0.4053)	-0.6917** (0.3321)
<b>GRPGDP</b>	2.3395** (1.0983)	4.2871** (2.0329)
<b>INF</b>	0.0791* (0.0446)	0.0998** (0.0464)
<b>PGR</b>	4.0737*** 1.19266	3.4759*** (1.1196)
<b>ADR<sub>1</sub></b>	0.4422*** (0.0664)	0.2649*** (0.0547)
<b>ADR<sub>2</sub></b>	0.5357** (0.2582)	-0.0431 (0.2124)
<b>Constant</b>	-25.9079*** (4.7478)	10.5953*** (4.1585)
<b>R-squared</b>	0.429	0.409
<b>Chi square</b>	45.43	
<b>Probability (Hausman Test)</b>	0.000	

The table reports the Fixed and random results for the relationship of poverty and financial development. Poverty Headcount Ratio (POV), which denotes the national poverty line of \$2.15/per day, is the dependent variable.

*Note* \*\*\*, \*\*, \* depict 1%, 5% and 10 % significance level, respectively

Hausman test reveals that fixed effect is more appropriate than random effect. So, we are using fixed effect results. The estimated coefficient of Financial Development in our results is -1.214, which shows that it has a 1% level of significance and negative impact on poverty. With the 1 percentage point increment in the financial development index, poverty will decrease by -1.214 % in developing countries. Ma (2023) examined the nexus of financial development and poverty in South Asian Countries.

The data used in the research paper ranging from 1990-2019 revealed that , financial development led to a decline in poverty in South Asian nations. The model results suggested that poverty reduction is strongly affected by financial development, regardless of econometric technique. Sehrawat and Giri (2016) and Rewilak (2017) also discovered a similar relationship between poverty and financial development.

Our results indicate that when the general price level increases, the problem of poverty is further aggravated. Inflation may be considered as the 'cruellest tax' [Cardoso (1992)]. Inflation, according to Cardoso (1992), worsens poverty in two ways: first, by reducing disposable real income and second, by automatically lowering workers' real pay when the cost of products wage earners buy rises faster than their nominal earnings do. People's capacity to make ends meet and rise out of poverty is hampered when their wages do not rise in tandem with growing prices.

As a result of inflation, money loses purchasing power. When prices for goods and services increase, the same quantity of money buys fewer goods and services. As a result, those with fixed incomes, such as retirees or those with low wages, may find it increasingly difficult to pay for essentials such as food, accommodation, and healthcare, thereby reducing their standard of living. Inflation typically has a more significant impact on the prices of food and utilities. Low-income households devote a greater percentage of their income to these necessary expenses, so even moderate inflation can strain their finances and increase their risk of falling into poverty.

The coefficient of PGR (Population growth rate) is 0.078, which shows that when population growth increases, poverty increases by 4.0737 %. De Santis *et al.* (1999) explored the positive nexus between population growth rate and poverty in developing countries. As the population grows, there may be a greater demand for natural resources, including land, water, and forests [World Development Report, 2008]. Lack of resources can lower agricultural productivity and restrict access to essentials, which could increase poverty levels. Rapid population growth may outpace job creation, leading to higher rates of underemployment and unemployment. A large and growing labor force may have trouble finding good jobs, which would increase the poverty rate, especially among young people.

The coefficient of per capita GDP is 2.339, which is positive and significant. With the increase in GDP, poverty did not reduce. This positive relation is also found by Hassan (2015) in Nigeria. If there are barriers to education, healthcare, and basic utilities, people may not be able to fully take advantage of chances for economic advancement. Even in the presence of general economic growth, people may find themselves trapped within the cycle of poverty without certain enabling factors.

The ability of the most deprived parts of society to benefit from economic progress may be limited in cases when per capita GDP increases if income distribution continues to show considerable levels of inequality. In such circumstances, despite an increase in average salary levels, a sizeable portion of the population may nevertheless live in poverty.

Estimated coefficients of adult dependency ratios,  $ADR_1$  (younger age dependency ratio) and  $ADR_2$  (old age dependency ratio), are positive and highly significant, like the findings of Eastwood and Lipton (1999) and Bloom *et al.* (2001). A larger dependency ratio imposes a heightened financial obligation on the working-age population to assist the dependent segments comprising young and older adults. This can potentially restrict the amount of disposable income allocated towards savings, investments, or enhancing living conditions, exacerbating families' challenges in alleviating poverty.

Particularly in resource-constrained societies, high dependency ratios can put a burden on social services and safety nets. Governments may find it challenging to give recipients enough social aid, healthcare, and education. Lack of access to basic services may keep people in poverty. Because most of their income is spent on providing for dependents, households with a high dependence ratio may find it difficult to save or invest. This might make it harder for people to become wealthy and escape poverty.

We also employed Robust Least Square for the robustness of results. We found that estimations are generally similar. Robust Least Square estimations are reported in Table 4.

**Table 4:** Impact of Financial Development on Poverty  
[Dependent Variable: Poverty Headcount Ratio (POV)]

<b>Robust Least Square</b>	
<b>FD</b>	0.1274* (0.0673)
<b>GRPGDP</b>	10.3960*** (3.3642)
<b>INF</b>	0.1130* (0.0694)
<b>PGR</b>	2.3615*** (0.5965)
<b>ADR<sub>1</sub></b>	0.0798*** (0.0214)
<b>ADR<sub>2</sub></b>	-0.2557*** (0.0612)
<b>R-squared</b>	0.1588
<b>Adjusted R-squared</b>	0.1431
<b>Durbin Watson Stat</b>	0.1392

Note \*\*\*, \*\*, \* depict 1%, 5% and 10 % significance level, respectively

## 6. Conclusion and Policy Implications

A number of studies attempted to evaluate the role of financial development in poverty elimination at the country level and in small groups of developing countries. In this paper, we have tried to provide a detailed analysis of the relationship of financial development with poverty by considering a relatively large sample of 21 developing countries over the period 2004-2021 and have developed a comprehensive index of financial development which is hardly used for developing countries in any other study. The study observed that in order to mitigate poverty in developing nations, financial development is essential. More reforms are needed in the financial sector, especially the capital market.

We can draw the following policy implications and recommendations based on our results.

- Governments and organizations frequently employ financial intermediaries to disburse social assistance, subsidies, and conditional cash transfers to specific recipients. A resilient financial system can enhance the efficacy and transparency of poverty alleviation initiatives, hence facilitating the targeted delivery of assistance to individuals who need aid.
- As financial systems develop, a frequent goal is to enhance financial literacy and inclusiveness. This initiative provides individuals with the necessary knowledge and resources to make well-informed financial choices, efficiently manage their finances, and prevent themselves from becoming trapped in cycles of poverty.
- It is imperative to acknowledge that the influence of financial development on alleviating poverty might exhibit variability contingent upon the particular setting and the implemented policies. Furthermore, To enhance the contribution of financial development to the fight against poverty, it is crucial to implement supplementary measures such as social safety nets, education, and healthcare. These elements are interrelated and play a crucial part in addressing the multifaceted aspects of poverty.

Future research can use stock market and banking sector variables for developing and developed economies.

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**Data Availability**

My manuscript has associated data in a data repository.

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**Competing Interest:**

The authors declared that they have no competing interest

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### Appendix List of Developing Countries

NO	Country	Country
1	Albania	Iran, Islamic Rep.
2	Brazil	Moldova
3	China	Mongolia
4	Colombia	Pakistan
5	Costa Rica	Panama
6	Dominican Republic	Paraguay
7	Ecuador	Peru
8	Hondrous	Thailand
9	India	Turkiye
10	Indonesia	Uruguay