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Financial Development, Economic Growth and Poverty Reduction in India

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Abstract

The paper examines the response of poverty reduction based on financial development and economic growth in India. The ARDL and ECM based model techniques analyze the long-run and short-run relationship among the variables in the model. The long-run estimates depict that financial development and economic growth have not significantly impacted poverty reduction and, on the other hand, resulted in injecting inequality and becoming attended to wealthier sections of the society. The short-run estimates show that financial development and economic growth have successfully tried to reduce poverty in India. The results flash a long-run nature of poverty in India and need to designs and formulations of policies that should be instrumental in reducing poverty. Impulse Response Functions' application indicates that poverty reduction will act as a catalyst for further poverty reduction in India.

Keywords:

Poverty, financial development, economic growth, ARDL, ECM

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Introduction

Economic growth and financial development come as one of the preferred choices in the economic literature. Economic development relies upon the nature and the sources of financing growth and development. Buera et al. (2012) argued that financial firms resulted in increasing factors productivity, income level, wage rate, interest rate, and capital accumulation and formation, which help to improve the income and employment. Jalilian & Kirkpatrick (2002) and Jeanneney & Kpodar (2011) have observed that financial development has a considerable impact on poverty via increasing economic growth. Sehrawat & Giri (2016), in a study on financial development and poverty reduction by using the ARDL and ECM based analysis observed that financial development has positive impact on poverty reduction in India in both short-run and in the long-run. Odhiambo (2010) observed that financial development causes poverty reduction in Kenya both in short-run and in long run. Inoue & Hamori (2012) estimates in an unbalanced panel data analysis observed that financial development reduces poverty in a controlled framework. Abosedra et al. (2016) by using ARDL modeling techniques observed that financial development reduces poverty in Egypt.

It has been empirically examined that economic growth increases inequality and financial growth is more inclined towards more prosperous people. This puts fat on the fact that growth and financial development play a much sensitive role in reducing poverty. This is in line with the pioneering work of Nurske (1953) that outlined 'Vicious Circle of Poverty,' which signifies the poverty itself is a cause of poverty and supports that economic growth increases inequality. World Bank (2019) estimates that 21.9 percent of India's population is 273.1 million below the poverty line in 2011. Acute poverty based on the International poverty line US$1.90 provides that 13.4 percent of India's population is below the poverty line in 2015. It further estimated that out of five people, one person is poor in India. The report further stated that 07 low-income states in India have 62 percent of India's poor population. The axiom map of poverty also depicts that 80 percent of the poor's live in rural areas. The poverty rate in rural areas is 25 percent compared to the 14 percent poverty rate in urban India.

Moreover, 27 percent of the poverty-ridden population falls in extremely rural areas. This also signifies that growth and financial development favor rich people and that too in urban areas. World Bank (1995), Ravallion & Datt (2002), Dollar & Kraay (2002) observed that financial development reduces poverty by trickle-down approach through economic growth. Pradhan (2010) observed that causality runs from financial development to poverty reduction, and economic growth also causes financial development. Uddin et al. (2012) by applying the ARDL bounds test approach and VECM based Granger causality test for the period 1976-2010, observed that there exists a co-integration relationship between these variables. The results show that financial development resulted in poverty reduction. Azra et al. (2012), in a study by applying the ARDL co-integration test and Error Correction Method (ECM), observed that financial development reduces poverty. Uddin et al. (2014) observed that there exists a long-run co-integration relationship between financial development, economic growth, and poverty reduction and observed

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that financial development reduces poverty, but its effect is not linear. Khan et al. (2012), Collins et al. (2009), Imai & Azam (2012), Berhane & Gardebroek (2011) have observed that an increase in income or consumption has a significant impact on poverty reduction. Jalilian & Kirkpatrick (2005), Jeanneney & Kpodar (2011), and Sehrawat & Giri (2018) observed that financial development reduces poverty. Rehman & Shahbaz (2014), in his empirical study on financial deepening and poverty reduction in a multivariate causality analysis observed that financial development has a positive impact on poverty reduction.

In this mapping, the present study tries to determine the relationship between financial development, economic growth, and poverty reduction in India by applying the long run and short-run co-integration relation in a multivariate framework. The study seeks to answer whether financial development and economic growth resulted in poverty reduction or not and the extent of the relationship with it. For this purpose, the paper has been divided into four sections. The first section presents the introduction and the second section outlines the research methodology. The third section presents empirical results, followed by a conclusion and suitable suggestions in the fourth section.

Methods

The study has applied the ARDL and ECM based multivariate co-integration model analysis techniques to examine the long-run and the short-run relationship between economic growth, financial development, and poverty reduction in India during the period 1960 to 2016. The study is based on the hypothesis that poverty reduction in the country is being influenced by financial development and economic growth. The possible relationship is that financial development will push economic growth, and together, both of them will act positively to reduce the level of poverty in the country. In this study, household final consumption expenditure, which is derived from household private final consumption expenditure, is taken as a proxy for the level of poverty and broad money as a percentage of GDP is taken as a measure of financial development, and economic growth measured as a GDP per capita has been considered (McKinnon, 1973; Shaw, 1973; King & Levine, 1993). The relationship between the variables in the model can be expressed as:

$$Po_t = f(FI_t, Y_t)$$

Where (Po_t) represents the level of poverty, (Fi) represents financial development, and (Y) represents the GDP per capita in the country. The above relationship can be algebraically expressed in an equation form as follows:

$$Pot = \alpha_0 + \alpha_1 FI_t + {}_2Y_t + \mu_t$$

The study has applied log-linear model analysis techniques to get more accurate results. The above equation (i) can be written in a logarithmic form as follows:

$$lPot = \alpha_0 + \alpha_1 lFI_t + {}_2lYt + \mu_t$$

The coefficient α_0, α_1, *and* α_2 represent their respective elasticity in the model. The term μ_t is the disturbance term.

This part describes the application of ARDL techniques developed by Pesaran et al. (2001) to find the signs of the long-run relationship between financial development, economic growth, and poverty reduction in India. If the variables are co-integrated, then there will be at least one linear combination of the model variables. The study has applied a unit root test, namely Augmented Dickey-Fuller (1981) and Phillips & Perron (1988), to test the data's time series natures. The study has applied the general to a specific method to test the null hypothesis that there is a unit root ($\gamma=0$) against the alternative hypothesis that the series is stationary ($\gamma\neq0$). In the presence of the non-stationary nature of the data, the study applied ARDL model test techniques to examine the long-run relationship among the selected variables in the model. The numbers of lags in the model are selected based on Schwartz Bayesian Criteria (SBC) at their first difference. The ARDL specification of the equation (ii) is based on the Unrestricted Error Correction Model (UECM) model techniques, and the ordinary least squares (OLS) method can be stated as follows:

$$\Delta lPo_t = \delta_0 + \sum_{i=1}^{n-1} \delta_{1i} \Delta lPo_{t-i} + \sum_{i=0}^{n-1} \delta_{2i} \Delta lFI_{t-i} + \sum_{i=0}^{n-1} \alpha_{3i} \Delta l Y_{t-i} + \theta_1 lPo_{t-1} + \theta_2 lFI_{t-1} + \theta_3 lY_{t-1} + \varepsilon_t$$

Where Δ represents the first difference and ε_t is a disturbance term in the model. The above equation indicates that its past values influence the level of poverty. The null hypothesis is that there is no co-integration vector in the model that is H_0: $¥_1=0$, $¥_2=0$, $¥_3=0$ whereas, the alternative hypothesis that a long-run relationship exists H_1: $¥_1\neq0$, $¥_2\neq0$, $¥_3\neq0$. The acceptance or rejection of the null hypothesis depends upon the value of the F-test statistics. If the test values are more significant than the upper limit of the critical values, then we reject the null hypothesis of no co-integrating vectors in the model. However, if the F-tests statistics' value is less than the lower limit of the bound values, then we accept the null hypothesis of no co-integrating vectors in the model.

Result and Discussion

The study applied the Augmented Dicky-Fuller (1981) test and Phillips & Perron (1988) test to examine the unit root test, and the results are presented in Table 1. The results reveal that dependent variables are integrated of order I (1), while the exogenous variables are a mixture of orders I (0) and I (1).

Table 1. Unit Root Test

Variables	ADF					Phillips-Perron				
	Level	First difference	Significance Level			Level	First difference	Significance Level		
			1%	5%	10%			1%	5%	10%
lPO	0.89	-8.58	-4.13	-3.49	-3.18	1.19	-8.55	-4.13	-3.49	-3.18
lFI	-2.56	-5.14	-4.13	-3.49	-3.18	-2.63	-5.17	-4.13	-3.49	-3.18
lY	-0.09	-7.19	-4.15	-3.50	-3.18	0.78	-10.85	-4.13	-3.49	-3.18

Notes: The unit root test is conducted using the ADF test (Mckinnon, 1996) and Phillips and Perron.

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The application of the ARDL test is based on Pesaran et al. (2001) based on SBC lag criteria, and the result is presented in Table 2. The ARDL test establishes the existence of a long-run relationship between the variables in the model. The computed F- test statistics are greater than the upper bound critical values based on Pesaran et al. (2001) at the given level of significance.

Table 2. Bounds Test Results of the Long-run Relationship

F-Statistics	5.10	
Significance Level	**Lower Bounds**	**Upper Bounds**
1%	2.97	3.74
5%	3.38	4.23
10%	4.30	5.23

Note: Based on Pesaran et al (2001)

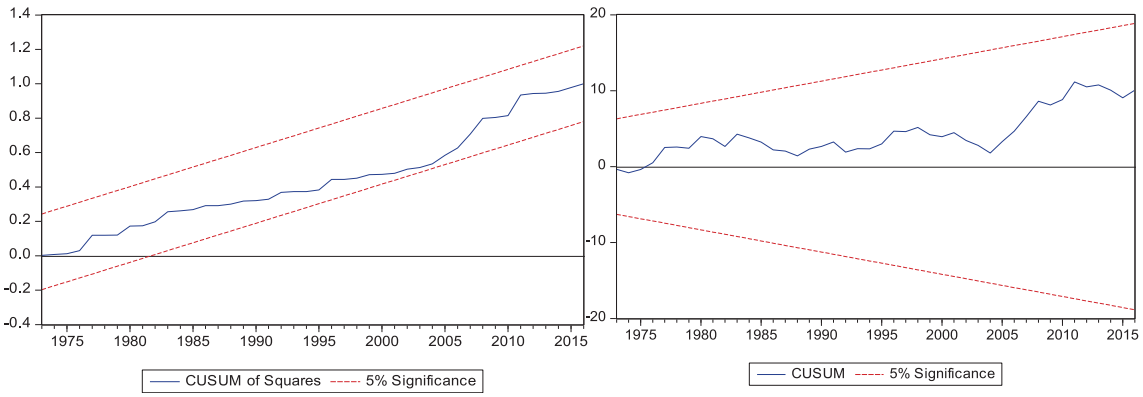
Table 3 presents the estimated long-run coefficients of the selected model. The estimated long-run coefficients show the negative and significant relationship between financial development and poverty reduction. The estimated coefficient of economic growth also depicts that it has no positive impact on poverty reduction in the country in the long run. This exerts the view that growth is tilted towards the affluent section of society. The negative relationship between financial development and poverty reduction in the country shows that a larger part of financial development is not effective in poverty reduction in the country. This relationship also holds a lack of equitable growth or growth that is effective as a trickledown effect. The diagnostic tests reported at the bottom panel of Table-3 indicate that the model satisfies the statistical properties. The adjusted R-square indicates that the model's independent variables explain 81 percent of the variation in the dependent variable. Similarly, the CUSUM and CUSUM square test outcomes also lie within the critical values as shows in Figure 1.

Table 3. The Estimated Long-run Coefficients for the Selected ARDL Dependent Variable (LPO)

Variables	Coefficients	t-statistics
Constant	-0.525	-3.812
Trend	-0.003	-2.948
lFI	-0.526	-2.0352
lY	-1.583	-2.779
Diagnostics Test		
R-square	0.83	
Adjusted R-square	0.81	
Durbin-Watson stat	2.03	
Jarque-Bera Normality test	0.957(0.004)	
Breusch-Godfrey Serial Correlation test	0.004(0.996)	
ARCH Test	1.386(0.229)	
Ramsay Reset Test	0.726(0.399)	

Note: Calculations based on the outcome of the application of ARDL

Figure 1. The Cusum and Cusum Square Test



Source: Figure represents the CUSUM and CUSUM square test based on the outcome of the Long-run estimated coefficients of the ARDL model.

The results of the ECM-based application are presented in Table 4. The results indicate that the ECM is negative and significant at a 5 percent significance level. Table 4 depicts that the coefficients of the ECM as negative and significant. The estimated coefficients indicate a positive and significant impact of financial development and economic growth on poverty reduction. Similarly, financial development and economic growth with a lag by two periods also depict the positive and significant impact on poverty reduction.

Table 4. Results of the ECM for the Selected ARDL model
Dependent Variable: (IPO)

Variables	Coefficients	t-statistics
Intercept	0.000	0.187
@trend	0.003	-2.640
ΔIFI	0.035	0.646
ΔIFI(-2)	0.101	1.983
ΔIY	0.670	9.412
ΔIY(-1)	-0.083	-0.752
ΔIY(-2)	0.169	1.946
ECM(-1)	-0.081	-2.79
Diagnostics Test		
R-square	0.848	
Adjusted R-square	0.816	
Durbin-Watson test	2.059	
Jarque-Bera Normality Test	104.06 (0.929)	
Breusch-Godfrey Serial Correlation Test	0.571(0.569)	
ARCH Test	0.723(0.685)	
Ramsey RESET test	0.037(0.850)	

Note: Outcomes are based on the application of ECM for the selected ARDL model

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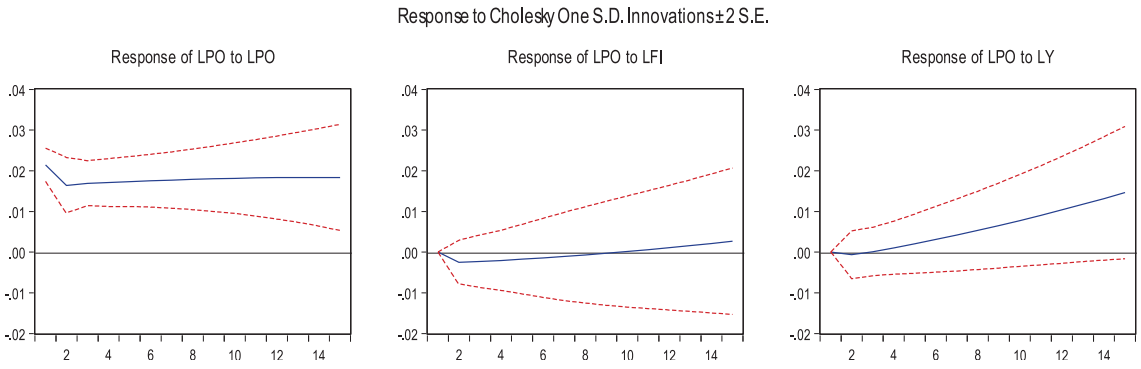
The outcomes depict that financial development and economic growth is instrumental in reducing poverty in the country in the short-run. The short-run relationship between financial developments, economic growth and poverty reduction is also consistent with the findings of Donou-Adonsou & Sylwester (2016), and Sehrawat & Giri (2016). The outcome is also consistent with the findings of Odhiambo (2010) and Rehman & Shahbaz (2014). Thus, outcomes also reveal the long-run nature of India's poverty and require designing and formulating specific policies with structural changes in the socio-economic spheres, which will help reduce poverty in the country from the long-term perspective.

Figure 2. Impulse Response Functions with One-Standard-deviation Shocks



The study also applied the Impulse Response Functions (IRF) to examine the IRF change in poverty reduction to a one-standard-deviation shock to the explanatory variables up to 15 periods. The outcome of the IRF is presented in Figure 2 and Table 5. The response of poverty reduction to one-standard deviation a shock to poverty is positive and exerts that poverty reduction will favorably respond to a further reduction in poverty in the period under consideration. This is consistent with the earlier findings that poverty is itself a cause of poverty in the country. The response of poverty reduction to one-standard deviation shocks in financial development indicates a reduction in poverty over the period under consideration. The response of poverty reduction to one-standard deviation shocks in economic growth depicts that poverty reduction will respond negatively up to the period under consideration.

Table 5. Results of Impulse Response Functions

Shocks to	Response of	Number of Time Periods	Effect
IPO	IPO	15	Positive and remains the same over the time
IFI			Negative and increases over time
IY			Increases over time

Note: calculated based on the outcome of the application of IRF

Conclusions

The study applied the ARDL and ECM based multivariate co-integration model techniques to examine the long run and the short-run relationship between financial development, economic growth, and poverty reduction in India during the period 1960 to 2016. The results depict that there exists a long-run co-integration relationship among the variables in the model. The estimated long-run coefficients show that neither financial development nor economic growth has a positive and significant impact on poverty reduction. However, in the short-run, both financial development and economic growth show a positive and significant impact on poverty reduction. The outcome reveals the long term nature of poverty that needs a change in the economic structure and way to finance the economic development for having a meaningful impact on poverty reduction in the country.

This also calls for required changes in the instruments of poverty reduction in the long run. This exerts the view that growth with inequality rises or growth is skewed towards rich people. The IRF response application indicates that poverty reduction will help further poverty reduction, and changes in the way of financing economic development will be favorable in reducing further poverty in the country. The study's outcome calls for enhancing the role of poor people in development by effective implementation of the financial inclusion programs. In such a reference, the role of micro-financial institutions is essential. Similarly, the expansion of non-farm activities by enlarging multiple cropping patterns, irrigation facilities, cheap and availability of seeds and fertilizers, and financing of micro and small scale units, and full skill employment and social development will be beneficial to poverty reduction in the country.

References

Abosedra, S., Shahbaz, M., & Nawaz, K. (2016). Modeling Causality Between Financial Deepening and Poverty Reduction in Egypt. *Social Indicators Research*, *126*(3), 955-969. https://doi.org/10.1007/s11205-015-0929-2

Azra., Khan, D., Ahmad, E., & Jan, W. U. (2012). Financial Development and Poverty Alleviation: Time Series Evidence from Pakistan. *World Applied Sciences Journal*, *18*(11), 1576-1581. https://doi.org/10.5829/idosi.wasj.2012.18.11.1265.

Berhane, G., & Gardebroek, C. (2011). Does Microfinance Reduce Rural Poverty? Evidence-Based on Household Panel Data from Northern Ethiopia. *American Journal of Agricultural Economics*, *93*(1), 43-55. https://doi.org/10.1093/ajae/aaq126.

Buera, F. J., Kaboski J. P., & Shin, Y. (2012). The Macroeconomics of Microfinance. *Working Paper 17905,* National Buerau of Economic Research.

Collins, D., Morduch, J., Rutherford, S., & Ruthven, O. (2009). *Portfolios of the Poor: How the World's Poor Live on $2 a Day*. New Jersey: Princeton University Press.

Dickey, D. A., & Fuller, W. (1981). Likelihood Ratio Statistics for Autoregressive Time Series with a Unit Root. *Econometrica*, *49*(4), 1057-1072

http://journal.uinjkt.ac.id/index.php/etikonomi
DOI: htttp://doi.org/10.15408/etk.v20i1.18417

Dollar, D., & Kraay, A. (2002). Growth is Good for the Poor. *Journal of Economic Growth*, *7*(3), 195–225.

Donou-Adonsou, F., & Sylwester, K. (2016). Financial Development and Poverty Reduction in Developing Countries: New Evidence from Banks and Microfinance Institutions. *Review of Development Finance, 6*(1), 82-90. https://doi.org/10.1016/j.rdf.2016.06.002.

Imai, K. S., & Azam, M. S. (2012). Does Microfinance Reduce Poverty in Bangladesh? New Evidence from Household Panel Data. *The Journal of Development Studies*, *48*(5), 633-653. https://doi.org/10.1080/00220388.2012.661853.

Inoue, T., & Hamori, S. (2012). How Has Financial Deepening Affected Poverty Reduction in India? Empirical Analysis Using State-level Panel Data. *Applied Financial Economics*, *22*(5), 395-408. https://doi.org/10.1080/09603107.2011.613764.

Jalilian, H., & Kirkpatrick, C. (2005). Does Financial Development Contribute to Poverty Reduction? *The Journal of Development Studies*, *41*(4), 636–656. https://doi.org/10.1080/00220380500092754

Jeanneney, S. G., & Kpodar, K. (2011). Financial Development and Poverty reduction: Can there Be a Benefit Without Cost?, Journal of Development Studies, *47*(1), 143-16. https://doi.org/10.1080/00220388.2010.506918

Khan, A. D., Ahmad, E., and Jan, W. (2012). Financial Development and Poverty Alleviation: Time Series Evidence from Pakistan. *World Applied Sciences Journal*, *18* (11), 1576-1581. https://doi.org/10.5829/idosi.wasj.2012.18.11.126.

King, R. J., & Levine, R. (1993). Finance and Growth: Schumpeter Might be Right. *Quarterly Journal of Economics*, *108*(3), 713-737. https://doi.org/10.2307/2118406.

McKinnon, R. I. (1973). *Money and Capital in Economic Development*, Washington DC: The Brooking Institutions.

MacKinnon, J. G. (1996). Numerical Distribution Functions for Unit Root and Cointegration Tests. *Journal of Applied Econometrics*, *11*(6), 601-618.

Nurkse, R. (1953). *Problems of Capital Formation in Underdeveloped Countries.* New York: Oxford University Press.

Odhiambo, N. M. (2010). Is Financial Development a Spur to Poverty Reduction? Kenya's Experience. *Journal of Economic Studies*, *37*(3), 343-353. https://doi.org/10.1108/01443581011061311.

Pesaran, M. H., Shin Y., & Smith, R. J. (2001). Bounds Testing Approaches to the Analysis of Level Relationship. *Journal of Applied Econometrics*, *16*(3), 289–326. https://doi.org/10.1002/jae.616.

Phillips, P. C. B., & Perron, P. (1987). Testing for a Unit Root in Time Series Regression. *Biometrika, 75*(2), 335-346. https://doi.org/10.2307/2336182.

Pradhan, R. P. (2010). The Nexus between Finance, Growth, and Poverty in India: The Cointegration and Causality Approach. *Asian Social Science*, *6*(9), 114–122. https://doi.org/10.5539/ass.v6n9p114.

Ravallion, M., & Datt, G. (2002). Why Has Economic Growth Been More Pro-Poor in Some States of India than Others? *Journal of Development Economics, 68*(2), 381–400. https://doi.org/10.1016/S0304-3878(02)00018-4.

Rehman, I. U., & Shahbaz, M. (2014). Multivariate-based Granger Causality Between Financial Deepening and Poverty: The Case of Pakistan. *Quality & Quantity, 48*, 3221–3241. https://doi.org/10.1007/s11135-013-9952-z.

Sehrawat, M., & Giri, A. K. (2016). Financial Development and Poverty Reduction in India: an Empirical Investigation. *International Journal of Social Economics, 43*(2), 106–122. https://doi.org/10.1108/ijse-01-2014-0019

Sehrawat, M., & Giri, A. K. (2018). The Impact of Financial Development, Economic Growth, Income Inequality on Poverty: Evidence from India. *Empirical Economics*, *55*, 1585-1602. https://doi.org/10.1007/s00181-017-1321-7.

Shaw, E. S. (1973). *Financial Deepening in Economic Development*. New York: Oxford University Press.

Uddin, G. S., Kyophilavong, P., & Sydee, N. (2012). The Causal Nexus of Banking Sector Development and Poverty Reduction. *International Journal of Economics and Financial Issues, 2*(3), 304-311.

Uddin, G. S., Shahbaz, M., Arouri, M., & Teulon F. (2014). Financial Development and Poverty Reduction Nexus: A Co-integration and Causality Analysis in Bangladesh. *Economic Modelling, 36*, 405-412. https://doi.org/10.1016/j.econmod.2013.09.049.

World Bank. (1995). *The World Bank annual report 1995*. Washington D.C: World Bank.

World Bank. (2019). *World Development Indicators 2019*. Washington D.C: World Bank.

http://journal.uinjkt.ac.id/index.php/etikonomi
DOI: htttp://doi.org/10.15408/etk.v20i1.18417