

FROM MICROFINANCE TO POVERTY REDUCTION: TRACING THE CHAIN EFFECTS OF RURAL BANKS ON MSMEs AND POVERTY IN INDONESIA

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Abstract

This study aims to analyze the influence of the number of Bank Perkreditan Rakyat (BPR) and Bank Pembiayaan Rakyat Syariah (BPRS), as well as the volume of credit financing provided by these institutions, on the number of micro and small enterprises (MSEs) in Indonesia. It further examines the relationship between the number of MSEs and the distribution of poverty in both urban and rural areas in Indonesia during the 2014-2023 period. Utilizing the chain rule approach in Ordinary Least Squares (OLS) regression and Granger causality testing, the study finds that an increase in the number of BPR and BPRS significantly contributes to reducing poverty in rural areas. These findings reaffirm the role of BPR and BPRS as microfinance intermediaries in promoting financial inclusion and empowering local economies. Furthermore, the Granger test results reveal a unidirectional causal relationship from poverty levels and credit financing to the number of BPR and BPRS, indicating that socio-economic pressures also influence the expansion of microfinance institutions in Indonesia. The implications of these findings highlight the importance of policy support for the institutional transformation of BPR and BPRS within the framework of the national financial system, while also strengthening the argument that BPR and BPRS serve as strategic instruments in addressing shadow banking practices and expanding access to inclusive formal financial services.

Keywords: BPR, BPRS, Chain Rule, Poverty, MSEs, Granger Causality

INTRODUCTION

Indonesia is a big country with a population of hundreds of millions and a predominantly archipelagic geography (Rothenberg et al., 2025). These conditions pose a major challenge for the government in implementing equitable economic development to create prosperity for its people. Purwono et al. (2021) state that development disparities lead to structural poverty in both urban and rural areas in Indonesia. One of the main factors hindering poverty alleviation is the limited reach of policy interventions, particularly in disadvantaged areas. Community economic activities that remain traditional tend to be overlooked by the government and lack its support, thereby contributing to local economic stagnation. One root cause of this problem is the limited access to financing that could boost productivity and the sustainability of community enterprises (Pertiwi et al., 2021).

Microfinance institutions play a strategic role as instruments of financial inclusion (Liu & Zhang, 2026). Bank Perkreditan Rakyat (BPR) and Bank Pembiayaan Rakyat Syariah (BPRS), which operate under Undang-Undang No. 7 of 1992 as amended by Undang-Undang No. 10 of 1998, are banking entities specifically designed to serve community groups that are underserved by commercial banks. According to Wasiaturrahma et al. (2020), both microfinance institutions are mandated to perform financial intermediation functions under both conventional and Sharia principles, with characteristics that differ from those of commercial banks, particularly in terms of their service approach, organisational structure and financing models.

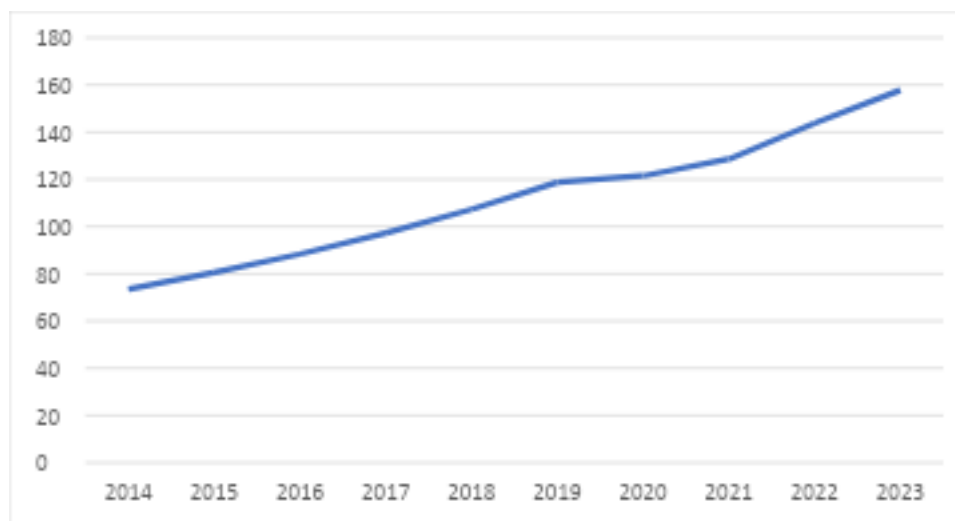


Figure 1. Loan/Financing Positions of BPR and BPRS (in billions)

Source: Otoritas Jasa Keuangan (2025)

According to data on credit financing by BPR and BPRS in Indonesia for the period from 2014 to 2023, a consistent and substantial upward trend has been recorded. The value of credit disbursements surged from Rp73.396 billion in 2014 to Rp157.816 billion in 2023, indicating nearly double the growth over the past decade. This phenomenon underscores the increasingly central role of BPRs and BPRSs as financial intermediaries capable of reaching segments of society underserved by conventional banking, particularly micro and small enterprises and the informal sector (Wasiaturrahma et al., 2020). This growth is not merely a quantitative indicator, but reflects a shift in the structure of national financial inclusion, with both microfinance institutions making a tangible contribution to expanding access to formal financial services, particularly in areas with limited banking infrastructure. Even during the crisis caused by the COVID-19 pandemic, when many sectors of the financial industry contracted, BPRs and BPRSs continued to demonstrate resilience by maintaining a positive trend in the disbursement of financing (Ascarya, 2022).

Consistent growth reinforces the argument that BPR and BPRS have transcended their identity as regionally-based financial institutions and now play a strategic role as agents of local economic development and key drivers of financial inclusion (Ismail et al., 2024). The institutional strengths of BPRs/BPRSs lie in their relational and community-based approach, where geographical and social proximity to customers makes their services more responsive to local economic needs. However, the structural transformations in the national financial landscape present significant challenges. The development of digital technology, the expansion of fintech and alternative financing platforms, and the proliferation of informal financing institutions such as shadow banking and loan sharks are creating significant competitive pressure. On the other hand, limited internal capacity, constraints imposed by complex regulations, and a lack of digital innovation act as barriers to enhancing the effectiveness and sustainability of BPRs' role in local economic development (Anwar et al., 2020).

Previous studies have shown that BPR and BPRS play a vital role in improving financial inclusion for micro-entrepreneurs and communities not yet reached by formal banking services (Anwar et al., 2020; Ascarya, 2022; Ismail et al., 2024). BPRs have proven capable of curbing the dominance of loan sharks through their proximity to the community, understanding of local characteristics, and flexibility in channelling microfinance. Meanwhile, BPRSs contribute by providing Sharia-based financing that expands financial access whilst offering more ethical and equitable financing alternatives (Nurhasanah et al., 2020).

Various studies conclude that the existence of BPRs and BPRSs not only serves as financial intermediaries but also contributes to the empowerment of SMEs, the enhancement of financial inclusion, and the strengthening of the local economy (Ariefianto et al., 2024; Ismail et al., 2024; Nurhasanah et al., 2020). However, to maintain this role, technological adaptation and institutional strengthening are required to cope with changes in the digital financial ecosystem. A number of fundamental questions then arise regarding the actual extent of BPRs' and BPRS's contribution to community economic empowerment and the alleviation of structural poverty, both in rural areas-which have long been the primary customer base for BPRs-and in urban areas, which are now facing new challenges of financial exclusion due to urbanisation. Therefore, an empirical study based on long-term data is required to assess the strategic role of BPRs/BPRSs in supporting inclusive and sustainable development.

This study aims to analyse the impact of the number of BPRs and BPRSs, as well as the volume of credit financing provided by BPRs and BPRSs, on the number of micro and small enterprises in Indonesia, and to examine the relationship between the number of micro and small enterprises and the profile of the poor population in both urban and rural areas from 2014 to 2023. We hypothesise that an increase in the number of BPRs and BPRSs influences an increase in the number of MSMEs and ultimately reduces the number of people living in poverty in both urban and rural areas. The analytical method used is Ordinary Least Squares with the chain rule approach in differential calculus to mathematically estimate the relationship between variables. Furthermore, causality testing between variables is conducted using the Granger causality test to obtain a deeper understanding of the direction of the relationship and the dynamics between the research instruments.

RESEARCH METHODS

The regression estimates in this study will apply the concept of the chain rule in calculus. In calculus, there will be two or more functions being differentiated, each of which has a different independent variable (Gujarati, 2003):

$$y = f(z) \dots \dots \dots (1)$$

The model above states that the value of y depends on the value of z . In the next step, z is a function of the variable x that can be written as follows:

$$z = g(x) \dots \dots \dots (2)$$

These two equations at the beginning imply that the effect of variable x on y is equal to the product of the effect of variable x on z and the effect of variable z on y . This illustrates the interdependent relationship between these variables, in which the influence of one variable on the other is reflected in the product of those two effects.

$$\frac{dy}{dx} = \frac{dy}{dz} \frac{dz}{dx} \dots \dots \dots (3)$$

This study uses time series data from Indonesia for the period 2010–2022. The following estimation model, which modifies the research methodology from the article by (Azizah & Aisyah, 2023), was used in this study:

$$LOGMSME_t = \delta_0 + \delta_1 LOGBPR_t + \delta_2 LOGCREDIT_t + \varepsilon_t \dots \dots \dots (4)$$

$$LOGDESA_t = \gamma_0 + \gamma_1 LOGMSME_t + \varepsilon_t \dots \dots \dots (5)$$

$$LOGKOTA_t = \gamma_0 + \gamma_1 LOGMSME_t + \varepsilon_t \dots \dots \dots (6)$$

$$LOGRURAL_t = \beta_0 + \beta_1 LOGBPR_t + \beta_2 LOGCREDIT_t + \varepsilon_t \dots \dots \dots (7)$$

$$LOGURBAN_t = \beta_0 + \beta_1 LOGBPR_t + \beta_2 LOGCREDIT_t + \varepsilon_t \dots \dots \dots (8)$$

where BPR refers to the total number of BPRs and BPRSs in Indonesia, CREDIT refers to the total amount of loans and financing provided by BPRs and BPRSs, while MSMEs refers to the total number of micro and small enterprises in Indonesia; URBAN and RURAL refer to the number of people living below the poverty line based on their residential areas, namely in urban and rural areas. The data sources were obtained from publications by the Central Statistics Agency (BPS). To conduct a more

in-depth analysis, the causal effects between each variable will be examined to assess the impact of one variable on another.

RESULTS AND DISCUSSION

The following section presents the estimation results obtained from the analytical model employed in this study.

Table 1. Table Estimation Results

Dependent MSMEs	
$LOGMSME_t = -11,578 + 2,408 LOGBPR + 0,765 LOGCREDIT_t$	
(0,0086)*	(0,0009)*
$R^2 = 0,8893$; Prob. $F = 0,0004$	
Dependent LOGRURAL	
$LOGRURAL_t = 21,719 - 0,791 LOGMSME$	
(0,0077)*	
$R^2 = 0,6098$; Prob. $F = 0,0077$	
Dependent LOGURBAN	
$LOGURBAN_t = 5,758 + 0,232 LOGMSME$	
(0,4018)	
$R^2 = 0,0892$; Prob. $F = 0,4018$	

Source: Eviews, processed (2025)

Based on Table 1, it is evident that the volume of credit financing and the number of BPRs and BPRSs have a positive effect on the number of micro and small enterprises in Indonesia. In the next stage, the number of micro and small enterprises was found to have a negative effect on the number of people living in poverty in rural areas, while its impact on poverty in urban areas was not significant. Thus, the chain-linking approach used in this study applies only to rural areas. The following are the results of the impact analysis examining how the number of BPRs and BPRSs, as well as the amount of credit financing they provide, influence poverty patterns in rural areas of Indonesia from 2014 to 2023.

Table 2. Hypothesis Testing

Variable	Coefficient	Prob.	Conclusion
LOGBPR	$\delta_1 = 2,408$	0,000	LOGBPR significant at the 1% level
LOGCREDIT	$\delta_2 = 0,765$	0,000	LOGCREDIT significant at the 1% level
Chain Rule			
Variable	Coefficient	Prob.	Conclusion
LOGMSME	$\gamma_1 = -0,791$	0,000	LOGMSME significant at the 1% level
Rural Poverty Estimation			
Variable	Coefficient		Conclusion
LOGBPR	$\beta_1 = \gamma_1 \delta_1 = -1,905$		LOGBPR significant at the 1% level
LOGCREDIT	$\beta_2 = \gamma_1 \delta_2 = -0,605$		LOGCREDIT signifikan pada $\alpha = 0,01$
URBAN Poverty Estimation			
Variable	Coefficient		Conclusion
LOGBPR	$\beta_1 = \gamma_1 \delta_1 = 0.559$		Not significant
LOGCREDIT	$\beta_2 = \gamma_1 \delta_2 = 0.178$		Not significant

Source: Eviews, processed (2025)

Based on Table 2, the results of the regression analysis using the chain rule indicate that the number of BPRs and BPRSs has a negative effect on poverty in rural areas. A coefficient value of -1.905 implies that for every 1 per cent increase in the number of BPRs and BPRSs, poverty in rural areas will decrease by 1.9 per cent. Meanwhile, the amount of credit financing from BPRs and BPRSs also has a negative effect on structural poverty in rural areas, with a regression coefficient of -0.605; thus, if the amount of credit financing rises by 1 per cent, poverty in rural areas will fall by 0.6 per cent. These results further confirm that BPRs and BPRSs are of great assistance to communities in rural areas through the provision of faster credit and by fostering a sense of community.

From the perspective of financial inclusion theory in Darmawan et al. (2026), the negative relationship between BPR and BPRS development and rural poverty can be explained by the ability of these institutions to reduce financial market imperfections that commonly affect low-income households. Rural communities often face liquidity constraints, limited collateral, and restricted access to formal banking services, which hinder productive investment and income generation. By expanding access to credit, BPR and BPRS enable households to overcome these constraints, invest in productive activities, and diversify their sources of income. This mechanism is particularly relevant in rural Indonesia, where economic activities remain highly dependent on agriculture, livestock, fisheries, and micro-scale enterprises.

The findings suggest that the poverty-reducing effect of BPR and BPRS operates through a productive investment channel (Anwar et al., 2020; Nurhasanah et al., 2020). Access to credit allows farmers to purchase higher-quality seeds, fertilizers, agricultural machinery, and irrigation facilities, while livestock breeders and fishers can expand production capacity and improve operational efficiency. As productivity increases, household income rises, thereby reducing the likelihood of households remaining trapped in chronic poverty. This result is consistent with the argument that financial inclusion contributes to poverty reduction by enhancing the productive capacity of low-income households rather than merely increasing short-term consumption (Drame et al., 2026).

This study is consistent with previous research demonstrating the poverty-alleviating role of microfinance. Agbola et al. (2017) found that participation in microfinance programs in the Philippines significantly improved household income and savings, leading to better welfare outcomes. Similarly, Malki et al. (2024) reported that access to microfinance in rural Pakistan contributed to poverty reduction through improvements in household income, housing conditions, and health expenditures. These findings indicate that the benefits of microfinance extend beyond financial access itself and generate broader socioeconomic improvements among vulnerable populations.

The present results also align with evidence from Indonesia's agricultural sector. (Asnawi et al., 2019) demonstrated that access to agribusiness microfinance institutions significantly reduced the probability of poverty among farming households by enabling investment in productive agricultural activities. Likewise, Anggriani et al. (2019) emphasized that microfinance institutions play a strategic role in supporting rural economic development by providing financing for low-income households that are typically excluded from conventional banking systems. Collectively, these studies suggest that the effectiveness of rural financial institutions depends on their ability to channel credit toward productive economic activities rather than consumption-oriented purposes.

Another important implication of the findings is that the poverty-reducing impact of BPR and BPRS appears to be associated with their institutional characteristics. Unlike commercial banks, BPR and BPRS operate closer to local communities, possess better information about borrowers, and generally employ simpler lending procedures. These characteristics reduce information asymmetry and transaction costs, enabling financial services to reach underserved groups such as smallholder farmers, fishers, livestock breeders, and micro-entrepreneurs. Consequently, the expansion of BPR and BPRS not only increases credit accessibility but also strengthens the inclusiveness of the rural financial system.

From a policy perspective, the findings indicate that strengthening the institutional capacity and outreach of BPR and BPRS could serve as an effective strategy for accelerating rural poverty reduction in Indonesia. However, the effectiveness of microcredit programs depends not only on the quantity of credit disbursed but also on the quality of credit allocation. Productive financing targeted at agriculture, fisheries, livestock, and rural micro-enterprises is likely to generate greater poverty-reducing effects than credit directed toward non-productive activities. Therefore, policies aimed at expanding rural financial inclusion should be accompanied by measures that enhance financial literacy, entrepreneurial capacity, and productive investment opportunities among rural households (Ariefianto et al., 2024).

Table 3. Hypothesis Testing

Null Hypothesis:	Obs	F-Stats	Prob.
LOGRURAL does not Granger Cause LOGBPR	9	41.9705	0.0006
LOGBPR does not Granger Cause LOGRURAL		0.13999	0.7212
LOGURBAN does not Granger Cause LOGBPR	9	7.18588	0.0365
LOGBPR does not Granger Cause LOGURBAN		5.64171	0.0551
LOGCREDIT does not Granger Cause LOGBPR	9	11.1958	0.0155
LOGBPR does not Granger Cause LOGCREDIT		0.19685	0.6728
LOGUSAHA does not Granger Cause LOGBPR	9	5.17679	0.0632
LOGBPR does not Granger Cause LOGUSAHA		0.21542	0.6589
LOGURBAN does not Granger Cause LOGRURAL	9	0.83489	0.3961
LOGRURAL does not Granger Cause LOGURBAN		2.77125	0.1470
LOGCREDIT does not Granger Cause LOGRURAL	9	8.21846	0.0285
LOGRURAL does not Granger Cause LOGCREDIT		1.65631	0.2455
LOGUSAHA does not Granger Cause LOGRURAL	9	4.07172	0.0902
LOGRURAL does not Granger Cause LOGUSAHA		0.14422	0.7172
LOGCREDIT does not Granger Cause LOGURBAN	9	1.89852	0.2174
LOGURBAN does not Granger Cause LOGCREDIT		4.16648	0.0873
LOGUSAHA does not Granger Cause LOGURBAN	9	0.14095	0.7203
LOGURBAN does not Granger Cause LOGUSAHA		0.15088	0.7111
LOGUSAHA does not Granger Cause LOGCREDIT	9	0.15435	0.7080
LOGCREDIT does not Granger Cause LOGUSAHA		0.95755	0.3656

Source: Eviews, processed (2025)

The results of the Granger causality test in Table 3 show a one-way causal relationship between poverty in rural and urban areas and the amount of financing or credit provided, which influences the number of BPRs and BPRSs. These results demonstrate that BPRs respond to changes in poverty levels by seeking to expand, either by increasing their numbers or by opening new branches. Based on the results of this study, BPRs and BPRSs are expected to continue to grow and implement innovative measures to remain as guardians of the community in their efforts to escape poverty and drive the economy, which always requires initial capital financing. It is hoped that both central and local governments will provide greater support to the microfinance sector, such as BPRs and BPRSs, whether through streamlined licensing procedures or by strictly regulating financial institutions that are not legally registered in Indonesia, so as not to undermine the BPR and BPRS market, which has proven instrumental in tackling poverty in rural areas.

CONCLUSION

This study used an ordinary least squares regression analysis with a chain rule approach and Granger causality testing to demonstrate that the existence and growth of BPRs and BPRSs significantly reduced structural poverty rates in rural Indonesia between 2014 and 2023. These findings suggest that the financial intermediation functions performed by these two microfinance institutions have successfully provided access to the formal financial system for previously marginalised segments of society, particularly micro-enterprises and low-income households. By providing more affordable, locally oriented financing, BPRs and BPRSs have acted as catalysts for the economic empowerment of people and the strengthening of rural economic structures.

Furthermore, the Granger causality test results reveal a one-way causal relationship between the volume of credit/financing and poverty levels in both rural and urban areas, and the number of BPRs and BPRSs. This suggests that increased financing requirements in these regions, coupled with the socio-economic pressures caused by poverty, have led to the growth of formal microfinance institutions in response to the service gap left by larger financial institutions. In other words, local socio-economic dynamics are a key factor in the institutional expansion of BPRs and BPRSs. This finding supports the idea that microfinance institutions are not just small-scale financial entities, but also agents of socio-economic development that respond to the needs of grassroots communities. In this context, BPRs and BPRSs not only compete with shadow banking practices and loan sharks, but also offer a more sustainable, fair and nationally inclusive financial alternative.

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