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# Capital Access Disparities Among Migrant Workers: Evidence from Informal Sector

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## Abstract

This research investigates the dynamics of working capital access among migrant workers in Indonesia's informal sector, aiming to identify key factors influencing capital access and the challenges this group faces. Utilizing data from the Survei Sosial Ekonomi Nasional (SUSENAS), this study employs a logistic regression model to examine various determinants of access to financial capital. The findings indicate that higher education increases access to commercial banks and Bank Perkreditan Rakyat (BPR) loans but reduces access to Kredit Usaha Rakyat (KUR) and cooperative credit. Digital literacy, reflected by internet usage, enhances access to KUR and BPR loans, although it does not influence cooperative credit. Younger and married individuals are more likely to obtain credit, while urban residents are more likely to access commercial bank and BPR loans but face limitations with KUR and cooperative credit. These results underscore the need for tailored financial inclusion strategies that address the specific needs of different demographic and geographic groups. Improving digital literacy and developing customized financial products for migrant informal workers may enhance their financial inclusion and access to working capital.

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## INTRODUCTION

In Indonesia, the informal sector reflects the complex and dynamic nature of the economy. With a large and diverse population alongside a rapidly developing economic structure, the informal sector constitutes a significant portion of the national economy. According to data from BPS-Statistics Indonesia, in February 2023, informal workers dominated the labor force, totaling 83.34 million people or 60.12% of the total workforce, while formal sector workers accounted for 55.29 million, or less than 40%. As observed in many developing countries, the informal sector provides employment for millions, particularly those lacking specialized skills or access to formal job opportunities (Kahyalar et al., 2018; Bonnet et al., 2019). This sector directly contributes to reducing unemployment and poverty rates while also enhancing the population's purchasing power (Darbi et al., 2018). Furthermore, the informal sector supports the broader socio-economic framework by delivering essential services such as transportation, domestic work, and street vending (Etim & Daramola, 2020; Mughal & Schneider, 2020).

The prominence of the informal sector in Indonesia is attributable to several factors. Structural economic conditions compel many individuals, particularly in rural and urban areas, to rely on agriculture, traditional trade, and informal services. Additionally, complex regulations and heavy bureaucratic processes hinder small business owners from navigating formal procedures, leading many to remain in the informal sector to avoid formalization costs and administrative burdens (Rothenberg et al., 2016). Economic uncertainty and structural transitions further contribute to the expansion of the informal sector, particularly due to internal migration from rural to urban areas. Migrants often resort to informal employment due to lacking the skills required in the formal labor market. Consequently, the informal sector has become integral to Indonesia's economic landscape, offering livelihoods and contributing to overall economic resilience.

Nevertheless, the high proportion of informal workers presents several challenges. Informal workers often lack access to structured social security systems, including pensions, health insurance, and unemployment benefits. Unlike formal sector employees who contribute to government-mandated social security schemes, informal workers typically rely on personal savings or family support during periods of financial distress. This lack of coverage increases their vulnerability, particularly in old age, contributing to higher poverty rates among elderly populations (Ugargol & Parvathy, 2023). Furthermore, the absence of pension systems for informal workers may impose a long-term economic burden on the government due to increased reliance on social assistance programs (Frimpong, 2024).

Unstable job arrangements, the absence of formal employment contracts, and minimal labor protections generally characterize informal employment. Workers in the informal sector often endure low wages, long working hours, and unsafe working conditions without legal recourse. The lack of regulatory oversight exposes them to exploitation, discrimination, and occupational hazards (Hummel, 2021). In addition, informal workers face limited opportunities for career advancement, as their jobs are frequently temporary or subject to fluctuating market demands. This job insecurity negatively affects both individual well-being and broader economic stability, as a workforce with unpredictable income contributes less to overall productivity and domestic demand (Nguimkeu & Okou, 2021; Haanwinckel & Soares, 2021).

Financial exclusion remains a significant obstacle for informal workers, who often lack the documentation, credit history, or collateral required to access formal financial institutions. Deprived of bank loans or structured credit, many resort to informal lending mechanisms with high interest rates, which can entrap them in cycles of debt. Limited financial access constrains their capacity to invest in business expansion, education, or skill development, thereby perpetuating economic instability and low productivity (Andriamahery & Qamruzzaman,

2022). These financial constraints also hinder entrepreneurship and self-employment, as many micro and small enterprises struggle to scale due to restricted capital availability (Shava & Chinyamurindi, 2022).

Informal workers often lack access to training and skill development opportunities in the formal sector. Without employer-sponsored training programs or vocational education, informal workers face difficulties improving their productivity and transitioning into higher-paying employment. This persistent skills gap limits upward economic mobility and perpetuates cycles of low-income employment. Moreover, inadequate investment in human capital negatively affects national productivity and hampers economic growth, as a significant portion of the workforce remains under-skilled and underutilized (Keji, 2021). Research indicates that economies with greater investment in human capital tend to experience more rapid technological adoption and industrial development—an ongoing challenge in economies dominated by informal labor (Keji, 2021; Hu, 2021).

The theoretical foundation of this study rests on two core concepts: the informal sector and access to working capital. The informal sector comprises economic activities that are not regulated by formal labor laws, where workers often face limited job security, lack of social protection, and restricted opportunities for skill development (Setyanti, 2020). Access to working capital, in contrast, refers to the availability of financial resources—such as loans, savings, and other forms of capital—required to initiate or sustain business operations (Junoh et al., 2019). In internal migration, informal workers encounter distinct barriers to accessing working capital, including inadequate collateral and restricted access to formal financial institutions (Gitaharie et al., 2018; Esquivias et al., 2021). Legal uncertainty, geographic mobility, and income instability further constrain their ability to secure financial resources (Omri, 2020).

Endogenous growth theory also emphasizes the importance of investment in research and development (R&D) and human capital in achieving sustainable economic growth (Shahbaz et al., 2022). Acemoglu and Robinson argue that access to credit facilitates investment in technology and knowledge, thereby fostering innovation and productivity. Adegboye and Iweriebor (2018) further confirm that access to credit is essential for supporting innovation and technological advancement, which are key drivers of long-term economic growth—particularly in developing countries. Investment in advanced technologies and human capital enhances productivity and supports the sustained dynamism of the economy.

Access to financial capital, including credit, is crucial for workforce development and economic growth. It enables individuals to start or expand businesses, invest in education, and enhance their skills. For instance, small business owners with access to credit can grow their enterprises, create new employment opportunities, and stimulate local economic activity (Ogoi, 2017; Qin & Kong, 2022). Moreover, improved access to credit fosters the expansion of small businesses, which has a ripple effect on regional economies by generating employment and promoting regional development.

Access to financial capital also significantly influences labor productivity. Metrick and Yasuda (2021) demonstrate that financial capital enables firms to invest in research and development (R&D), which drives innovation and enhances industrial efficiency. R&D investments supported by sufficient financial capital strengthen a firm's ability to innovate and adapt to market dynamics. Similarly, KfW Bank (2020) emphasizes that adequate financial resources empower companies to adopt new technologies, improve operational efficiency, and sustain competitiveness in global markets. These investments catalyze innovation and ensure long-term business viability and success.

Labor welfare is also closely linked to financial capital access. Azolibe et al. (2022) reveal that access to credit can improve labor welfare by increasing employment opportunities and reducing unemployment rates. It facilitates

access to education, training, and productive resources, enabling individuals to pursue higher-quality jobs. However, Kara et al. (2021) highlight that marginalized groups face disproportionate challenges in obtaining credit, exacerbating income and opportunity inequality. The absence of financial access can hinder educational attainment and entrepreneurship, perpetuating poverty cycles and limiting social mobility, as noted by Doku et al. (2020), Ratnawati (2020), and Omar and Inaba (2020).

Despite a growing body of literature on financial inclusion, few studies investigate how migrant informal workers navigate access to various sources of credit, even though they constitute a significant segment of the labor force in developing economies. Most existing research focuses on general financial inclusion without adequately examining the heterogeneous experiences of informal workers, particularly in the context of migrant labor. Migrant informal workers are often characterized by precarious employment, lack of documentation, and financial insecurity (Aritonang et al., 2022; Fomum & Opperman, 2023; Sun & Zhang, 2024; Chinoda & Kapingura, 2024). Furthermore, limited attention has been paid to demographic factors such as education, marital status, and age, which can substantially affect financial access by shaping lenders' risk assessments, borrower behavior, and creditworthiness.

In addition, urban-rural disparities remain underexplored in financial inclusion literature despite clear evidence that rural populations—especially migrant workers—face greater obstacles in accessing formal financial services. These include limited banking infrastructure, lower levels of financial literacy, and weaker digital connectivity. This study addresses these gaps by analyzing how education, digital literacy, and geographic location influence access to various financial institutions. It offers a more granular understanding of the financial behaviors of migrant informal workers in Indonesia.

By leveraging SUSENAS data and employing a logistic regression model, this study contributes to the broader discourse on financial inclusion, labor mobility, and economic resilience. The findings are expected to inform policy interventions and programmatic responses to enhance working capital access for this vulnerable demographic.

Ultimately, this research seeks to provide a deeper understanding of working capital access dynamics for migrant workers in Indonesia's informal sector. The insights generated will be valuable to stakeholders—including government agencies, financial institutions, and non-governmental organizations—in formulating more inclusive and effective policies. Furthermore, the study is intended to offer a foundation for future academic inquiry into financial access and internal migration in Indonesia.

## RESEARCH METHODS

This study employs logistic regression to analyze the determinants of capital access among migrant informal workers in Indonesia, as it is a statistical method well-suited for modeling the probability of a binary outcome based on one or more predictor variables. The dependent variable in this analysis is whether a migrant informal worker has access to financial capital, specifically credit. The binary nature of the dependent variable—where a value of 1 indicates access to credit, and 0 indicates no access—makes logistic regression an appropriate analytical tool. Logistic regression is particularly effective in identifying and quantifying the relationship between individual-level factors and the likelihood of accessing credit, allowing for the estimation of odds ratios that reflect the relative importance of each determinant.

The logit model is chosen over the probit model due to its advantages in interpretability, distributional assumptions, and computational efficiency. The logit model provides odds ratios, facilitating easier interpretation of how independent variables influence the probability of a given event. Unlike the probit model, which assumes a normal distribution, the logit model follows a logistic distribution with fatter tails, making it more suitable for handling extreme probabilities (Aljarrah et al., 2020). Additionally,

the logit model offers a simpler estimation process, enhancing computational efficiency—particularly valuable when working with large datasets such as SUSENAS.

Given the focus of this study on credit access among migrant informal workers—where probabilities may vary significantly based on education, digital literacy, and geographic factors—the logit model's ability to handle extreme probability values makes it the preferred choice. Furthermore, it allows for flexible post-estimation analysis, rendering it a practical tool for deriving policy-relevant insights into financial inclusion.

The dataset used in this analysis is drawn from the 2022 National Socioeconomic Survey (*Survei Sosial Ekonomi Nasional*, or SUSENAS), which provides comprehensive individual-level data on various socioeconomic factors. The sample comprises 290,252 migrant informal workers, offering a robust basis for examining the variables that influence credit access. Independent variables in the logistic regression model include demographic characteristics such as educational attainment, internet usage, age, gender, marital status, and economic variables such as current residence (urban or rural). The logistic regression model can be expressed mathematically as follows:

$$logit(KUR) = \log\left(\frac{P}{1-P}\right) = \beta_0 + \beta_1 Education + \beta_2 Internet + \beta_3 Age + \beta_4 Gender + \beta_5 Marital + \beta_6 Urban \quad (1)$$

$$logit(COM) = \log\left(\frac{P}{1-P}\right) = \beta_0 + \beta_1 Education + \beta_2 Internet + \beta_3 Age + \beta_4 Gender + \beta_5 Marital + \beta_6 Urban \quad (2)$$

$$logit(BPR) = \log\left(\frac{P}{1-P}\right) = \beta_0 + \beta_1 Education + \beta_2 Internet + \beta_3 Age + \beta_4 Gender + \beta_5 Marital + \beta_6 Urban \quad (3)$$

$$logit(KOP) = \log\left(\frac{P}{1-P}\right) = \beta_0 + \beta_1 Education + \beta_2 Internet + \beta_3 Age + \beta_4 Gender + \beta_5 Marital + \beta_6 Urban \quad (4)$$

Where KUR, COM, BPR, and KOP represent the probability of having access to capital from each type of credit—*Kredit Usaha Rakyat* (KUR), Commercial Bank Credit, Bank Perkreditan Rakyat (BPR), and *Koperasi*, respectively—$\beta_0$ is the intercept, and $\beta_1$ through $\beta_6$ are the coefficients for the independent variables: education, internet ability, age, gender, marital status, and current residence. These characteristics are critical determinants of capital access for migrant informal workers, as they directly influence financial literacy and perceived creditworthiness.

Education is a key determinant of financial literacy, influencing an individual's ability to navigate financial systems and access credit. Human capital theory (Becker, 1964) suggests that education enhances financial decision-making, increasing access to formal banking services. Higher education correlates with better risk assessment and credit management, making individuals more likely to secure loans.

Internet usage is also crucial for financial inclusion, particularly in rural areas with limited banking infrastructure. The digital divide theory highlights disparities in financial access due to varying levels of digital literacy (Afjal, 2023). Internet access facilitates online loan applications, mobile banking, and alternative credit scoring, improving access to loans. Studies by Ozili (2018) and Rasheed et al. (2019) confirm that digital financial services reduce barriers, yet those lacking internet access remain excluded, reinforcing financial inequalities.

Age influences credit behavior, with younger individuals more likely to seek loans, aligning with the life-cycle hypothesis (Modigliani & Brumberg, 1954). Younger borrowers anticipate higher earnings, increasing their demand for entrepreneurial and consumption loans (Rasskazova & Potekhina, 2017). Older individuals may have longer credit histories but lower adaptability to digital financial tools, limiting their access to fintech-driven lending services (Gupta, 2024). This highlights the need for age-specific financial inclusion policies.

Gender disparities in credit access stem from social norms and institutional biases. The gender and financial inclusion framework (Roy & Patro, 2022) suggests that women face greater

financial barriers due to lower asset ownership and formal employment rates. Sevilla-Guzmán & Procacci (2025) highlight that alternative finance models like microcredit provide women with credit access, but formal banking exclusion remains challenging. Digital financial services have narrowed this gap, yet gender-responsive policies remain necessary.

Married individuals benefit from greater financial stability and pooled household income, increasing their creditworthiness (Kruger et al., 2024). Household finance theory suggests that shared financial responsibility enhances loan repayment capacity (Gomes et al., 2021; Zehra & Singh, 2023). However, increased household debt obligations require responsible lending strategies.

Urban residency affects financial access due to economic opportunities and banking infrastructure differences. The financial sector development theory argues that urban areas benefit from stronger banking networks, improving access to loans (Fu et al., 2022). Understanding the interplay of these factors is essential for designing interventions that improve financial inclusion for migrant informal workers.

In this study, the type of capital access is categorized into four groups: *Kredit Usaha Rakyat* (KUR), commercial bank credit other than KUR, credit from Bank Perkreditan Rakyat (BPR), and credit from *koperasi* (cooperatives). This categorization is important because each type of credit serves different population segments and carries distinct implications for financial inclusion and economic empowerment among migrant informal workers. *Kredit Usaha Rakyat* is a government-backed credit program that supports small and micro-enterprises, often offering more favorable terms, making it more accessible to informal workers with limited collateral or credit history. In contrast, commercial bank credit typically involves stricter eligibility criteria and higher interest rates, making it more challenging for migrant informal workers to access. Credit from BPRs often targets local communities and small-scale borrowers, offering more personalized service and potentially easier access for those in rural or less formalized economic settings. Lastly, credit from *koperasi* is based on cooperative principles and is often more accessible due to its community-based nature and lower interest rates. Differentiating between these sources of credit enables a nuanced analysis of how various financial products address the diverse needs of migrant informal workers, highlighting potential gaps and opportunities for promoting financial inclusion within this demographic.

**Table 1**. Variables' Operational Definition

| Variables | Definition | Category |
|---|---|---|
| **Dependent Variables** | | |
| *Kredit Usaha Rakyat* (KUR) | Indicate whether any household members have received *Kredit Usaha Rakyat* (KUR) in the past year. | 1 = Yes; 0 = No |
| Commercial Bank Credit | Indicate whether any household members received credit from a commercial bank (excluding KUR) in the past year. | 1 = Yes; 0 = No |
| Bank Perkreditan Rakyat (BPR) | This variable reflects whether household members received credit from Bank Perkreditan Rakyat (BPR) in the past year. | 1 = Yes; 0 = No |
| *Koperasi* (Cooperatives) | Indicate whether any household members received credit from a cooperative (Koperasi) in the past year. | 1 = Yes; 0 = No |
| **Independent Variables** | | |
| Education | The year of schooling of the household member | - |
| Internet | This variable indicates whether individuals have used the internet in the past three months | 1 = Yes; 0 = No |

| Variables | Definition | Category |
|---|---|---|
| Age | Age of household member | - |
| Gender | Gender of a household member | 1 = Male; 0 = |
| Marital status | Marital status of a household member | 1 = Married; 0 = Otherwise |
| Urban | Reflects the classification of household residences, which consist of urban and rural | 1 = Urban; 0 = Rural |

Source: SUSENAS (2022), Processed

## RESULTS AND DISCUSSION

The estimation results of the logistic regression analysis offer key insights into the determinants of capital access among migrant workers in Indonesia's informal sector. The model identifies which variables significantly influence the likelihood of obtaining working capital by examining various demographic, geographic, and financial factors. The logistic regression framework estimates the probability of capital access as a binary outcome and underscores the effects of factors such as education, digital literacy, marital status, and geographic location on access to different financial products. These findings provide a comprehensive understanding of how specific characteristics of migrant informal workers shape their ability to secure credit and loans, as summarized in Table 2.

**Table 2**. Estimation Result of the Capital Access Determinants

| Variables | *Kredit Usaha Rakyat* (KUR) | | | Commercial Bank Credit other than KUR | | |
|---|---|---|---|---|---|---|
| | **Coef** | **z** | **Prob.** | **Coef** | **z** | **Prob.** |
| Education | -0.019 | -10.90 | 0.000* | 0.035 | 15.08 | 0.000* |
| Internet | 0.227 | 14.11 | 0.000* | 0.330 | 14.41 | 0.000* |
| Age | -0.010 | -21.09 | 0.000* | -0.011 | -16.73 | 0.000* |
| Gender | -0.021 | -1.60 | 0.110 | -0.017 | -0.98 | 0.329 |
| Marital status | 0.484 | 21.14 | 0.000* | 0.178 | 6.38 | 0.000* |
| Urban | -0.348 | -25.21 | 0.000* | 0.188 | 9.97 | 0.000* |
| Constant | -2.114 | -156.28 | 0.000 | -3.328 | -161.83 | 0.000 |
| LR chi2 | 0.0000 | | | 0.0000 | | |
| Prob>chi2 | 0.0099 | | | 0.0130 | | |
| **Variables** | **Bank Perkreditan Rakyat (BPR)** | | | **Credit from Cooperation** | | |
| | **Coef** | **z** | **Prob.** | **Coef** | **z** | **Prob.** |
| Education | 0.032 | 6.69 | 0.000* | -0.018 | -6.66 | 0.000* |
| Internet | 0.210 | 4.63 | 0.000* | 0.005 | 0.21 | 0.834 |
| Age | -0.014 | -10.24 | 0.000* | -0.010 | -13.39 | 0.000* |
| Gender | -0.018 | -0.53 | 0.599 | -0.016 | -0.87 | 0.387 |
| Marital status | 0.124 | 2.20 | 0.000* | 0.240 | 7.03 | 0.000* |
| Urban | 0.444 | 11.64 | 0.000* | -0.071 | -3.47 | 0.001* |
| Constant | -4.715 | -116.76 | 0.000 | -2.961 | -150.74 | 0.000 |
| LR chi2 | 0.0000 | | | 0.0000 | | |
| Prob>chi2 | 0.0113 | | | 0.0060 | | |

Note: *significant in $\alpha \leq 0.05$

Source: Data Processed, 2024

The logistic regression results indicate that the independent variables—education, internet usage, age, gender, marital status, and urban residency—affect access to different types of credit in varying ways among migrant informal workers in Indonesia. These findings provide valuable insights into the determinants of credit access for Kredit Usaha Rakyat (KUR), commercial bank credit, Bank Perkreditan Rakyat (BPR), and cooperative credit. Each model highlights how these demographic and socioeconomic factors influence access to different financial institutions, with distinct patterns emerging across credit sources.

For Kredit Usaha Rakyat (KUR), education has a negative and significant effect (Coef = -0.019, p = 0.000), indicating that higher education decreases the likelihood of obtaining KUR loans. This suggests that KUR primarily targets lower-educated borrowers, likely because these individuals face more difficulty securing commercial credit and rely on government-backed microfinance initiatives. Digital literacy, as measured by internet usage, has a positive and highly significant effect (Coef = 0.227, p = 0.000), implying that individuals with internet access are more likely to obtain KUR loans. This underscores the increasing role of digital platforms in financial inclusion, particularly for state-backed lending schemes.

Age exhibits a negative and significant effect (Coef = –0.010, p = 0.000), suggesting that younger individuals are more likely to receive KUR loans. This may reflect policies promoting youth entrepreneurship or more flexible lending criteria for younger borrowers. Marital status shows a positive and significant effect (Coef = 0.484, p = 0.000), indicating that married individuals are more likely to secure KUR financing, potentially due to the perception of greater financial stability among married households. Finally, urban residency has a negative and significant effect (Coef = –0.348, p = 0.000), implying that rural borrowers are more likely to access KUR loans. This result aligns with the program's objective of supporting microenterprises in rural areas with limited access to formal credit.

For Commercial Bank Credit, education has a positive and highly significant effect (Coef = 0.035, p = 0.000), indicating that higher education increases the likelihood of obtaining credit from commercial banks. This suggests that commercial banks favor more educated borrowers due to their higher financial literacy, better employment prospects, and perceived creditworthiness. Digital literacy also shows a positive and significant effect (Coef = 0.330, p = 0.000), reinforcing the importance of online banking and digital financial services in facilitating formal credit access. Similar to KUR loans, age has a negative effect (Coef = –0.011, p = 0.000), suggesting that younger individuals are more likely to receive commercial bank credit, potentially due to banks' preference for borrowers with longer repayment horizons. Marital status is positively significant (Coef = 0.178, p = 0.000), indicating that married individuals are more likely to secure loans from commercial banks, likely because they are perceived as more financially stable. Urban residency also has a positive and significant effect (Coef = 0.188, p = 0.000), suggesting that urban residents have greater access to commercial bank credit than their rural counterparts—reflecting the stronger presence of banking infrastructure in urban areas.

For Badan Perkreditan Rakyat (BPR), education has a positive and significant effect (Coef = 0.032, p = 0.000), suggesting that individuals with higher education are more likely to obtain BPR loans. While BPRs traditionally serve smaller businesses and rural borrowers, this finding implies that even rural-oriented financial institutions may prioritize more educated clients. Digital literacy is also positively significant (Coef = 0.210, p = 0.000), indicating that internet users are more likely to access BPR credit, likely due to the growing role of digital financial services in expanding access beyond traditional banking mechanisms. Age has a negative effect (Coef = –0.014, p = 0.000), consistent with other models, suggesting younger individuals are more likely to obtain BPR credit. Marital status remains positively significant (Coef = 0.124, p = 0.000), reinforcing that married individuals have higher

odds of securing loans. Urban residency shows a strong positive effect (Coef = 0.444, p = 0.000), indicating that urban residents have better access to BPR loans, possibly due to greater economic activity and more robust financial services in urban centers. Although BPRs traditionally serve rural areas, their urban operations may cater to small businesses that cannot meet commercial bank requirements.

For Cooperative Credit, education has a negative and significant effect (Coef = -0.018, p = 0.000), meaning individuals with higher education are less likely to obtain loans from cooperatives. This suggests that cooperatives primarily cater to less-educated borrowers with fewer formal financial options. Unlike other credit sources, digital literacy does not significantly impact cooperative credit access (Coef = 0.005, p = 0.834), suggesting that cooperatives still operate through traditional, community-based lending mechanisms rather than digital financial platforms. Age has a negative effect (Coef = -0.010, p = 0.000), meaning younger individuals are more likely to secure cooperative loans. Marital status remains positively significant (Coef = 0.240, p = 0.000), suggesting that married individuals are more likely to obtain cooperative credit, similar to other credit sources. Urban residency has a negative effect (Coef = -0.071, p = 0.001), indicating that rural individuals have greater access to cooperative credit. This result aligns with the traditional role of cooperatives in serving rural populations who may lack access to formal banking services.

The results of this study provide valuable insights into the factors influencing credit access among migrant informal workers in Indonesia, aligning with and extending existing theories and empirical research on financial inclusion. The finding that education positively influences access to commercial bank credit and Badan Perkreditan Rakyat (BPR) loans but negatively affects access to Kredit Usaha Rakyat (KUR) and cooperative credit can be interpreted through financial literacy and institutional trust. Higher education is typically associated with greater financial literacy, enabling individuals to navigate the more complex financial products offered by commercial banks and BPRs. This is consistent with human capital theory, which posits that education enhances an individual's capacity to make informed economic decisions, including those related to financial services (Becker, 1964).

Conversely, the negative relationship between education and access to KUR and cooperative credit may reflect these financial products' design and target demographic. These forms of credit are often intended for lower-educated, lower-income individuals or those in rural areas who may lack formal education but are integral to the informal economy. In the case of KUR, the negative association with education suggests that this government-subsidized microcredit program is specifically designed to serve borrowers who face significant barriers to accessing commercial finance. This aligns with financial inclusion frameworks that emphasize the role of state-backed microfinance in reaching underserved populations. Higher-educated individuals are likelier to engage with formal banking institutions and may not view KUR as their preferred credit option. Furthermore, these individuals may be less dependent on microcredit due to better employment opportunities and higher incomes, reducing their demand for government-supported lending.

In contrast, commercial bank credit access increases with higher education, supporting the argument that formal financial institutions favor borrowers with stronger financial literacy and employment stability. Banks often assess loan applications based on a borrower's ability to understand and manage credit, leading to a preference for individuals with formal education. Education equips individuals with financial knowledge, allowing them to better interpret loan terms, interest rates, and repayment structures, thus improving their ability to meet commercial bank requirements. This preference for educated borrowers may also be attributed to risk mitigation strategies adopted by banks, as they associate higher education with better financial planning, stable income sources, and lower default risk. Consequently, individuals with

lower education levels may be discouraged from applying for commercial bank loans due to perceived complexity, documentation requirements, and stringent approval processes.

The positive effect of education on access to Bank Perkreditan Rakyat (BPR) loans suggests that rural banks also favor more educated borrowers despite primarily serving smaller enterprises and rural communities. This may be attributed to BPRs adopting risk assessment mechanisms similar to those used by commercial banks, prioritizing borrowers who demonstrate financial responsibility and long-term repayment capacity. Moreover, although BPRs are designed to be more accessible than commercial banks, they still require a certain level of financial literacy to effectively engage with loan products. Individuals with higher education are more likely to utilize the financial services offered by BPRs, as they are better equipped to understand the benefits of structured financing options compared to informal lending mechanisms.

In contrast, the negative relationship between education and cooperative credit access indicates that cooperatives tend to serve borrowers with fewer formal financial opportunities. Cooperatives often operate within socially connected, community-based frameworks, where lending decisions rely more on trust and group affiliations than on formal credit assessments. Less-educated individuals may find cooperative lending mechanisms more approachable and less bureaucratic than banks or BPRs. Additionally, many cooperative credit programs are specifically designed to support low-income workers and micro-entrepreneurs who lack collateral or financial literacy but require small-scale business loans. Consequently, individuals with higher education may prefer formal financial institutions over cooperatives, perceiving them as more secure and better aligned with their financial aspirations. This finding underscores the dual nature of financial access in Indonesia, where formal and informal credit markets cater to distinct borrower profiles based on education, financial literacy, and institutional trust.

The findings of this study align with prior research on financial inclusion, education, and credit access, reinforcing the role of human capital and financial literacy in shaping borrowing behavior. Several studies have highlighted the significant influence of education on individuals' ability to access and utilize financial services effectively. Ansar et al. (2023) found that higher education levels are strongly associated with increased access to formal banking services, as educated individuals are more likely to meet banks' lending requirements and demonstrate better credit management. In the context of microcredit, Mohamed (2023) provides evidence that government-subsidized loans, such as KUR, are often targeted toward borrowers with lower education and limited access to conventional banks, mirroring the negative relationship between education and KUR access observed in this study. Furthermore, research by Hasan et al. (2023) underscores the importance of financial literacy and digital adoption in facilitating financial inclusion, particularly for individuals in rural areas who rely on non-traditional credit sources such as BPRs and cooperatives. The findings also support the conclusions of Wu & Peng (2024), who emphasize that rural banking institutions play a crucial role in bridging financial access gaps. These studies collectively reinforce the argument that education is a crucial determinant of financial access, but its impact varies depending on each credit provider's institutional structure and target market.

Internet usage emerges as a significant positive factor for accessing Kredit Usaha Rakyat (KUR) loans, emphasizing the growing role of digital literacy in financial inclusion. The digitization of government-backed credit schemes has facilitated online applications, digital verification, and automated loan processing, making financial services more accessible to informal workers with internet access. This finding aligns with the digital divide theory, which suggests that disparities in access to digital technologies contribute to unequal opportunities in financial services (Agur et al., 2020). Migrant informal workers who use the

internet are better positioned to navigate digital banking platforms, receive financial literacy training, and connect with online lenders, increasing their likelihood of securing KUR loans. The digital transformation of financial services has reduced the reliance on physical banking infrastructure, enabling rural and remote borrowers to apply for credit without traveling to bank branches. Moreover, internet access allows borrowers to stay informed about government financing programs, eligibility criteria, and application processes—reducing barriers that previously hindered financial access for informal workers.

A similar trend is observed in Bank Perkreditan Rakyat (BPR) credit access, where internet usage significantly enhances the likelihood of obtaining loans. The increasing adoption of digital banking, mobile money, and fintech solutions has improved rural banking accessibility, making it easier for informal workers to engage with formal financial institutions. Digital connectivity is crucial in helping borrowers build financial histories, access remote banking services, and participate in digital financial literacy programs, enhancing their ability to secure loans. The expansion of fintech services has enabled BPRs to leverage alternative credit scoring methods, allowing individuals with limited traditional financial records to access credit. The positive relationship between internet usage and BPR credit access suggests that digital inclusion reduces financial barriers in semi-formal banking institutions, granting informal workers greater flexibility in managing their finances. This is consistent with the growing body of literature on digital financial services, which emphasizes the role of technology in expanding financial inclusion, particularly in low-income and rural populations (Agwu, 2021).

In contrast, commercial bank credit access also benefits from digital literacy, but the effect may stem from mechanisms different from those observed in KUR and BPR loans. The ability to use online banking services, digital loan applications, and mobile credit assessments increases the likelihood of approval for formal financial products. Digital banking reduces processing times, increases transparency, and allows borrowers to manage loan repayments efficiently. Commercial banks increasingly integrate AI-driven risk assessments, alternative credit scoring, and automated loan approvals, making digital literacy an essential factor in securing bank loans. However, while internet access facilitates the credit application process, commercial banks still impose stricter lending requirements, such as formal employment records and credit histories, which remain barriers for many informal workers. This suggests that, while internet usage is a facilitator of financial access, it must be complemented by other factors such as financial stability, employment status, and documentation compliance to enable commercial banks' credit access fully.

The lack of a significant effect of internet usage on cooperative credit access suggests that traditional lending mechanisms dominate cooperative financing models. Unlike formal banking institutions that rely on digital platforms for loan assessment and disbursement, cooperatives often operate within close-knit community structures, where lending decisions are based on personal relationships, trust networks, and peer recommendations (Pisnanont et al., 2015). This reinforces that technological advancements than commercial and semi-formal banks influence cooperative finance. The preference for in-person interactions and localized lending practices implies that digital literacy does not substantially enhance access to cooperative loans. Instead, borrowers rely more heavily on social capital, membership history, and cooperative group affiliations to secure financing. This distinction underscores the dual pathways of financial inclusion—while digital technology transforms formal banking systems, community-based financial models continue to function through traditional, relationship-driven approaches.

These findings are supported by previous research emphasizing the transformational impact of digital financial services on financial inclusion. Agwu (2021) and Akhlaq et al. (2022)

highlight that Internet access increasingly bridges financial gaps, particularly in low-income and rural populations, by facilitating access to mobile banking, online credit applications, and digital payment solutions. Agur et al. (2020) argue that the digital divide remains a critical barrier, as individuals without digital literacy may be excluded from modern financial systems. The results of this study align with these insights, demonstrating that digital inclusion is a key determinant of credit access in formal and semi-formal financial institutions but exerts limited influence on cooperative credit, where social relationships continue to play a more prominent role. These findings highlight the importance of targeted digital literacy programs that empower informal workers to fully benefit from digital financial services, particularly in areas where access to technology remains limited.

The negative relationship between age and credit access across all types of credit suggests that younger migrant informal workers are more likely to secure loans than their older counterparts. This finding is consistent with the life-cycle hypothesis proposed by Modigliani and Brumberg (1954), which posits that individuals tend to borrow more during their younger years to finance consumption and investments in human capital, anticipating higher future earnings. Younger workers may seek credit for entrepreneurial ventures, education, or skill development, whereas older individuals—having accumulated savings or alternative income sources—may have a reduced need for borrowing. Additionally, lenders may perceive younger borrowers as having better long-term repayment prospects, making them more attractive loan candidates. Digitalizing financial services further reinforces this trend, as younger individuals are typically more proficient in using digital banking tools, which can streamline loan applications and enhance creditworthiness assessments.

In the case of Kredit Usaha Rakyat (KUR), the preference for younger borrowers may reflect government policies aimed at promoting entrepreneurship and economic empowerment among young workers. As a government-backed microcredit program, KUR often targets individuals seeking capital to establish or expand small enterprises. Younger applicants may be viewed as more dynamic, growth-oriented, and adaptable to market trends, making them ideal recipients of such financial support. Moreover, younger borrowers are more likely to engage with digital financial platforms, facilitating faster application processes and efficient fund disbursement. In contrast, older workers may exhibit greater risk aversion, relying on existing assets or informal lending networks rather than taking on new financial obligations. Their reluctance to access credit may also stem from limited familiarity with modern loan structures or concerns about repayment burdens as they near retirement age.

A similar pattern is observed in commercial bank credit access, where younger individuals are more likely to secure loans due to their longer repayment horizons and potential to build financial credibility over time. Unlike microcredit schemes, commercial banks tend to apply stringent risk assessment criteria, favoring borrowers with stable incomes, higher financial literacy, and digital access. Younger applicants—often in the early stages of their careers—may use credit for investments in education, technology adoption, or business development. In contrast, older individuals, particularly those engaged in informal employment, may lack documented financial histories or consistent income streams, making them less attractive to commercial lenders. Additionally, younger borrowers are typically more comfortable navigating mobile banking platforms, online credit evaluations, and digital loan applications, whereas older workers may prefer traditional banking methods, which often involve more bureaucratic and time-consuming procedures.

In the case of Bank Perkreditan Rakyat (BPR), younger individuals also exhibit a higher likelihood of obtaining credit, reinforcing the view that they are perceived as better long-term investment prospects. BPRs, which primarily serve micro and small enterprises in rural and semi-urban areas, may be more inclined to lend to younger applicants who are seen as more

adaptable to economic shifts and entrepreneurial opportunities. Moreover, younger borrowers are often more proactive in pursuing financial training, accessing business advisory services, and participating in government support programs, enhancing their creditworthiness. Despite their experience, older borrowers may encounter limitations such as outdated business practices, reluctance to adopt digital tools, or decreased financial mobility, which can hinder their engagement with formal credit providers. As BPRs increasingly adopt fintech-based lending models, younger applicants with higher levels of digital literacy gain a distinct advantage in securing access to these evolving credit services.

For cooperative credit, the negative relationship between age and credit access suggests that younger workers are more likely to engage with cooperatives, despite their traditionally community-driven nature. While cooperatives often offer low-interest loans based on social capital and peer-based lending mechanisms, they may favor younger members who are more actively involved in community economic activities. Younger borrowers may also be more inclined to utilize cooperative loans to finance entrepreneurial ventures, housing, or skill development, whereas older individuals often rely on accumulated savings, familial support, or government pensions rather than seeking new credit. The reluctance of older workers to borrow from cooperatives may also stem from a heightened aversion to debt or uncertainty regarding long-term financial obligations, particularly as income stability tends to decline with age. These findings reinforce the broader trend that credit access among migrant informal workers is significantly shaped by age-related financial behavior, risk perception, and economic mobility.

The relationship between age and credit access has been widely examined in prior studies, reinforcing the notion that younger individuals are more likely to seek and obtain credit due to their financial life-cycle stage, adaptability to new technologies, and longer repayment horizons. Rasskazova & Potekhina (2017) found that younger borrowers exhibit higher demand for credit, particularly for business start-ups and skill development, as they anticipate future income growth. Similarly, Krupa & Buszko (2023) highlighted that financial institutions are more inclined to extend credit to younger borrowers, viewing them as long-term clients with a greater ability to build credit histories. However, Kumar (2024) argued that age-related financial exclusion persists in many developing economies, particularly among older workers who may lack formal financial records, stable employment, or familiarity with digital banking services.

Furthermore, Tay et al. (2022) emphasized the role of digital financial inclusion in widening credit access for younger individuals, who are more likely to engage with mobile banking, online loan applications, and fintech-based credit models. This aligns with the findings of Demirgüç-Kunt et al. (2021), who argued that younger borrowers benefit significantly from the digitization of financial services, while older workers, especially those in low-income or informal sectors, continue to face barriers due to limited digital literacy and traditional financial behaviors. These studies collectively offer strong empirical support for the observed negative relationship between age and credit access, highlighting the importance of technological adaptation, financial education, and institutional trust in shaping borrowing behaviors across age groups.

The strong positive association between marital status and credit access suggests that married individuals are perceived as more financially stable and creditworthy, making them more likely to obtain loans across various financial institutions. This effect is particularly pronounced in Kredit Usaha Rakyat (KUR) and commercial bank credit, where lenders may interpret marriage as a proxy for reduced financial risk due to pooled household income and shared economic responsibilities. In the context of KUR loans, government-backed microcredit programs may favor married borrowers, presumed to utilize the funds more responsibly, often for household enterprises or small businesses that contribute to family

welfare. Similarly, commercial banks, which employ rigorous risk assessment protocols, may consider joint household income and financial interdependence as factors that enhance repayment capacity. This aligns with the findings by Silong and Gadanakis (2020), who observed that married individuals are more likely to access credit due to their perceived financial security. The stability associated with marriage may further incentivize lenders to approve loans, as married borrowers are often viewed as better financial planners with lower default risks than their unmarried counterparts.

The positive impact of marital status is also evident in Bank Perkreditan Rakyat (BPR) and cooperative credit, where married individuals may benefit from social capital and trust-based lending practices. BPRs, which primarily serve micro and small businesses, may regard marriage as a sign of commitment to long-term financial obligations, thereby enhancing a borrower's credibility. In cooperatives—where lending decisions often rely on community engagement and peer evaluations—married borrowers may be perceived as more responsible and financially reliable, leading to improved access to credit. Moreover, marriage may provide stronger social support networks, enabling borrowers to secure informal guarantees or co-signers, which can increase their eligibility for cooperative financing. The preference for married borrowers within these institutions is consistent with the broader literature on financial stability and household decision-making, which indicates that married individuals are more likely to engage in long-term financial planning and investment behavior. These findings reinforce that marital status enhances financial access by reducing perceived lending risks, improving borrower credibility, and facilitating resource pooling for loan repayment.

The differing effects of urban residency on access to various types of credit highlight the structural disparities in financial service availability between urban and rural areas. The positive association between urban residency and access to commercial bank credit and Bank Perkreditan Rakyat (BPR) loans supports the financial sector development theory, which posits that financial services are more concentrated in urban areas due to superior infrastructure, higher income levels, and greater financial literacy (Huang & Zhang, 2020). Urban residents benefit from closer proximity to bank branches, greater exposure to financial education, and easier access to digital banking services, all of which enhance their ability to navigate the formal credit market. Commercial banks, in particular, tend to operate predominantly in urban settings, where they can serve clients with verifiable income, stable employment, and well-documented credit histories, making urban borrowers more attractive. Similarly, BPRs—primarily supporting small and medium-sized enterprises—may allocate more credit to urban residents due to higher business density and greater financial security than rural borrowers. This aligns with the findings by Hasan et al. (2021), who emphasize the urgent need for improved rural financial infrastructure to bridge the urban-rural financial divide.

Conversely, the negative relationship between urban residency and access to Kredit Usaha Rakyat (KUR) and cooperative credit reflects the targeting strategies of these institutions, which focus on reaching underserved rural populations. As part of a government-backed microfinance initiative, KUR loans aim to provide capital to small businesses and agricultural workers in regions with limited access to formal financial institutions. Since rural borrowers often lack access to traditional banking services, KUR is vital in extending credit to financially excluded groups—explaining the lower likelihood of urban residents receiving these loans. Similarly, cooperatives operate within community-based lending frameworks, prioritizing rural borrowers who depend on social capital for financial support. These institutions rely on trust-based mechanisms and informal credit structures, making them more accessible to individuals outside the urban financial ecosystem. This finding underscores the importance of designing financial products that meet the specific needs of

rural populations. As Hasan et al. (2021) and Liu et al. (2021) noted, tailored financial services are essential for promoting rural development and alleviating poverty.

## CONCLUSION

The findings of this study reveal that various socio-demographic factors significantly influence access to different types of credit among migrant informal workers in Indonesia. Education exhibits a mixed effect—positively associated with access to commercial bank credit and Bank Perkreditan Rakyat (BPR) loans but negatively linked to Kredit Usaha Rakyat (KUR) and cooperative credit. Internet usage consistently enhances access to KUR and BPR loans, underscoring the growing role of digital literacy in promoting financial inclusion; however, it does not significantly impact cooperative credit access. Age demonstrates a negative relationship with credit access across all financial types, indicating that younger workers are more likely to obtain loans. Marital status positively influences credit access, suggesting that married individuals are perceived as more financially stable and creditworthy. Urban residency increases the likelihood of accessing commercial bank credit and BPR loans but decreases access to KUR and cooperative credit, reflecting these financial products' distinct geographic and institutional targeting strategies.

These findings carry important implications for policymakers and financial institutions aiming to enhance financial inclusion among migrant informal workers. The divergent effects of education and internet usage indicate that improving financial literacy and expanding digital infrastructure could be key strategies for increasing access to formal financial services, particularly commercial bank loans. The negative relationship between urban residency and access to KUR and cooperative credit emphasizes the need for tailored outreach and financial products that address the unique needs of rural populations, who are more likely to depend on these credit sources. Moreover, the influence of demographic characteristics such as age and marital status suggests that credit programs must consider household dynamics and life-cycle stages to better serve diverse segments within the informal workforce. Overall, these insights can inform the development of inclusive financial policies and targeted interventions that effectively bridge credit access gaps and support the economic empowerment of vulnerable populations.

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