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Determinant Factors of People's Business Credit (KUR) Repayment in The Livestock Sector

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ABSTRACT

The People's Business Credit (KUR) program plays a crucial role in supporting Indonesia's livestock sector, which remains a primary source of livelihood for many rural households. This study aims to identify the characteristics of livestock farmers receiving KUR and the factors influencing loan repayment. Data were collected through a survey of 505 livestock farmers in Purbalingga Regency who had received KUR financing. A binary logistic regression model was used to analyze the determinants of loan repayment. The results show that borrower age, loan amount, loan term, and credit risk score significantly affect loan repayment performance. In contrast, gender, number of dependents, education level, business experience, income, and repayment capacity do not have a significant effect. The findings suggest that borrower characteristics and loan terms are crucial in determining repayment outcomes. Policymakers are advised to align KUR loan terms with livestock production cycles and provide financial literacy support to improve repayment rates and ensure the long-term sustainability of livestock-based KUR programs.

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Introduction

Micro, Small, and Medium Enterprises (MSMEs) are the backbone of economic development and innovation worldwide, accounting for approximately 90% of job creation (Moritán, 2020; Tambunan, 2011). In Indonesia, MSMEs contribute 60.51% to the national GDP (IMF, 2024). The livestock sector plays a vital role in supporting rural livelihoods, household income, food security, and economic stability. However, livestock farmers, particularly in rural areas like Purbalingga Regency, face persistent challenges in accessing affordable credit, which restricts their ability to expand, innovate, and adopt modern production techniques (Khanal & Omobitan, 2020).

Access to credit has been extensively recognized as a critical factor influencing various aspects of agricultural development. Recent studies demonstrate a positive relationship between credit access and technological innovation, underscoring its pivotal role in advancing agricultural productivity (Ma *et al.*, 2023). Beyond innovation, credit also plays a significant role in supporting climate change adaptation efforts among farmers. For instance, Ojo & Baiyegunhi (2020), provide compelling evidence that financial support through credit

enhances farmers capacity to mitigate environmental challenges and adapt to climate variability. However, most of these studies focus primarily on crop agriculture, leaving a research gap concerning the specific context of livestock farming, particularly dairy and small ruminant sectors.

Purbalingga Regency exemplifies these challenges. The region is known for its significant livestock potential, especially in goat farming, with a population of 260,599 goats in 2022, including local breeds such as Kejobong and Jawarandu. Studies in similar regions highlight the importance of developing local goat farming potentials to improve farmer income and rural livelihoods (Nirmala *et al.*, 2024). Most livestock ownership is small-scale and group-based, reflecting the predominance of household-level operations. Farmer satisfaction and participation in livestock farming groups, as observed in Banyumas Regency, a neighboring area, are crucial factors that influence the success of livestock enterprises and access to services (Sugiarto *et al.*, 2019). Despite this potential, limited access to capital constrains productivity and hinders the sector's economic contribution.

Access to credit is critical for smallholder livestock farmers to adopt new technologies and

adapt to challenges such as climate change. Recent research on dairy farmers in East Java demonstrates that credit access positively influences farmers' capacity to implement climate adaptation strategies, underscoring the importance of financial inclusion for sustaining livestock productivity (Nugroho *et al.*, 2024; Purwanti *et al.*, 2023). International studies also show that formal credit significantly enhances farm performance and technical efficiency, while informal credit serves as a complementary source in rural finance (Haryanto *et al.*, 2023).

To address these financing barriers, the Indonesian government launched the People's Business Credit (Kredit Usaha Rakyat, KUR) program in 2007. KUR is designed to provide easier access to affordable credit for MSMEs, including those in the livestock sector, through low-interest loans and simplified requirements (Alamsyah *et al.*, 2018). For livestock farmers, KUR offers a critical alternative to traditional bank loans, which are often inaccessible due to the perceived risks associated with agriculture.

Nevertheless, the livestock sector faces unique risks such as price volatility, disease outbreaks, and climate-related shocks that can affect both production and income stability (Sari & Fatahuddin, 2020). These factors increase the likelihood of loan defaults, as farmers may struggle to meet repayment obligations during adverse events. Furthermore, the mismatch between KUR's standard loan tenures and the longer production cycles typical in livestock farming (e.g., cattle fattening) can exacerbate repayment challenges. Limited financial literacy and the small scale of operations further complicate effective credit management among livestock farmers.

While previous research has explored KUR's impact on MSMEs broadly, there is a notable research gap regarding credit repayment behavior within the livestock sector. Existing studies have identified factors influencing MSME loan repayment, such as borrower characteristics (age, education, business experience), income, loan size, and repayment period (Makandolu & Sogen, 2015; Wulandari, 2019). However, these determinants may manifest differently in the livestock sector, where sector-specific risks and demographic profiles are distinct from other MSME categories.

Therefore, this study aims to provide a deeper understanding of the factors influencing KUR repayment among livestock farmers in Purbalingga Regency. By analyzing demographic, economic, and loan-related characteristics alongside repayment behavior, this research seeks to fill the existing gap in the literature and offer insights for policymakers and financial institutions. Improved understanding of these determinants can inform the design of more effective credit schemes and support the sustainable growth of the livestock sector, ultimately strengthening its contribution to Indonesia's economic development.

Materials and Methods

The data for this study were based on a farmer survey conducted in Purbalingga Regency. This location was intentionally selected due to its significant role in livestock farming and the large number of farmers participating in the People's Business Credit (KUR) program. The region is renowned for its thriving small-scale livestock sector, making it an ideal setting to study the determinants of credit repayment performance within government-supported programs.

In consultation with a local bank in Purbalingga, five sub-districts were selected based on their high participation rates in the KUR program. These areas also represented varying repayment performance levels, enabling a more comprehensive analysis of the factors influencing repayment behavior among livestock farmers.

Quantitative data were obtained from both primary and secondary sources. Secondary data were gathered from relevant published and unpublished documents to gain a general overview of the issue. Primary data were collected through direct personal interviews (face-to-face) with farmers who had received KUR loans.

A total of 505 livestock farmers were selected using purposive sampling based on their participation in the KUR program. This group consisted of 418 non-defaulters and 87 defaulters, ensuring both repayment outcomes were represented for analysis. The number of respondents was determined based on consultations with the local bank and data availability, ensuring a sufficiently large sample to perform logistic regression analysis effectively.

The binary logistic analysis was employed to explore the key determinants of people's business credit repayment, as follows:

$$P_i = E\left(Y = \frac{1}{X_i}\right) = \frac{1}{1 + e^{-(\beta_0 + \beta_1 X_1)}}$$

Where P_i denotes the probability that respondent i is a non-defaulter ($Y_i = 1$), and $\exp(Z_i)$ represents the exponential function (Gujarati, 2003).

$$Li = \ln\left(\frac{P_i}{1 - P_i}\right) = Zi = \alpha + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_n X_n + \epsilon_i$$

Where:

- P_i = probability that respondent i is a non-defaulter
- α = intercept
- $\beta_1, \beta_2, \dots, \beta_8$ = estimated regression coefficients
- The explanatory variables were grouped into three categories:
 - Farmer Characteristics:
 - X_1 = Age (years)
 - X_2 = Gender (male = 1, female = 0)
 - X_3 = Family Size (number of dependents)

- X_4 = Education (years)
- Business Characteristics:
 - X_5 = Net Income (monthly IDR)
 - X_6 = Business Experience (years)
- Credit Characteristics:
 - X_7 = Loan Amount (IDR)
 - X_8 = Loan Term (months)
 - X_9 = Repayment Capacity (monthly IDR)
 - X_{10} = Credit Score (numeric value by the bank)
- ϵ = error term

Results and Discussion

Characteristics of sample respondents

The People's Business Credit (Kredit Usaha Rakyat or KUR) is a government program designed to improve access to financing for Micro, Small, and Medium Enterprises (MSMEs). This study examines the relationship between debtor characteristics and the collectability of KUR funds, based on observations and interviews with 505

debtors. Statistical results presented in Table 1 indicate that the average age of debtors with smooth collectability is 44.12 years, while non-performing debtors have an average age of 39.69 years. When it comes to education, variations in educational backgrounds of debtors do not show significant differences in loan repayment patterns, suggesting that formal education is not a significant factor influencing KUR collectability. Additionally, the data show that business experience, averaging 8.33 years, does not reveal significant differences between those with smooth repayment and those who are non-performing. Other characteristics, such as the number of dependents and credit scores, also do not indicate meaningful disparities. However, financial factors, including income, loan amount, loan period, and repayment capacity, do show significant differences between the two groups. These findings imply that KUR disbursement decisions should prioritize financial capacity rather than demographic characteristics of the debtors.

Table 1. Characteristics of the sample respondents

Variables	Non-Defaulter		Defaulter		Overall (505)		T-test
	Mean	SD	Mean	SD	Mean	SD	
Age (year)	44.12	12.20	39.69	11.18	43.35	12.13	3.123***
Family size (no.)	3.27	0.98	3.18	0.97	3.26	0.97	0.773
Education (level)	1.72	0.88	1.79	0.76	1.81	0.73	0.768
Old bussines (year)	8.42	4.92	7.90	3.86	8.33	4.76	0.932
Income (IDR)	2730310.98	1735079.55	2185229.89	1020951.42	2636405.9	1646554.9	2.829***
Loan Amount (IDR)	30764201.5	17252736.9	24398849.8	12887572.9	29667596	16745314	3.256***
Loan period (year)	7	7	0	6	3.36	0.85	5.804***
Repayment capacity (IDR)	1423832.82	868398.21	1143376.44	535438.21	1375516.6	827102.88	2.899***
Score credit	632.68	38.18	635.57	31.15	633.18	37.05	0.663
% of respondents to given choices for dummy variables							χ^2
Sex (Male)		66.34		13.86		80.2	0.450
Education		63.76		13.66		77.42	0.946

Table 2. Determinants of Repayment Estimated by the Instrumental Variable Logit Model.

Varibel	B	S.E.	Wald	df	Sig.	Exp(B)
Age (year)	0.033	0.013	6.872	1	0.009***	1.034
Sex	0.030	0.340	0.008	1	0.929	1.031
Family size (no.)	-0.146	0.144	1.034	1	0.309	0.864
Education (level)	-0.070	0.164	0.180	1	0.671	0.933
Old business (year)	-0.004	0.029	0.020	1	0.888	0.996
Income (IDR)	0.000	0.000	0.829	1	0.363	1.000
Loan Amount (IDR)	0.000	0.000	7.382	1	0.007***	1.000
Loan period (year)	-0.924	0.153	36.635	1	0.000***	0.397
Repayment capacity (IDR)	0.000	0.000	0.238	1	0.626	1.000
Score credit	-0.007	0.004	2.927	1	0.087*	0.993
Constant	7.306	2.931	6.212	1	0.013	1489.124

Source: Primary data analysis, 2024

Notes:

*) Significant at a 10% error level ($p < 0.10$)

**) Significant at a 5% error level ($p < 0.05$)

***) Significant at a 1% error level ($p < 0.01$)

The impact of various independent variables on the dependent variable. The Nagelkerke R Square value is 0.205, indicating that the independent variables age (X_1), sex (X_2), family size (X_3), education (X_4), business experience (X_5), income (X_6), loan amount (X_7), loan period (X_8), repayment capacity (X_9), and credit score (X_{10}) collectively explain 20.5% of the variance in the dependent variable. This means

that 20.5% of the independent variables influence the dependent variable.

However, despite including these key demographic and financial factors, it is important to recognize that other relevant variables not captured in this model may also significantly affect repayment outcomes. Factors such as market access, participation in livestock farmer groups, experience in managing credit from formal financial

institutions, price volatility of livestock products, and access to livestock extension services can play crucial roles. Prior studies have highlighted the importance of market stability and collective marketing through farmer organizations in enhancing cash flow and minimizing repayment delays. Additionally, technical guidance and veterinary support contribute indirectly to repayment performance by improving livestock productivity and mitigating production risks.

Therefore, to obtain a more comprehensive understanding of loan repayment behavior, future research should consider incorporating these additional variables. Doing so is expected to increase the explanatory power of the model and provide deeper insights into the multifaceted factors influencing loan repayment outcomes among livestock farmers.

Age

The statistical analysis reveals a significant age variable ($p = 0.009$), suggesting that older borrowers are more likely to repay KUR loans punctually. This finding is consistent with the research conducted by (Das *et al.*, 2021; Ojiako & Ogbukwa, 2012). In the livestock sector, older farmers typically engage in more stable economic activities, possess increased experience, exhibit better financial discipline, and maintain stronger networks within the industry, all of which contribute to their timely loan repayments. Their maturity in decision-making further enhances their ability to allocate resources effectively and prioritize loan repayment. In contrast, (Kassegn & Endris, 2022) found that younger borrowers exhibit different repayment behaviors.

Loan amount

The loan amount plays a significant role in determining the success of loan repayment. Logistic regression analysis shows that an increase of one million rupiah does not significantly affect the likelihood of successful repayment ($\text{Exp}(B) = 1.000$) despite being statistically significant ($p = 0.007$). The coefficient close to zero indicates a slight positive relationship, meaning that while the loan amount does influence repayment success, its effect is minimal. Therefore, lenders should provide loan amounts that align with borrowers' financial capacity and needs, considering repayment ability and loan duration. Research by (Rohmana & Wulandari, 2024) indicates that larger loans are generally associated with better repayment performance, further highlighting the importance of loan size in repayment outcomes. (AL-Sharafat *et al.*, 2013) explain that larger loans allow for more significant investments, which can lead to higher returns. In other words, more substantial loan amounts can improve farmers' access to essential inputs and better farm management practices, ultimately increasing productivity, reducing costs per unit, and boosting income.

Loan period

The variable loan period shows a very significant influence on the success of loan repayment. Logistic regression analysis results indicate that each additional year in the repayment period significantly decreases the probability of successful repayment ($\text{Exp}(B) = 0.397$; $p = 0.000$). This odds ratio value means that for every additional year added to the loan period, the odds of successful repayment decrease by 60.3% (as $1 - 0.397 = 0.603$). In other words, the odds of successful repayment become only 39.7% of what they were for the previous repayment period length. This negative relationship suggests that more extended loan periods increase the risk of default, possibly due to reduced payment discipline, economic fluctuations, or instability in the debtor's business over the long term. The repayment period is a significant determinant impacting respondents' loan repayment success (Sajna & Dharmaraj, 2024). A longer loan period can affect the borrower's ability to repay, as it may provide borrowers with the opportunity to use the funds for purposes other than initially intended, which can undermine payment discipline (Rohmana & Wulandari, 2024). This highlights the importance of setting an optimal loan period that aligns with the borrower's financial capacity and intended use of the loan to minimize the risk of default.

Credit score

The analysis results indicate that each one-unit increase in the credit risk score reduces the likelihood of successful loan repayment by 0.7% ($\text{Exp}(B) = 0.993$; $p = 0.087$). While this numerical relationship appears negative, in practical lending contexts, a higher credit risk score typically signals a borrower's strong financial history, consistent repayment behavior, and lower risk of default, thereby increasing lender confidence in the borrower's ability to repay. This interpretation aligns with findings from Grant & Deer (2020), who reported that 98.66% of successful loan applicants had VedaScores above 509, a commercial credit scoring system comparable in function to the credit risk score variable used in this study. Such evidence highlights the important role of credit scoring systems in predicting loan repayment performance and managing lending risk.

Conclusion

The repayment of KUR loans at Bank Purbalingga is influenced by several factors, including the borrower's age, loan amount, loan period, and credit risk score. In contrast, factors such as gender, number of dependents, education level, business experience, income, and repayment capacity were not found to affect loan repayment performance significantly.

These findings suggest that livestock farmers applying for KUR should be assessed based on key determinants such as their age, the

appropriateness of the loan ceiling relative to their business scale, and a carefully planned loan period that aligns with the livestock production cycle. Additionally, monitoring and strengthening borrowers' credit risk scores through financial literacy programs and structured payment scheduling could improve long-term repayment rates.

For the long term, it is recommended that KUR schemes for livestock farmers adopt shorter to moderate loan periods adjusted to livestock turnover rates and business cash flows to reduce the risk of default. Moreover, the provision of complementary services such as financial education, business mentoring, and regular business monitoring should be integrated into the KUR program to help farmers maintain loan discipline and improve financial management skills, thereby increasing the sustainability and repayment success of livestock-based KUR financing.

Conflict of interest

The authors have no conflict of interest to declare. All authors have seen and agree with the contents of the manuscript.

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Author's contribution

This research was conducted by three authors. AS, MAUM, and TJW jointly contributed to the research conception. AS and MAUM developed the methodology, while data analysis was performed collaboratively by AS, MAUM, and TJW. MAUM and TJW validated the research results. The original draft of the manuscript was written by AS, MAUM, and TJW, with MAUM and TJW responsible for reviewing and revising the manuscript.

Ethics approval

This article does not involve animal subjects, so ethical approval for animal studies is not necessary in the present study.

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