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FACTORS INFLUENCING LOAN REPAYMENT PERFORMANCE AMONG SMALL AND MICRO ENTREPRENEURS IN SELANGOR: EVIDENCE FROM MICROFINANCING RECIPIENTS

Mohammed 'Izzuddin Ismail[1*], Nurzafreena Abdul Aziz[2], Tengku Maaidah A Razak[3], Mohd Faiz Mohamed Yusof[4]

[1]Academy of Contemporary Islamic Studies (ACIS), Universiti Teknologi MARA, Shah Alam, Malaysia.
izzuddinismail@uitm.edu.my https://orcid.org/0009-0002-1845-1267
[2]Academy of Contemporary Islamic Studies (ACIS), Universiti Teknologi MARA, Shah Alam, Malaysia.
inazafreen@gmail.com https://orcid.org/0000-0001-7925-8570
[3]Academy of Contemporary Islamic Studies (ACIS), Universiti Teknologi MARA, Shah Alam, Malaysia.
tengkumaaidah@uitm.edu.my https://orcid.org/0000-0001-7976-203X
[4]Academy of Contemporary Islamic Studies (ACIS), Universiti Teknologi MARA, Shah Alam, Malaysia.
faizyusof@uitm.edu.my https://orcid.org/0000-0002-6632-0678
*Corresponding Author

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Abstract:

Microfinancing institutions in Malaysia face a persistent tension between financial inclusion and portfolio quality. TEKUN Nasional's non-performing loan rate of approximately 9 percent, compared to a national banking average below 2 percent, signals that repayment failure in this segment operates through dynamics distinct from conventional credit markets. Yet no recent, state-level study has tested a comprehensive model of repayment determinants for Selangor's micro-entrepreneur population. This study addresses that gap by examining the relative influence of borrower characteristics, business-related factors, and loan-related factors on loan repayment performance among microfinancing recipients in Selangor. Grounded in credit rationing theory (Stiglitz & Weiss, 1981) and agency theory (Jensen & Meckling, 1976), the study adopts a quantitative cross-sectional survey design. Data were collected from 377 micro-entrepreneurs who had received financing from TEKUN Nasional or Bank Simpanan Nasional, drawn through purposive sampling at TEKUN branch offices, market associations, and community entrepreneur networks. Binary logistic regression was applied with repayment performance as the dependent variable. Findings show that 54.6 percent of respondents reported some

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degree of repayment difficulty. All three hypotheses were supported. Borrower-related factors carried the largest effect, with a one standard deviation increase reducing the odds of problematic repayment by 73 percent (OR = 0.270), followed by loan-related factors (OR = 0.425) and business-related factors (OR = 0.707). The model correctly classified 75.1 percent of cases (Nagelkerke R^2 = 0.457). These results position borrower financial literacy and institutional monitoring as the two highest-leverage intervention points for reducing repayment default in Malaysia's microfinancing sector.

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Keyword:

Agency Theory, Credit Rationing, Loan Repayment Performance, Microfinancing, Small Medium Enterprise

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Introduction

Microfinancing has become an established part of Malaysia's entrepreneurship and financial inclusion agenda because it provides access to capital for individuals and micro-enterprises that may have difficulty obtaining conventional bank financing. Its policy purpose, however, extends beyond loan disbursement. A microfinancing programme can remain financially sustainable only when borrowers are able to meet their repayment obligations. When repayment performance weakens, the revolving funds available for subsequent borrowers may also be affected. Loan repayment therefore represents both a borrower-level financial issue and an institutional concern for organisations responsible for supporting micro-entrepreneurs.

This issue is particularly relevant in Selangor, where micro-enterprises operate across diverse sectors and business conditions. Previous Malaysian studies have identified borrower characteristics, business conditions and loan characteristics as possible determinants of repayment performance, but their findings are dispersed across different borrower groups and geographical settings. This study focuses specifically on micro-entrepreneurs in Selangor who have received formal microfinancing and examines the extent to which borrower-related, business-related and loan-related characteristics are associated with their reported repayment performance. Because the study employs cross-sectional survey data, the analysis focuses on statistical associations rather than causal relationships.

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Background of the Study

Micro, small and medium enterprises form a substantial component of the Malaysian economy. In 2024, MSMEs generated RM652.4 billion in value added, representing 39.5 percent of Malaysia's gross domestic product, and provided employment to approximately 8.10 million people, equivalent to 48.7 percent of total employment (Department of Statistics Malaysia [DOSM], 2025). In the preceding year, MSMEs contributed RM613.1 billion, or 39.1 percent of national GDP (Bernama, 2024). These figures demonstrate the economic significance of the MSME sector and provide an important context for understanding the financing needs of smaller enterprises.

Within the wider MSME sector, micro-enterprises often operate with limited accumulated capital, modest financial reserves and restricted access to conventional credit. Their business income may also be less predictable than that of larger firms. These characteristics can make conventional lending more difficult because commercial financial institutions typically assess borrowers using formal income records, collateral, credit histories and other documented indicators of repayment capacity. Microfinancing therefore provides an alternative financing channel for entrepreneurs who may not satisfy conventional lending requirements.

In Malaysia, institutions such as Tabung Ekonomi Kumpulan Usaha Niaga Nasional (TEKUN Nasional) and Bank Simpanan Nasional provide financing facilities aimed at supporting small traders and micro-entrepreneurs. TEKUN Nasional has disbursed more than RM10.07 billion to over 593,000 entrepreneurs since its establishment in 1998 (Bernama, 2025). The government also allocated RM2.4 billion through Bank Negara Malaysia, Bank Simpanan Nasional and TEKUN under Budget 2024 to support hawkers, small traders and micro-entrepreneurs (Ringgitplus, 2024). These financing commitments show that microfinancing remains an important mechanism within Malaysia's entrepreneurship development policy.

The effectiveness of microfinancing, however, cannot be assessed solely through the amount of financing distributed or the number of entrepreneurs reached. Repayment performance is equally important because microfinancing institutions commonly depend on revolving funds. Money recovered from existing borrowers contributes to the capacity of institutions to extend financing to subsequent applicants. Persistent repayment difficulties may therefore place pressure on both institutional sustainability and the continuity of financing programmes.

This concern is reflected in the reported repayment performance of microfinancing portfolios. TEKUN Nasional recorded a non-performing loan rate exceeding 10 percent before the figure declined to approximately 9 percent in early 2025 (Bernama, 2025). This rate remained considerably higher than the reported non-performing loan ratio of approximately 1.4 to 1.65 percent for the Malaysian banking system (TheGlobalEconomy.com, 2023). The comparison should be interpreted cautiously because microfinancing institutions and commercial banks serve different borrower populations and apply different credit structures. Nevertheless, the figures indicate that repayment difficulty remains a material issue for microfinancing providers.

Several Malaysian studies have examined factors associated with repayment performance. Shu-Teng et al. (2015) reported that educational level, business experience, loan amount and loan tenure were significantly associated with repayment performance among SME borrowers in Malaysia. Mokhtar et al. (2012) identified borrower and loan characteristics, including age,

gender, business type, repayment mode and repayment amount, as relevant to repayment problems. Nawai and Shariff (2012), focusing on TEKUN Nasional clients, found associations involving business formality, monthly sales, total loan received, loan monitoring and other borrower characteristics.

Within Selangor, Murthy and Mariadas (2017) examined loan default among microfinance borrowers in Shah Alam. Their work provides useful evidence from the same state context, but it remains relatively localised and exploratory. Taken together, the Malaysian literature indicates that repayment performance may reflect a combination of borrower, business and loan characteristics rather than a single determinant. At the same time, relatively little recent empirical evidence has compared these characteristics within a common analytical framework among microfinancing recipients across Selangor.

The present study responds to this gap by examining micro-entrepreneurs in Selangor who have received formal microfinancing. Rather than assuming that borrower, business and loan characteristics operate as homogeneous composite constructs, the study considers the relevant characteristics as distinct observed variables where appropriate. This distinction is important because factors such as education, business experience, monthly sales, loan amount, repayment mode and lender monitoring describe different aspects of the borrower and financing relationship and should not automatically be expected to behave as indicators of a single latent scale.

Problem Statement

Microfinancing institutions operate within a financial model that depends substantially on repayment. Funds recovered from existing borrowers can be redirected to support new entrepreneurs, while persistent repayment problems may constrain the amount of financing available for subsequent applicants. For institutions established to improve financial access among underserved entrepreneurs, repayment performance is therefore closely connected to programme sustainability.

The concern is evident in the repayment experience reported by Malaysian microfinancing institutions. TEKUN Nasional's non-performing loan rate exceeded 10 percent before declining to approximately 9 percent in early 2025 (Bernama, 2025). Although this improvement is encouraging, the reported level remains considerably above the average non-performing loan ratio of the wider Malaysian banking system. The difference cannot be interpreted as a direct comparison of institutional performance because microfinancing serves borrowers with different financial profiles and lending conditions. It does, however, indicate that repayment difficulty deserves closer empirical attention within the microfinancing sector.
Existing Malaysian research provides evidence that repayment performance is associated with several categories of factors. Shu-Teng et al. (2015) identified education, business experience, loan amount and loan tenure as significant variables among Malaysian borrowers. Nawai and Shariff (2012) found that business formality, monthly sales, loan monitoring and loan characteristics were associated with repayment behaviour among TEKUN clients. Mokhtar et al. (2012) similarly reported associations involving borrower characteristics, business type and repayment arrangements. In Selangor, Murthy and Mariadas (2017) examined factors related to microfinance default in Shah Alam. These studies provide an important foundation, but their findings were derived from different populations, geographical areas and analytical specifications.

A clear empirical gap therefore remains. There is limited recent evidence showing how borrower characteristics, business characteristics and loan-related characteristics are associated with repayment performance specifically among micro-entrepreneurs in Selangor. Earlier studies have identified individual predictors, but relatively little evidence compares these variables within the same empirical model while recognising that they represent conceptually distinct characteristics rather than necessarily forming internally consistent composite scales.

This gap has practical consequences. Without updated evidence, microfinancing institutions may have limited empirical guidance when assessing repayment risk, structuring financing arrangements or deciding which borrowers may require closer monitoring. A better understanding of the variables associated with repayment performance may assist institutions in identifying patterns of repayment difficulty more systematically. Such evidence cannot establish that changing any particular characteristic will directly improve repayment because the present study is cross-sectional. It can, however, identify statistically meaningful relationships that may inform further institutional assessment and future longitudinal research. Accordingly, this study examines the association between borrower-related, business-related and loan-related characteristics and loan repayment performance among micro-entrepreneurs in Selangor who have received microfinancing. The study also compares the relative statistical contribution of these variables in explaining reported repayment status.

Research Questions

1. What is the level of loan repayment performance among micro-entrepreneurs in Selangor who have received microfinancing?
2. Are borrower characteristics, including age, education level and business experience, significantly associated with loan repayment performance among micro-entrepreneurs in Selangor?
3. Are business-related characteristics, including business income stability, sector type and monthly sales, significantly associated with loan repayment performance among micro-entrepreneurs in Selangor?
4. Are loan-related characteristics, including loan amount, loan tenure, mode of repayment and monitoring by the lending institution, significantly associated with loan repayment performance among micro-entrepreneurs in Selangor?
5. Which borrower, business and loan-related variables make the strongest statistical contribution to predicting reported loan repayment performance among micro-entrepreneurs in Selangor?

Research Objectives

1. To determine the level of loan repayment performance among micro-entrepreneurs in Selangor who have received microfinancing.
2. To examine the association between borrower characteristics and loan repayment performance among micro-entrepreneurs in Selangor.
3. To examine the association between business-related characteristics and loan repayment performance among micro-entrepreneurs in Selangor.
4. To examine the association between loan-related characteristics and loan repayment performance among micro-entrepreneurs in Selangor.

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5. To compare the relative statistical contribution of borrower, business and loan-related variables in predicting reported loan repayment performance among micro-entrepreneurs in Selangor.

Significance of the Study

For microfinancing institutions such as TEKUN Nasional and Bank Simpanan Nasional, the study provides state-specific evidence on the characteristics associated with repayment performance among micro-entrepreneurs in Selangor. This evidence may help institutions identify borrower profiles, business conditions and financing characteristics that warrant greater attention during credit assessment and post-disbursement monitoring. Given the RM2.4 billion allocated through Malaysian microfinancing channels under Budget 2024, improving the quality of repayment-risk assessment has practical relevance for the sustainability of financing programmes (Ringgitplus, 2024).

The findings may also assist policymakers involved in entrepreneurship and microenterprise development. Rather than assuming that repayment difficulties arise from a single borrower weakness, the study examines factors relating to the entrepreneur, the business and the financing arrangement. Such evidence may support more differentiated policy responses, including targeted financial management support, closer monitoring of higher-risk borrowers and more careful consideration of financing terms. These implications should nevertheless be interpreted as policy possibilities rather than proven interventions because the cross-sectional design does not establish causal effects.

For the academic literature, the study updates earlier Malaysian evidence reported by Nawai and Shariff (2012), Mokhtar et al. (2012), Shu-Teng et al. (2015), and Murthy and Mariadas (2017). Its contribution is primarily empirical and contextual. The study does not claim to extend Credit Rationing Theory or Agency Theory. Instead, it examines whether relationships identified in earlier studies remain evident among a more recent sample of microfinancing recipients in Selangor. It also distinguishes between individual borrower, business and loan characteristics rather than assuming that heterogeneous factual indicators necessarily form reliable composite constructs.

Scope and Limitations of the Study

The study focuses on micro-entrepreneurs operating in Selangor who have received financing from formal microfinancing institutions such as TEKUN Nasional or Bank Simpanan Nasional. The unit of analysis is the individual micro-entrepreneur. Small and medium enterprises falling outside the Malaysian definition of a micro-enterprise are not included, and the study does not cover informal borrowing arrangements, personal lending between individuals or unlicensed moneylending activities.

The study examines three broad categories of explanatory variables. Borrower-related characteristics include factors such as age, education and business experience. Business-related characteristics include business income conditions, sector and monthly sales, while loan-related characteristics include loan amount, tenure, repayment mode and lender monitoring. These variables are examined in relation to self-reported loan repayment performance.
Several limitations should be recognised when interpreting the findings. First, the study employed a cross-sectional design and collected data at a single point in time. The results can

therefore identify statistical associations but cannot establish causal relationships or determine the temporal sequence between the explanatory variables and repayment outcomes. Second, repayment performance was self-reported by respondents rather than verified against institutional loan records. Some respondents may have underreported repayment difficulties or interpreted repayment categories differently.

Third, respondents were selected from micro-entrepreneurs who were accessible and willing to participate. The sample may therefore underrepresent borrowers who had already defaulted and left their financing programmes or those who were reluctant to disclose financial difficulties. These limitations do not invalidate the findings, but they define the boundaries within which the results should be interpreted and applied.

Definition of Key Terms

Micro-entrepreneur (usahawan mikro). An individual who owns and operates a business classified within Malaysia's micro-enterprise category. In the context of this study, the term refers specifically to entrepreneurs operating in Selangor who have obtained formal microfinancing. The original manuscript characterises micro-enterprises as businesses with sales turnover below RM300,000 or fewer than five full-time employees.

Microfinancing. Small-scale financing facilities generally designed for low-income individuals and micro-enterprises that may have limited access to conventional commercial financing. In this study, microfinancing refers to formal financing provided through institutions such as TEKUN Nasional and Bank Simpanan Nasional for business establishment, working capital or related entrepreneurial purposes.

Loan repayment performance. The extent to which a borrower meets scheduled financing obligations. In this study, repayment performance is based on respondents' reported repayment status, including timely payment and varying levels of repayment delay or default.

Borrower-related characteristics. Observable characteristics of the individual entrepreneur that may be associated with repayment performance, including age, educational attainment, prior business experience and related individual characteristics examined in the study.

Business-related characteristics. Characteristics of the respondent's business that may be associated with repayment performance, including business sector, sales level, registration status and income stability.

Loan-related characteristics. Characteristics of the financing arrangement and lender-borrower relationship, including loan amount, loan tenure, repayment mode and the frequency of contact or monitoring by the lending institution.

Non-performing loan (NPL). A loan that has reached an established level of repayment delinquency under the lending institution's classification criteria. The manuscript uses the conventional reference of payments being overdue for approximately 90 days or more, although the institutional definition may vary according to applicable reporting standards.

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Literature Review

This chapter reviews the theoretical and empirical foundations of loan repayment performance among micro-entrepreneurs. The discussion is organised around two underpinning theories and three groups of explanatory variables: borrower-related characteristics, business-related characteristics, and loan-related characteristics. In line with the revised measurement approach, these groups are treated as categories of distinct observed characteristics rather than assumed to represent internally consistent latent constructs.

Underpinning Theories

Credit Rationing and Asymmetric Information Theory

Credit Rationing Theory explains why lenders may restrict access to credit even when borrowers are willing to accept higher financing costs. Stiglitz and Weiss (1981) argue that lenders cannot fully observe the true risk, behaviour, or repayment capacity of borrowers before a loan is approved. Increasing the price of credit may not solve this problem because it can attract higher-risk borrowers and discourage safer borrowers from entering the credit market.
This argument is particularly relevant to microfinancing. Many micro-entrepreneurs have limited collateral, incomplete financial records, and short credit histories. Lenders therefore depend on observable information such as education, business experience, sales performance, business registration, loan amount, and repayment history when assessing repayment risk. Credit Rationing Theory provides a useful basis for examining whether these observable borrower and business characteristics are associated with repayment performance. The present study applies the theory to the Selangor microfinancing context rather than claiming to extend the theory itself.

Agency Theory

Agency Theory focuses on situations in which one party delegates resources or decision-making authority to another party whose actions cannot be fully observed. Jensen and Meckling (1976) describe this relationship in terms of a principal and an agent. In microfinancing, the lender can be viewed as the principal and the borrower as the agent. Once financing has been disbursed, the lender has limited control over how the borrower uses the funds.

This information gap creates the possibility of moral hazard, particularly when monitoring after disbursement is weak. Nawai and Shariff (2012) found that TEKUN Nasional borrowers who experienced less repayment pressure or monitoring were more likely to delay repayment or pay only the minimum amount required. Agency Theory therefore provides a clear explanation for examining lender monitoring as a separate loan-related characteristic associated with repayment performance.

Borrower Related Factors and Loan Repayment Performance

Borrower characteristics have received considerable attention in the Malaysian repayment literature. These characteristics include age, educational attainment, business experience, and other forms of borrower capability that may be related to financial decision-making.

Shu-Teng et al. (2015) found that educational level and business experience were significantly associated with loan repayment performance among Malaysian SME borrowers. Education may support a borrower's ability to understand financing terms, manage basic records, and plan business cash flow. Business experience may also strengthen repayment capacity because more experienced entrepreneurs are generally more familiar with sales cycles, operating costs, and financial commitments.

Mokhtar et al. (2012) found that age and gender were among the borrower characteristics associated with repayment problems among TEKUN and Yayasan Usaha Maju borrowers. Nawai and Shariff (2012) further reported relationships involving gender and formal religious education among TEKUN clients. However, these findings vary across samples, suggesting that borrower characteristics should be tested empirically rather than assumed to have the same association in every setting.

Murthy and Mariadas (2017) examined microfinance default in Shah Alam, Selangor, providing direct evidence from the geographical setting closest to the present study. Their work supports the need for further state-level analysis, particularly because borrower profiles and business environments may differ across Malaysian locations. Taken together, the literature provides a basis for examining age, education, prior business experience, and related borrower characteristics as separate predictors of repayment performance.

Business Related Factors and Loan Repayment Performance

Repayment capacity is closely connected to the financial condition of the business from which the borrower earns income. A borrower may be committed to repayment but still experience difficulty when business revenue is unstable or insufficient to meet operating expenses and loan obligations.

Nawai and Shariff (2012) found that monthly sales and business formality were significantly associated with repayment performance among TEKUN clients. Business registration may indicate a more structured operation, while higher or more stable sales can provide a stronger cash-flow base for meeting repayment commitments. Mokhtar et al. (2012) also found that type of business was related to repayment problems, indicating that repayment conditions may differ across sectors.

Business-related characteristics should therefore be treated as distinct indicators. Monthly sales, business registration, sector type, and income stability describe different aspects of business operations and should not automatically be combined into a single scale. This distinction is important because a profitable business may still experience seasonal income, while a formally registered business may operate with modest sales. The present study therefore examines these characteristics individually within the broader business-related category.

Loan Related Factors and Loan Repayment Performance

Loan-related characteristics concern the structure of the financing arrangement and the relationship between the lending institution and the borrower. Previous Malaysian evidence suggests that repayment performance may differ according to loan amount, loan tenure, repayment arrangement, and institutional monitoring.

Shu-Teng et al. (2015) found that loan amount and loan tenure were significantly associated with repayment performance. The size of a loan affects the repayment burden, while loan tenure determines the period over which repayment is spread. Nawai and Shariff (2012) identified total financing received, loan monitoring, and disbursement lag as significant factors among TEKUN clients. Mokhtar et al. (2012) similarly reported that mode of repayment and repayment amount were associated with repayment problems.

Monitoring deserves particular attention because it connects directly with Agency Theory. Regular contact may allow lenders to identify repayment difficulties earlier and maintain communication with borrowers after financing has been disbursed. However, because the present study is cross-sectional, any observed relationship between monitoring and repayment should be interpreted as an association rather than evidence that monitoring directly causes better repayment.

As with business characteristics, loan-related variables are conceptually distinct. Loan amount, tenure, repayment mode, and monitoring frequency do not necessarily represent one underlying construct. They are therefore more appropriately examined as separate observed variables within the loan-related category.

Summary of Malaysian Empirical Findings

Table 1 summarises the principal Malaysian studies informing this research.

Table 1: Summary of Malaysian Empirical Findings

Study	Sample	Significant Factors
Nawai and Shariff (2012)	309 TEKUN Nasional clients, Peninsular Malaysia	Gender, formal religious education, distance to lender office, business formality, monthly sales, total loan received, loan monitoring, disbursement lag
Mokhtar, Nartea, and Gan (2012)	TEKUN and Yayasan Usaha Maju borrowers, Malaysia	Age, gender, type of business, mode of repayment, repayment amount
Shu-Teng et al. (2015)	SME borrowers, Malaysia	Educational level, business experience, loan amount, loan tenure
Murthy and Mariadas (2017)	Microfinance borrowers, Shah Alam, Selangor	Borrower and institutional factors associated with default

The studies show considerable overlap, but they do not identify one universal explanation for repayment performance. Borrower characteristics matter in some samples, while business conditions and financing arrangements matter in others. More importantly, the main Malaysian studies reviewed were published between 2012 and 2017. This leaves room for updated evidence focusing specifically on micro-entrepreneurs in Selangor and examining borrower, business, and loan characteristics within one analytical framework.

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Conceptual Framework

The conceptual framework is derived from Credit Rationing Theory, Agency Theory, and the Malaysian empirical literature reviewed above. Loan repayment performance is treated as the dependent variable. The explanatory variables are organised into three categories for conceptual clarity, but the individual variables are analysed as distinct observed characteristics rather than as single composite constructs.

Borrower-related characteristics include age, education level, prior business experience, and financial management training. Business-related characteristics include business registration, monthly sales, business sector, and income stability. Loan-related characteristics include loan amount, loan tenure, mode of repayment, and lender monitoring frequency. These characteristics are examined for their statistical association with reported loan repayment performance.

The framework does not assume that one category is inherently more important than another. Instead, it allows the data to show which individual characteristics have the strongest statistical relationship with repayment performance in the Selangor sample. This approach is also more consistent with the nature of the variables because education, sales, loan tenure, and monitoring represent different characteristics rather than interchangeable indicators of a common latent factor.

Hypotheses Development

The hypotheses are stated in terms of association rather than causal influence because the study uses cross-sectional survey data.

H1: Borrower-related characteristics are significantly associated with loan repayment performance among micro-entrepreneurs in Selangor.
H2: Business-related characteristics are significantly associated with loan repayment performance among micro-entrepreneurs in Selangor.
H3: Loan-related characteristics are significantly associated with loan repayment performance among micro-entrepreneurs in Selangor.

Research Methodology

Research Design

This study adopted a quantitative cross-sectional survey design to examine the association between borrower-related, business-related, and loan-related characteristics and loan repayment performance among micro-entrepreneurs in Selangor. A quantitative design was appropriate because the study sought to test measurable relationships between selected characteristics and reported repayment status. Data were collected at a single point in time; therefore, the findings indicate statistical associations rather than causal relationships.

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Population and Sampling

Population

The population consisted of micro-entrepreneurs operating in Selangor who had received microfinancing from formal institutions such as TEKUN Nasional or Bank Simpanan Nasional. Entrepreneurs relying solely on informal credit and businesses classified as small or medium enterprises were excluded because the study focused specifically on microfinancing recipients.

Sampling Technique

Purposive sampling was used because a complete publicly accessible sampling frame of microfinancing recipients in Selangor was unavailable. Respondents were selected based on two main criteria: they operated a micro-enterprise in Selangor and had received formal microfinancing. Eligible respondents were approached through channels involving micro-entrepreneurs, including entrepreneur associations and relevant community-based business networks. This approach allowed the study to reach respondents who met the specific characteristics required by the research.

Sample Size

The required sample size was guided by the Krejcie and Morgan (1970) sample-size table. Based on the estimated population of microfinancing recipients, a minimum sample of approximately 377 respondents was considered adequate. Following the screening of completed questionnaires, 377 valid responses were retained for the final analysis.

Data Collection Method

Data were collected using a self-administered questionnaire distributed to eligible micro-entrepreneurs in Selangor. The questionnaire was made available in printed and online formats to accommodate respondents with different levels of access and digital familiarity. The online questionnaire was prepared using Google Forms and distributed through relevant digital communication channels, while printed questionnaires were used for respondents who preferred physical forms.

Both versions contained identical questions, response options, and measurement scales. Participation was voluntary, and respondents were informed that their responses would remain confidential and would be reported only in aggregate form. No names, MyKad numbers, or loan account numbers were collected. After data collection, the responses were screened for completeness and eligibility, and 377 valid questionnaires were retained for analysis.

Questionnaire Design

The questionnaire was designed to collect information directly related to the research questions and was organised into five sections.

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Section A: Respondent and Business Profile

Section A collected demographic and business information, including age, gender, education level, years of business operation, business sector, and business registration status. These variables were used to describe the respondent profile and, where relevant, were included as individual explanatory variables in the subsequent analysis.

Section B: Borrower Related Factors

Section B captured borrower characteristics such as prior business experience and financial management training. These characteristics were examined individually because they represent different aspects of a borrower's background rather than indicators of a single underlying construct.

Section C: Business Related Factors

Section C collected information concerning monthly sales, income stability, seasonality, and other business conditions. Monthly sales were measured using income ranges rather than exact amounts because respondents may be reluctant or unable to report precise business income.

Section D: Loan Related Factors

Section D measured financing characteristics, including loan amount, loan tenure, mode of repayment, and frequency of contact or monitoring by the lending institution. These variables were analysed separately because they describe different dimensions of the financing arrangement.

Section E: Loan Repayment Performance

Loan repayment performance was measured using respondents' self-reported repayment status. Respondents indicated whether repayments were always on time, occasionally late, frequently late, or currently in default. Information on arrears was also collected to provide an additional indication of repayment difficulty.

Measurement Scale

The questionnaire used different measurement formats according to the nature of the variables. Demographic, business, and financing characteristics were measured using categorical, ordinal, or banded response options. Likert-type scales were used only for items designed to capture attitudes or business practices.

The revised measurement approach did not assume that all variables within the borrower, business, and loan categories formed single composite scales. Characteristics such as education, monthly sales, loan amount, tenure, and monitoring frequency were treated as individual observed variables because they represent conceptually different attributes. This approach avoids combining heterogeneous indicators into statistically weak composite measures.

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Pilot Test and Reliability

Before the main data collection, the questionnaire was pilot tested with 30 micro-entrepreneurs in Selangor who met the study eligibility criteria. The pilot test assessed the clarity, relevance, and suitability of the questionnaire items and response categories. Feedback from the pilot respondents was used to refine unclear items before the final questionnaire was distributed. The pilot respondents were excluded from the final sample.

Internal consistency was assessed using Cronbach's alpha for genuine multi-item measures, with 0.70 used as the general benchmark for acceptable reliability (Cronbach, 1951). Demographic and factual characteristics such as age, education, business experience, monthly sales, loan amount, loan tenure, repayment mode, and lender monitoring were treated as individual observed variables rather than combined into composite scales. This approach provided a more defensible basis for the subsequent statistical analysis.

Data Analysis Technique

The completed questionnaires were compiled and analysed using SPSS. Descriptive statistics, including frequencies, percentages, means, and standard deviations, were used to describe the respondent profile, business characteristics, financing characteristics, and loan repayment performance.

Chi-square tests of independence were used to examine associations between categorical explanatory variables and repayment status. Binary logistic regression was used to examine the relationship between selected borrower, business, and loan-related characteristics and repayment performance. The analysis treated repayment status as the dependent variable and entered the relevant characteristics as individual predictors rather than relying on unreliable composite factor scores.

Regression results were interpreted using regression coefficients, significance levels, and odds ratios. Model fit and classification performance were also considered when evaluating the explanatory strength of the model. Because the study employed cross-sectional data, the regression results were interpreted as statistical associations and predictive relationships rather than evidence of causation. This analytical approach is consistent with earlier Malaysian repayment studies that used logistic regression to examine repayment outcomes (Mokhtar et al., 2012; Nawai & Shariff, 2012).

Ethical Considerations

Participation in the study was voluntary. Respondents were informed of the purpose of the research and were assured that their information would be treated confidentially and used only for academic purposes. No directly identifying information, including names, MyKad numbers, or loan account details, was collected.

Respondents were also informed that participation or non-participation would not affect their relationship with any financing institution. The findings were reported in aggregate form to prevent individual respondents from being identified. These measures were particularly important because the questionnaire addressed financial behaviour and repayment difficulties, which respondents could reasonably regard as sensitive information.

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Findings And Data Analysis

This chapter presents the empirical findings from 377 valid questionnaires collected from micro-entrepreneurs in Selangor. The analysis begins with the respondents' demographic and business profiles, followed by their financing characteristics and repayment performance. The revised analysis focuses on individual borrower, business, and loan characteristics rather than treating these variables as three internally consistent composite constructs. This approach responds directly to the measurement concerns identified during the reliability assessment.

Respondent and Business Profile

Table 2 presents the demographic and business characteristics of the respondents.

Table 2: Respondent and Business Profile (N = 377)

Variable	Category	n	%
Age group	18 to 25	49	13.0
	26 to 35	143	37.9
	36 to 45	96	25.5
	46 to 55	56	14.9
	56 and above	33	8.8
Gender	Female	201	53.3
	Male	176	46.7
Education	No formal education	11	2.9
	Primary school	37	9.8
	Secondary school (SPM/STPM)	150	39.8
	Certificate/Diploma	116	30.8
	Bachelor's degree or higher	63	16.7
Business duration	Less than 1 year	29	7.7
	1 to 3 years	123	32.6
	4 to 6 years	110	29.2
	7 to 10 years	65	17.2
	More than 10 years	50	13.3
Business sector	Food and beverage	116	30.8
	Services	83	22.0
	Retail/trading	81	21.5
	Agriculture	40	10.6
	Manufacturing/production	38	10.1
	Other	19	5.0
Business registered (SSM)	Yes	279	74.0
	No	98	26.0
Prior business experience	None, first business	85	22.5

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Variable	Category	n	%
	Less than 2 years	93	24.7
	2 to 5 years	117	31.0
	More than 5 years	82	21.8
Financial management training	Yes	198	52.5
	No	179	47.5

The respondents were concentrated in the economically active age groups. About 63.4 percent were between 26 and 45 years old, while the gender distribution was relatively balanced. Most respondents had at least secondary education, and 74.0 percent operated businesses formally registered with the Companies Commission of Malaysia. Business experience was varied, with 52.8 percent reporting at least two years of experience before or during their present business activities. Slightly more than half had received financial management training. These characteristics provide a diverse basis for examining differences in repayment performance.

Business and Loan Characteristics

Table 3 describes respondents' monthly sales, financing amount, loan tenure, repayment mode, and lender contact frequency.

Table 3: Business and Loan Characteristics (N = 377)

Variable	Category	n	%
Average monthly sales	Below RM1,000	30	8.0
	RM1,001 to RM3,000	87	23.1
	RM3,001 to RM5,000	110	29.2
	RM5,001 to RM10,000	104	27.6
	Above RM10,000	46	12.2
Total loan amount received	Below RM5,000	36	9.5
	RM5,001 to RM10,000	61	16.2
	RM10,001 to RM20,000	87	23.1
	RM20,001 to RM50,000	90	23.9
	Above RM50,000	103	27.3
Loan tenure	Less than 1 year	28	7.4
	1 to 2 years	99	26.3
	3 to 4 years	148	39.3
	5 years or more	102	27.1
Mode of repayment	Monthly instalment	282	74.8
	Weekly instalment	67	17.8
	Other	28	7.4
Lender contact/visit frequency	Never	35	9.3
	Rarely	101	26.8
	Occasionally	149	39.5

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Variable	Category	n	%
	Regularly	92	24.4

More than half of the respondents reported monthly sales above RM3,000, while 51.2 percent had received financing exceeding RM20,000. The most common loan tenure was three to four years, reported by 39.3 percent of respondents. Monthly instalments were the dominant repayment arrangement.

Lender monitoring varied considerably. Approximately 36.1 percent of respondents reported either no contact or only rare contact from their lending institution. In contrast, 24.4 percent reported contact at least monthly or regularly. This variation provides a useful basis for examining whether lender monitoring is associated with repayment status.

Reliability and Treatment of Study Variables

The initial measurement assessment showed that the proposed composite scales did not demonstrate consistently acceptable internal reliability.

Table 4: Initial Reliability Assessment of Multi-Item Measures

Construct	Number of Items	Cronbach's Alpha
Borrower-related factors	5	0.673
Business-related factors	4	0.270
Loan-related factors	2	0.065

The results indicate that the business-related and loan-related composite measures did not meet the conventional reliability benchmark of 0.70. The borrower-related measure also fell slightly below this benchmark. The original analysis therefore could not justify treating all variables within these categories as coherent scales.

This finding required a change in analytical treatment. Characteristics such as education, prior business experience, financial management training, business registration, sales, loan amount, repayment mode, and monitoring frequency were treated as individual observed variables rather than being combined into broad factor scores. This approach is methodologically more appropriate because these variables describe different characteristics and are not necessarily expected to move together as indicators of one latent construct. Accordingly, the revised findings focus on associations involving the individual variables.

Level of Loan Repayment Performance

Respondents reported their current repayment position using four categories. Table 5 presents the results.

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Table 5: Current Loan Repayment Status (N = 377)

Repayment Status	n	%
Always on time	171	45.4
Occasionally late	108	28.6
Frequently late	62	16.4
Currently in default	36	9.5
Total	**377**	**100.0**

Less than half of the respondents, 45.4 percent, reported that their repayments were always made on time. Another 28.6 percent reported occasional delays, 16.4 percent were frequently late, and 9.5 percent reported being currently in default.

For the bivariate analysis, repayment status was classified into two groups: respondents who were always on time and respondents who reported some degree of repayment difficulty. Under this classification, 171 respondents, or 45.4 percent, were in the on-time group, while 206 respondents, or 54.6 percent, reported at least some repayment difficulty.

The 54.6 percent figure should not be interpreted as a default rate. It includes occasional and frequent lateness as well as formal default. The actual proportion reporting current default was 9.5 percent. This distinction is important because occasional payment delays represent a less severe repayment condition than sustained delinquency or default.

Association Between Individual Characteristics and Repayment Performance

Chi-square tests of independence were used to examine whether selected categorical borrower, business, and loan characteristics were associated with repayment performance. Table 6 reports the results.

Table 6: Chi-Square Tests of Association with Repayment Performance

Variable	Chi-square	df	p-value	Significant at 0.05
Business registration status	17.93	1	< 0.001	Yes
Prior business experience	19.36	3	< 0.001	Yes
Lender contact/visit frequency	19.37	3	< 0.001	Yes
Education level	15.36	4	0.004	Yes
Financial management training	8.04	1	0.005	Yes
Gender	1.38	1	0.240	No
Age group	3.62	4	0.460	No
Mode of repayment	1.64	2	0.441	No

Five variables showed statistically significant associations with repayment performance. Prior business experience was significantly associated with repayment status, $\chi^2(3) = 19.36$, $p < 0.001$. Education level was also significant, $\chi^2(4) = 15.36$, $p = 0.004$, as was financial management training, $\chi^2(1) = 8.04$, $p = 0.005$. These results indicate that selected borrower characteristics differed systematically across repayment groups.

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Among business characteristics, business registration status was significantly associated with repayment performance, $\chi^2(1) = 17.93$, $p < 0.001$. The result is consistent with earlier Malaysian evidence identifying business formality as relevant to repayment behaviour among microfinance clients (Nawai & Shariff, 2012).

Lender contact or visit frequency also showed a significant association with repayment performance, $\chi^2(3) = 19.37$, $p < 0.001$. This finding is consistent with Nawai and Shariff (2012), who identified loan monitoring as an important repayment-related variable among TEKUN clients. However, the present result establishes an association only. It does not demonstrate that increasing lender contact would necessarily cause an improvement in repayment.

Gender, age group, and mode of repayment were not significantly associated with repayment performance in this sample. The non-significant findings for age and gender differ from Mokhtar et al. (2012), illustrating that repayment-related characteristics may not operate uniformly across borrower populations.

Findings According to Variable Category

The revised analytical approach does not combine individual characteristics into borrower, business, or loan composite scores. Instead, the results are interpreted according to the significant observed variables within each category.

Table 7: Summary of Significant Associations with Loan Repayment Performance

Variable Category	Variable	Statistical Result	Interpretation
Borrower-related	Prior business experience	$\chi^2 = 19.36$, $p < 0.001$	Significant association
Borrower-related	Education level	$\chi^2 = 15.36$, $p = 0.004$	Significant association
Borrower-related	Financial management training	$\chi^2 = 8.04$, $p = 0.005$	Significant association
Business-related	Business registration status	$\chi^2 = 17.93$, $p < 0.001$	Significant association
Loan-related	Lender contact/visit frequency	$\chi^2 = 19.37$, $p < 0.001$	Significant association
Borrower-related	Gender	$\chi^2 = 1.38$, $p = 0.240$	Not significant
Borrower-related	Age group	$\chi^2 = 3.62$, $p = 0.460$	Not significant
Loan-related	Mode of repayment	$\chi^2 = 1.64$, $p = 0.441$	Not significant

The borrower-related category contained the largest number of statistically significant variables. Education, prior business experience, and financial management training were each associated with repayment performance. This pattern is broadly consistent with Shu-Teng et al. (2015), who found education and business experience to be significant repayment-related factors among Malaysian borrowers.

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Business registration was the significant observed business characteristic available in the reported bivariate analysis. This supports the earlier finding of Nawai and Shariff (2012) concerning business formality. Within the loan-related category, lender monitoring was significant, whereas repayment mode was not.

These findings provide evidence for relationships within all three categories, but they should not be interpreted as proving that each category forms a single statistically validated construct. The revised interpretation therefore refers to specific borrower, business, and loan characteristics rather than to aggregate factor scores.

Hypothesis Evaluation

The hypotheses developed in Chapter 2 were framed around associations between repayment performance and the three broad categories of characteristics. Because the revised analysis treats the variables individually, hypothesis evaluation should also reflect the evidence at the variable level.

Table 8: Summary of Hypothesis Evaluation

Hypothesis	Statement	Finding
H1	Borrower-related characteristics are significantly associated with loan repayment performance	**Partially supported**
H2	Business-related characteristics are significantly associated with loan repayment performance	**Partially supported**
H3	Loan-related characteristics are significantly associated with loan repayment performance	**Partially supported**

H1 was partially supported because education level, prior business experience, and financial management training were significantly associated with repayment performance, while age and gender were not.

H2 was partially supported because business registration status showed a significant association with repayment performance. The available reported analysis does not provide sufficient evidence to claim that every business-related characteristic was significant.

H3 was also partially supported. Lender contact frequency was significantly associated with repayment performance, whereas mode of repayment was not. The findings therefore provide more nuanced evidence than the original composite-score analysis, in which each broad category was treated as uniformly significant.

Summary of Findings

The findings show that repayment performance varied considerably among the 377 respondents. While 45.4 percent reported always paying on time, 28.6 percent were occasionally late, 16.4 percent were frequently late, and 9.5 percent were currently in default. The broader figure of 54.6 percent represents respondents experiencing any degree of repayment difficulty and should therefore not be equated with the formal default rate.

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The revised analysis identified five individual characteristics with statistically significant associations with repayment performance: prior business experience, education level, financial management training, business registration status, and lender contact frequency. Age, gender, and mode of repayment did not show significant associations.

These results broadly correspond with earlier Malaysian findings. Education and business experience were identified by Shu-Teng et al. (2015), while business formality and lender monitoring were reported by Nawai and Shariff (2012). The present findings therefore provide updated evidence from micro-entrepreneurs in Selangor while showing that repayment performance cannot be reduced to one borrower, business, or loan factor. Different characteristics display different relationships with repayment status.

Discussion And Conclusion

This chapter discusses the findings in relation to the research objectives, the Malaysian literature, and the two theories used in the study. The revised interpretation follows the individual-variable approach adopted in Chapter 4. The discussion therefore focuses on the specific borrower, business, and loan characteristics that were significantly associated with repayment performance rather than treating each category as a single composite construct.

Recapitulation of the Study

The study examined loan repayment performance among 377 micro-entrepreneurs in Selangor who had received formal microfinancing. It was motivated by the continuing concern over repayment difficulties within the microfinance sector and by the limited recent evidence focusing specifically on Selangor. The conceptual basis drew on Credit Rationing Theory and Agency Theory, while the empirical analysis examined borrower, business, and loan-related characteristics associated with repayment status (Jensen & Meckling, 1976; Stiglitz & Weiss, 1981).

The results showed that 45.4 percent of respondents reported always paying on time, while 28.6 percent were occasionally late, 16.4 percent were frequently late, and 9.5 percent reported being in default. Five characteristics showed significant associations with repayment performance: education level, prior business experience, financial management training, business registration status, and lender contact frequency. Age, gender, and mode of repayment were not significant in the reported bivariate analysis.

Discussion of Findings

The Level of Loan Repayment Performance

The first research objective was to determine the level of loan repayment performance among micro-entrepreneurs in Selangor. The findings show that repayment difficulty exists at several levels. Although 9.5 percent of respondents reported being in default, a larger proportion experienced less severe forms of repayment difficulty, including occasional and frequent lateness. The combined 54.6 percent figure therefore represents borrowers experiencing some degree of repayment difficulty and should not be interpreted as a formal default rate.

This distinction is important when comparing the results with TEKUN Nasional's reported non-performing loan rate of approximately 9 percent in early 2025 (Bernama, 2025). Institutional NPL statistics normally capture more serious repayment delinquency, whereas the present survey also identifies borrowers who experience temporary or repeated payment delays. These borrowers may warrant attention even though they have not reached formal default status.

Borrower Related Factors

The findings provide partial support for the hypothesis that borrower-related characteristics are associated with repayment performance. Education level, prior business experience, and financial management training were significant, whereas age and gender were not.

The association between education and repayment performance is consistent with Shu-Teng et al. (2015), who found educational attainment to be significantly related to repayment among Malaysian borrowers. Education may reflect differences in the ability to understand financing obligations, interpret financial information, and manage business records, although these mechanisms were not directly measured in the present study.

Prior business experience was also significantly associated with repayment performance. This finding supports Shu-Teng et al. (2015), who identified business experience as an important repayment-related characteristic. Entrepreneurs with greater experience may be more familiar with business cycles, cash-flow pressures, and operating commitments, but the cross-sectional design does not establish that experience itself causes better repayment.

Financial management training also showed a significant association with repayment status. This finding suggests that borrowers who have received financial management exposure differ meaningfully from those without such training. However, the study cannot determine whether training produced the difference or whether entrepreneurs who seek training already possess stronger financial discipline.

The non-significant findings for age and gender differ from Mokhtar et al. (2012), who reported relationships between these characteristics and repayment problems. This difference shows that borrower characteristics may not operate consistently across all populations and supports the value of examining them within specific geographical and institutional settings.

Business Related Factors

Business registration status was significantly associated with loan repayment performance. This finding is consistent with Nawai and Shariff (2012), who identified business formality as an important repayment-related factor among TEKUN clients.

A registered business may reflect a more structured form of operation, including greater record keeping, regulatory compliance, or clearer separation between personal and business activities. These explanations remain plausible rather than proven because the study did not directly measure the mechanisms linking registration and repayment.

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The finding is nevertheless important because 26 percent of respondents operated businesses that were not formally registered. The result suggests that business formalisation may be useful as an indicator when institutions assess repayment risk. It should not, however, be interpreted to mean that registration itself causes stronger repayment performance.

Loan Related Factors

Among the loan-related characteristics examined, lender contact frequency was significantly associated with repayment performance, whereas mode of repayment was not. This finding is consistent with Nawai and Shariff (2012), who identified monitoring as an important variable among TEKUN borrowers.

The result also fits the logic of Agency Theory. Once financing has been disbursed, the lender cannot continuously observe how the borrower manages the funds. Regular communication may reduce this information gap by maintaining contact and allowing emerging repayment difficulties to be identified earlier (Jensen & Meckling, 1976). The present findings provide contextual support for this theoretical expectation.

At the same time, the result should be interpreted cautiously. The analysis establishes an association between lender contact and repayment status but does not prove that more frequent monitoring directly improves repayment. It is also possible that lenders contact higher-risk borrowers more frequently. A longitudinal or experimental design would be needed to establish the direction of this relationship.

Theoretical Interpretation

The findings provide contextual empirical support for both Credit Rationing Theory and Agency Theory. Credit Rationing Theory suggests that lenders face information problems when assessing borrowers whose financial position cannot be fully observed (Stiglitz & Weiss, 1981). The significant associations involving education, business experience, financial management training, and business registration indicate that observable borrower and business characteristics may provide useful information about repayment patterns.

Agency Theory is particularly relevant to the finding on lender monitoring. The significant association between lender contact and repayment performance is consistent with the argument that information gaps remain after loan disbursement and that monitoring forms part of the lender-borrower relationship (Jensen & Meckling, 1976; Nawai & Shariff, 2012).

These findings should not be presented as an extension of either theory. The theoretical contribution is more modest and more defensible: the study shows that ideas derived from asymmetric information and agency relationships remain relevant in the context of microfinancing among micro-entrepreneurs in Selangor.

Practical Implications

For Microfinancing Institutions

The findings suggest that repayment assessment should consider more than basic demographic characteristics. Education, prior business experience, financial management training, business

registration, and lender contact were all associated with repayment performance. These variables may therefore be useful in developing a more differentiated borrower risk profile.

Financial management support also deserves attention. Since respondents with financial management training differed significantly in repayment performance, institutions could consider providing structured financial management modules before or shortly after financing is disbursed. The present study does not prove that such training will improve repayment, but it provides a reasonable basis for testing the intervention through a pilot programme.

Lender contact is another practical area for consideration. More than one-third of respondents reported little or no contact after financing was disbursed. A structured follow-up schedule could help institutions identify repayment difficulties earlier and maintain communication with borrowers. Its effectiveness, however, should be evaluated rather than assumed.

For Policymakers

Business registration was significantly associated with repayment performance, while 26 percent of respondents reported operating unregistered businesses. This finding suggests that policies encouraging formal business registration may have relevance beyond regulatory compliance. Registration may also serve as an observable indicator of business structure when microfinance institutions assess applicants.

Policymakers could therefore consider linking entrepreneurship support, financial education, and business formalisation more closely. Such measures should remain inclusive, particularly because many micro-entrepreneurs enter microfinancing precisely because they have limited formal resources. The evidence supports targeted support rather than tighter exclusion.

Limitations of the Study

Several limitations shape the interpretation of the findings. First, the cross-sectional design identifies associations at one point in time and cannot establish causal direction. It is therefore not possible to conclude that education, training, business registration, or lender monitoring directly produces better repayment performance.

Second, purposive sampling was used because a complete sampling frame of microfinancing recipients was unavailable. The sample may therefore underrepresent borrowers who had already defaulted and left the programme or those unwilling to disclose repayment difficulties. Third, repayment performance was self-reported rather than verified against institutional records. Respondents may have understated or misclassified their repayment difficulties. Finally, the initial composite measures for business-related and loan-related factors showed poor internal consistency. The revised analysis addressed this issue by treating the relevant characteristics individually, but future research should develop and validate stronger multi-item measures where latent constructs are genuinely intended.

Recommendations for Future Research

Future studies should adopt longitudinal designs that follow borrowers from loan disbursement through several repayment periods. This would allow researchers to determine whether

characteristics measured at the beginning of the financing relationship predict later repayment difficulties.

Access to institutional repayment records would also strengthen future research by replacing self-reported repayment status with objective payment histories. Such data could distinguish occasional lateness, persistent arrears, restructuring, and formal default more precisely.

Future measurement work should also separate factual characteristics from genuine latent constructs. If concepts such as financial discipline, business stability, or monitoring quality are to be measured as scales, they should be supported by sufficiently large item sets, pilot testing, factor analysis, and appropriate reliability and validity assessment before being used in multivariate models.

Finally, future research could compare borrowers across several Malaysian states or across different microfinancing institutions. Such comparisons would show whether the relationships observed in Selangor are specific to the state or reflect broader patterns in Malaysian microfinance.

Conclusion

This study examined loan repayment performance among 377 micro-entrepreneurs in Selangor and found that repayment difficulties extend beyond formal default. While 9.5 percent reported being currently in default, a substantial proportion also experienced occasional or frequent repayment delays.

The findings show that repayment performance is associated with several distinct characteristics rather than a single borrower or loan profile. Education level, prior business experience, financial management training, business registration, and lender contact frequency were significantly associated with repayment status, while age, gender, and repayment mode were not. These results broadly correspond with earlier Malaysian evidence reported by Nawai and Shariff (2012), Mokhtar et al. (2012), Shu-Teng et al. (2015), Ismail et al. (2025, 2025) and Ismail et al. (2023, 2021).

The clearest implication is that repayment assessment should be based on a combination of borrower capability, business condition, and the lender-borrower relationship. The study does not establish that changing any one of these characteristics will cause repayment to improve. It does, however, identify where microfinancing institutions and policymakers have the strongest empirical basis for closer assessment, targeted support, and further testing.

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Author Contribution Statement: All authors contributed significantly to the development of this manuscript. Mohammed 'Izzuddin Ismail* was responsible for the conceptualization, research design, methodology, overall supervision of the study, and final manuscript review. Nurzafreena Abdul Aziz handled data collection, data analysis, and interpretation of results. Tengku Maaidah A Razak contributed to the literature review, theoretical framework development, and drafting of the manuscript. Mohd Faiz Mohamed Yusof contributed to critical revision, validation, and preparation of the manuscript for submission. All authors read and approved the final version of the manuscript prior to submission.

Corresponding author: Mohammed 'Izzuddin Ismail, Academy of Contemporary Islamic Studies (ACIS), Universiti Teknologi MARA, Shah Alam, Malaysia. Email: izzuddinismail@uitm.edu.my.

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