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A Structural Equation Model on Loan Repayment in Credit Cooperatives in Davao Region

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Abstract

The ability for credit cooperatives to continue lending in developing countries depends upon the repayment performance of their members. The purpose of this study was to develop a best-fit structural model that explains the loan repayment performance of cooperative members in the Davao Region, Philippines. The research sought to examine the impacts on loan repayment of money attitudes, client literacy and borrower characteristics. The theoretical framework for this research consists of The Theory of Planned Behaviour and The Agency Theory. A quantitative research approach was employed utilizing survey data collected from 468 cooperative members via a modified survey instrument. The analysis was carried out using Partial Least Squares Structural Equation Modelling (PLS-SEM) approach. The results of this study suggest that the amount of money a cooperatives' members are willing to lend is influenced by their attitude towards money (power prestige; retention time), their level of knowledge about financial products (financial literacy; financial anxiety) and their spouse's influence on them as borrowers; and all three variables were found to significantly influence how well the cooperative's members repay their loans. The final model demonstrates strong predictive power and explained many aspects of repayment performance through the use of variables relating to loan size, borrower capacity, duration of loan processing; duration of loan repayment; the extent of follow up by the lender; type of business being financed by the loan and location of the business being financed by the loan. Results indicate there is a strong link between a person's loan repayment behavior and the four variables that shape that behavior, including (a) their behavioral orientation, (b) financial capacity, (c) household influence, and (d) how loans are designed by lending institutions; therefore, it is recommended that cooperatives improve loan repayment sustainability outcomes through the implementation of literacy programs, behavioral screening for borrowers and improved design and delivery of credit schemes.

Keywords: Loan Repayment, Credit Cooperatives, Borrowers, Members, SEM, Philippines

INTRODUCTION

In the Davao Region, credit cooperatives continue to experience major difficulties in terms of repayment performance from their loan customers. Loan delinquency rates are very high, and this causes considerable risk to the operational stability of the credit cooperatives and the confidence of its members. For instance, in a study conducted in Ma-a Parish Multi-Purpose Cooperative study, it showed 31.28% of loans became overdue during 2015 and 22.95% of receivables stayed delinquent past 120 days which exceeded the 5%

past-due limit established by the Cooperative Development Authority. The researchers found that repayment problems stemmed from poor collection systems and borrower payment order issues and irregular monitoring procedures (Tongo, Corpuz, & Caminade, 2017). More so, the majority of cooperatives in Region XI maintain small-scale operations with limited capital and varying efficiency metrics which makes their loan portfolios more at risk of repayment issues (Cruz & Sabado, 2022) and the qualitative analysis of Davao microfinance institutions demonstrates that repayment problems emerge when members join fraudulent investment schemes and when sudden behavioral changes trigger increased defaults which forced cooperatives to spend more on credit control mechanisms (Jadraque & Moyon, 2024).

The repayment problems encountered in Davao follow the same patterns in the international level which show that loan repayment success depends on various borrower and institutional and contextual variables. In a literature review among of studies conducted in Africa, Asia, and Latin America, repayment performance basically depends on borrower traits that may include income stability together with education and multiple borrowing as well as institutional methods which include credit assessment and monitoring (Moahid, Hermes, & Hudon, 2024). A recent microfinance literature review with concentration in South Asia including India, it showed that determinants of repayment success differ across nations because governance structures and funding sources and the balance between outreach and portfolio quality have essential effects on repayment success and default rates (Kiran & Mayya, 2024).

This study has the potential to help credit cooperatives especially in adjusting credit policies (screening criteria, loan structuring, monitoring levels) and member services (e.g., targeted financial education) in order to improve loan portfolio and reduce member delinquency. This paper may also inform regulators to design proportional supervision and capacity-building strategies appropriate for cooperatives; and, to inform livelihood support from the local development agencies and local governmental units (LGUs). Examining the important factors that contribute to loan repayment among cooperatives can help lower financial risk for credit cooperatives, allowing members to build their equity steadily, and helps extend financial services to households and small businesses in Davao Region.

While there is a global knowledge base on this area of interest, three enduring research gaps support the need for research in the Davao Region. First, a very limited and fine-grained evidence of repayment performance at the member level exists in Philippine credit cooperative contexts. Although the seminal work in the Philippines has focused on the contract liability of microcredit (Malhotra & Baag, 2021), the cooperative contexts, which have different governance, different incentives, and different member dynamics, have not been thoroughly investigated (McKillop, French, Quinn, Sobiech, & Wilson, 2020; Duho, 2022). Second, the majority of studies isolate some important variables and only a few have attempted, within one framework, to integrate: borrower capabilities (e.g., financial literacy); social capital and group dynamics; loan design characteristics (tenor, pricing, collateral/substitutes); and cooperative level governance and risk behaviours even though theoretical and empirical evidence suggests that these areas correlates with delinquency and portfolio risk (Pamuk et al., 2022; Khanchel, Bentaleb, & Khiari, 2025; Lusardi & Mitchell, 2021). Third, the current literature has not yet taken into consideration the post-COVID and digitalization shocks that might have altered the screening, monitoring, and collection methods among credit cooperatives, and could also offer distinct influences across distinct borrower segments (e.g., women, smallholders, urban micro-entrepreneurs) in relations to the reasons for on-time repayment (Vik et al., 2023).

Numerous research studies have demonstrated the relationship among the variables being considered in this study. First, an individual's attitude towards money including dimensions such as planning, self-monitoring, materialism, anxiety, and long-term orientation loan repayment performance. de Almeida, Ferreira, Soro, and Silva (2021) demonstrated that the attitudes towards money include proactive control over spending and conscientious self-monitoring, which identifies differences between non-over indebted and over-indebted consumers. Similarly, Sabri et al. (2020) used structural equation modelling to show that the dimensions of money attitude, including thrift and materialism, helped to predict individual financial behaviours in populations from developing nations. Similarly, Lučić, Uzelac, and Previšić (2021) found evidence that people who hold materialistic attitudes about money tend to have irresponsible borrowing behaviours. Kumaraguru, Geetha, and Mohidin (2022) found evidence that people who are inclined towards long-term financial security tend to have more disciplined debt management. Clearly, these literatures suggests that borrowers who hold positive attitudes about money including mindfulness, planning, and responsible money behaviours may repay their loan in a responsible and timely way, whereas attitudes towards money that is influenced by anxiety, deficiency, disappointments, and immediate gratification greatly impacts loan repayment behaviours negatively.

Second, financial literacy is generally related to repayment performance across a variety of contexts. For instance, Cabueñas, Guay, Montermoso, Pawaon, and Tilud (2025) found evidence that rural borrowers in the Philippines had higher repayment discipline and less loan delinquency if the borrowers had high levels of financial literacy. Similarly, Baidoo, Yusif, and Ayesu (2020) discovered that micro-finance clients in Ghana exhibit excellent repayment behavior when the clients have high level of financial literacy. In a separate study, Niyongabire and Mulyungi (2020) discovered an improved repayment rates among microfinance institutions in Rwanda when financial literacy training was structured. Likewise, Anthony, Sabri, Magli, Abdul Rahim, Sufian, and Othman (2021) concluded that a financially literate person could manage debt and plan for retirement. Moreover, in a study conducted in Malaysia, Sabri, Wijekoon, and Abd Rahim (2020) found that the dimensions of money attitude exhibit significant moderating effects in the relationship between financial literacy and financial vulnerability, which underlines many individuals' mindset towards money, which may either protect them from, or add to, financial risks. In the same vein, Jaffar, Mohd Faizal, Selamat, Awaludin, and Sulaiman (2024) reported that money attitudes of young people in Malaysia, that is, attitudes of effort/ability and retention were positively associated with an ability to manage debt and the level of financial well-being, suggesting that the members of cooperatives that have positive money attitudes (for example, a commitment to retention and a conscious decision to spend money) are more likely to repay their loans consistently than those who view money differently.

Third, borrower characteristics are highly relevant variables associated with loan repayment performance. According to Kassegn and Endris (2022), the ability to pay on time significantly reduces when borrowers divert loans to nonproductive uses in rural lending contexts. Borrowers' household decision-making characteristics are also relevant where Khuong Ninh (2025) found that including spouses and supportive household decision-making in productive usage improved household repayment performance by reinforcing joint accountability among spouses in their study of agricultural borrowers. Ur Rehman, Khalid, and Rasheed (2023) stated that flexible repayment schedules that involve saving accounts and/or grace periods have been known to increase the likelihood of successfully repaying loans for rural borrowers by diminishing their liquidity restraints. There are many factors that affect repayment rates, such as the characteristics of the borrower, how close the borrower is to a financial institution, and how

frequently the borrower is monitored and/or interacted with; all may be used to help reduce the number of borrowers who default as found in the study on cooperatives lending in Ethiopia by Sato (2024). Finally, Mulatu and Hagayo's (2022) study (cross-sectional) of education, ownership of land, and family income levels provide additional evidence that these factors are significant predictors regarding the ability for borrowers to successfully repay loans as they directly relate to stability of income and better resource management.

Despite these, there are key gaps that remained in the literature, including limited member-level evidence in Philippine credit cooperatives context and the lack of integrated models capturing borrower, social, and institutional factors. Additionally, post-COVID and digitalization impacts on lending and repayment behavior remain underexplored. This study aims to come up with the best fit model for loan repayment performance in Davao Region. Specifically, it aims to answer the following objectives: First, to determine the level of money attitude of the borrowers in terms of power prestige, retention time, distrust, and anxiety. Second, it aims to ascertain the level of client's literacy in terms of financial literacy and economic literacy. Third, to assess the level of borrower's characteristics in terms of loan diversion, spouse influence, credit schemes, and vicinity. Fourth, to know the level of loan repayment performance of borrowers in terms of loan size, borrower experience, borrower capacity, loan processing period, follow up, interest rate, weather condition, inflation, political instability, business type, business location, and loan repayment period. Fifth, to determine the significant relationship between: loan repayment performance, money attitude, client's literacy, and borrower's characteristics. Sixth, to determine which exogenous variable/s significantly influence the loan repayment performance of borrowers and finally, to identify the best fit model for loan repayment performance of borrowers in cooperatives.

This study utilized two prominent theories. First, The Theory of Planned Behavior (TPB), which Ajzen (1991) first proposed, provides a strong framework for understanding how attitudes, social norms, and perceived behavioral control lead to behavioral intentions. Individuals are generally more likely to enact specific behaviors when they hold positive attitudes toward the behavior, perceive social norms to enact the behavior, and have perceived (self-efficacy) control to enact the behavior. In the context of loan repayment performance, TPB can be useful in explaining how individual money attitudes, financial literacy, and borrower characteristics translate to repayment performance. For example, positive money attitudes reinforce borrowers' intentions to repay on time. In contrast, financial literacy reinforces borrowers' perceived control to repay obligations effectively because the borrower can follow the repayment schedules. At the same time, borrower characteristics (e.g., attitude towards money and household decision-making) represent norms and compliance with repayment obligations (self-efficacy). Overall, TPB provides a behavioral and psychological foundation to measure individual and contextual variables' direct and indirect effects on repayment performance.

Another theory being considered in this paper is the Agency Theory, which was first developed by Mitnick (1975) to explain how principals (lenders) and agents (borrowers) relate when the two parties have asymmetric information and interests. The theory describes how agents may engage in opportunistic disutility (i.e., moral hazard, loan diversion), primarily prevalent when there are limited monitoring capacity and poorly aligned incentives. Agency Theory is a complementary theory in the context of credit cooperatives. Within this context, borrowers who engage in loan fund misuse or have less accountability mechanisms are less likely to pay their loan obligation. Agency Theory explores the interaction between trust, monitoring, and incentives. It serves as an important structural and relational basis for developing an understanding of repayment performance, as well as the behavioral factors examined in TPB.

This research endeavor supports a larger public benefit, as it aligns with Sustainable Development Goal #11 (Sustainable Cities and Communities) as well as Sustainable Development Goal #12 (Responsible Consumption and Production). This study highlights how credit cooperatives can support and help build sustainable, inclusive local economies. Through the examination of the factors that influence repayment quality of loans made to borrowers, the researcher has provided an extensive amount of evidence that cooperative financing systems can improve the ability of communities to have access to financial capital reliably over time, by enhancing the financial resilience of communities at the local level and by increasing the level of inclusivity in the ability of borrowers to obtain credit, as well as through strengthening the sustainability of the grassroots economic system. Furthermore, the researcher recognized that responsible borrowers are essential to the success of the cooperative lending system. In summary, the researcher has provided practical results that will assist in identifying ways to improve the practices of the Davao Region's cooperative lending systems, thus supporting the sustainability of community development while fostering responsible financial decision-making.

This research paper involves two important constructs: the endogenous and exogenous variables: The endogenous variable is loan repayment performance (Adinew, 2019) and the exogenous variables are: money attitude (Ahmad, 2016), client's literacy (Mori, Nyantori, & Olomi, 2016), and borrower's characteristics (Njangiru, James, & Muathe, 2014). Figure 1 shows the framework of the study.

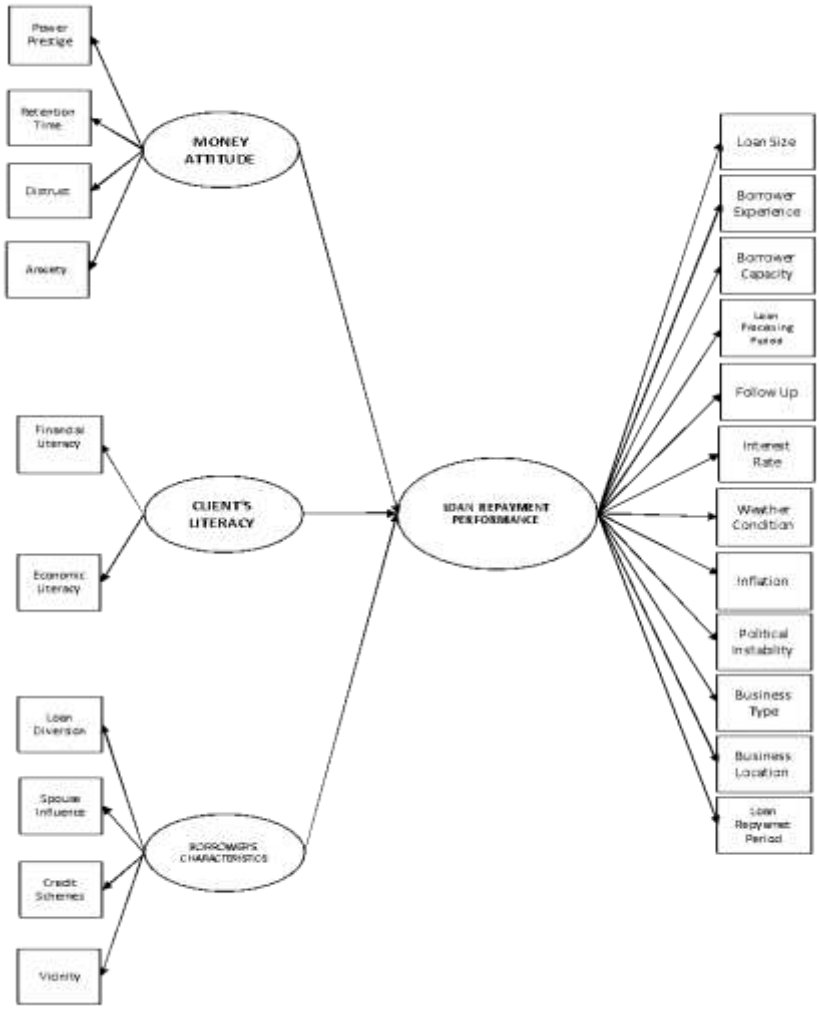

Figure 1. Conceptual Framework of the Study

MATERIALS AND METHOD

Research Respondents

The study has a sample of 468 respondents, all of whom are members of registered credit cooperatives and have previous experience with the credit cooperatives' loan services. The sample size exceeds the minimum requirements for Partial Least Squares-Structural Equation Modeling (PLS-SEM), thus providing sufficient statistical power and robustness. Current methodological literature suggests that PLS-SEM provides robust estimates with medium to large sample sizes, and samples above 200 are generally sufficient for complex models with multiple constructs and indicators (Hair et al., 2021). Also, per Sarstedt et al. (2020), the sample size for this research meets both the ten-times rule requirement and stricter power-based requirements established for analysis using PLS-SEM. The target population is comprised of registered credit cooperative members within the Davao Region that have been active in using at least one loan product within the previous two years, who are at least 18 years old, and who have sufficient literacy to complete a survey instrument with reliability. The target population excludes members of credit cooperatives who have never borrowed from a credit cooperative institution; those under the age of 18; those inactive (i.e., transacted with the credit cooperative in the last year) members of cooperative(s); and, members (individual(s) who, due to literacy limitations, either cannot or are unwilling to provide accurate responses to the survey.

Materials and Instrument

The adapted questionnaire was used to collect data on the variables included in the structural equation model, comprising of four sections: (1) Money Attitude (adapted from Ahmad, 2016); (2) Client's Financial Literacy (derived from Mori et al., 2016); (3) Borrower Characteristics (adapted from Njangiru et al., 2014); and (4) Loan Repayment Performance (derived from Adinew, 2019). In addition, content validity was established through five subject matter experts' evaluations (three academics in finance and entrepreneurship and two practitioners of credit cooperative management) on the first draft of the instrument. The experts assessed the items on the basis of clarity, overall relevance, and correspondence with the constructs under investigation. The feedback provided by the current subject matter experts may aid in revising the questionnaire by clarifying unclear wording and determining whether all items are relevant within the context of credit cooperatives in the Davao Region.

After expert validation, a pilot study was administered with 30 cooperative members who did not participate in the primary study. The pilot was designed to test internal consistency and instrument reliability. Reliability was examined using Cronbach's alpha (α) with a criterion-level of 0.70 or greater recommended for social science research (Hair et al., 2019).

The study recruited participants to respond to questions regarding their behaviors and perceptions using a five-point Likert scale (all values are shown in parentheses). Responses were classified according to specific ranges, as follows: 5 (4.21 - 5.00), very high - regularly demonstrated; 4 (3.41 - 4.20), high - often demonstrated; 3 (2.61 - 3.40), moderate - sometimes demonstrated; 2 (1.81 - 2.60), low - seldom demonstrated; 1 (1.00-1.80), very low - almost never demonstrated. The use of a scale provides an opportunity for researchers to systematically interpret the respondents' answers and provides an opportunity for researchers to have a clearer and more meaningful representation of observed patterns of behavior among respondents.

Design and Procedure

The Partial Least Squares-Structural Equation Modelling (PLS-SEM) approach was employed to analyze the findings of this research. The use of PLS-SEM was justified by the fact that it is well suited for both

theory building and studies involving prediction, particularly when dealing with the integration of social, institutional and behavioral variables (Hair et al., 2021). In contrast to covariance-based structural equation models, PLS-SEM does not rely on the stringent assumptions of multivariate normality and has been demonstrated to be a robust estimator of complex models composed of multiple latent variables and indicators.

With the nature of the study, there are numerous reasons why PLS-SEM is an ideal approach. For instance, this study intends to explain and predict loan repayment behaviours rather than to verify a previously existing theory. Moreover, the model being proposed consists of constructs within both behavioral finance as well as cooperative lending, thus producing a structural model that is moderately complex. Furthermore, PLS-SEM has been increasingly applied to recent studies investigating cooperative finance, microfinance and behavioural decision making; thus, indicating its strong predictive validity and flexibility (Sari & Totosy de Zepetnek, 2021; Ghasemy et al., 2020).

The research followed a set procedure to guarantee an ethical balance; a consistent method of study; and a valid set of results. An ethical clearance was obtained from The Ethics Review Committee at the University of Mindanao, confirming the study's adherence to confidentiality, voluntary participation and informed consent. After obtaining certificate of approval (UMERC-2025-515), the researcher electronically sent official request letters to the selected credit cooperatives in the Davao Region, asking for permission to conduct the study among their active borrowing members. Third, after locating the required approvals from the four cooperatives selected to participate in the study, the instrument used for the study was administered through face-to-face distribution, which allowed broader access and convenience in reaching respondents and lessen limitations in the process. A short explanation of the objective of the study, confidentiality, and voluntariness of the participants was be included in the survey form at the beginning. Fourth, after the researcher has gathered responses, the data was tabulated and checked for analysis, including assessing for missing values and response patterns, and ensuring that assumptions of study are met. Lastly, the cleaned dataset was analyzed and calculated the statistics, validity and reliability testing and SEM analysis.

RESULT AND DISCUSSION

Outer Model Analysis

The assessment of convergent validity and internal consistency reliability follows the traditional threshold criteria in PLS-SEM. Cronbach's alpha (α) and Composite Reliability (CR) should be at least 0.70 to demonstrate internal consistency reliability, while Average Variance Extracted (AVE) should be above 0.50 to show convergent validity (Hair et al., 2021). These thresholds suggest that the indicators are measuring the same thing and that the construct explains more than half of the variance in the indicators. All the constructs in Table 2 met and exceed the minimum criteria specified, thus fulfilling the criteria for reliability and convergent validity. Various literatures recommend the use of composite reliability (CR) instead of Cronbach's alpha in PLS-SEM, since CR does not require tau-equivalence and provides a better estimate of reliability in practical models (Sarstedt et al., 2020; Hair et al., 2021). The AVE values above 0.50 provide further evidence of the satisfactory convergent validity of the measurement model, as recommended in the literature on behavioral and financial studies using PLS-SEM (Ghasemy et al., 2020). The discriminant validity, tested using the Fornell-Larcker criterion, requires that the square root of the average variance extracted (AVE) of each construct should exceed its highest correlation with any other

construct. This ensures that a construct shares more variance with its indicators than with any other latent variable in the model (Hair et al., 2021).

Table 1
Measurement Model Analysis (Convergent)

	α	Composite Reliability	AVE
Money Attitude	0.895	0.947	0.907
Client's Literacy	0.855	0.924	0.874
Borrower's Characteristics	0.897	0.91	0.766
Loan Repayment Performance	0.903	0.946	0.683

As shown in Table 3, the diagonal elements (square root of AVE) exceed the corresponding correlations for all constructs, thereby satisfying the Fornell-Larcker criterion. The discriminant validity criterion, as discussed in the contemporary PLS-SEM literature, remains a basic requirement for testing discriminant validity, especially in applied social sciences and finance studies, where constructs are known to be theoretically related but empirically distinct (Ghasemy et al., 2020; Sari and Totosy de Zepetnek, 2021).

Table 2
Discriminant Validity (Fornell-Larcker Criterion)

Construct	Loan Repayment Performance	Money Attitude	Client Literacy	Borrower's Characteristics
Loan Repayment Performance	0.826			
Money Attitude	-0.483	0.952		
Client Literacy	0.7	-0.521	0.935	
Borrower's Characteristics	0.693	-0.563	0.848	0.875

The Heterotrait–Monotrait (HTMT) ratio provides a more stringent assessment of discriminant validity. Some scholars recommend that HTMT values should be below 0.85 for conceptually distinct constructs, or below 0.90 in more lenient, applied research contexts (Sarstedt et al., 2020; Hair et al., 2021).
The HTMT values shown in Table 4 fall within these acceptable thresholds, indicating that discriminant validity is established. Recent methodological studies highlight HTMT as the preferred criterion for detecting discriminant validity issues, particularly in complex behavioral models, and note that values slightly approaching the upper threshold may still be acceptable when strong theoretical justification exists (Sarstedt et al., 2020; Hair et al., 2021).

Table 3
Discriminant Validity (Heterotrait-Monotrait Ratio (HTMT) Matrix)

Construct	Loan Repayment Performance	Money Attitude	Client Literacy	Borrower's Characteristics
Loan Repayment Performance				
Money Attitude	0.525			
Client Literacy	0.774	0.594		
Borrower's Characteristics	0.748	0.626	0.967	

Best Fit Model for Loan Repayment in Credit Cooperatives in Davao Region

Table 4 shows the Goodness-of-Fit summary, model 1 displayed a very poor fit, with the SRMR value being over the acceptable level and the NFI below the acceptable level. Although the model did have some moderate explanatory power (R^2=0.31), such results indicated that the initial specification had been badly limited in representing the complexities of cooperative members' loan repayment behavior.

Model 2 has improved dramatically, as this achieved acceptable values for both the SRMR and NFI, while the explanatory power notably increased (R^2=0.45) with a good predictive relevance (Q^2=0.29). There is evidence, therefore, that model respecification most likely through the elimination of weak indicators or refinement of structural paths has achieved improved statistical and substantive adequacy.

Model 3 was the best-fitting, most robust model, meeting all SEM recommended criteria. The SRMR value of 0.061 indicates good approximate model fit; the NFI is 0.94, which exceeds the conventional threshold, indicating good comparative fit. More importantly, this model explains 62 percent of the variation in loan repayment performance, which is high by the standards of both behavioral and financial research. Further evidence of strong in-sample explanatory power and out-of-sample predictive ability for the final model is provided by positive values of Q^2 and Q^2_predict.

Table 4. Summary of Goodness-of-Fit Measures

Index	Criterion	Model 1	Model 2	Model 3
SRMR	<0.08	0.091	0.074	0.061
NFI	>0.90	0.87	0.91	0.94
R^2(Endogenous)	≥0.26	0.31	0.45	0.62
Q^2(Blindfolding)	>0	0.18	0.29	0.41
Q^2 Predict	≥0	0.12	0.27	0.38
GoF	≥0.36	0.42	0.54	0.67
Model Status	-	Poor Fit	Acceptable	Best-Fit

Figure 2 show the best fit model for loan repayment performance among members of credit cooperatives in Davao Region. The final model was found to have good empirical fit and explains a relatively high

amount of the variance in loan repayment performance of members of credit cooperatives in Davao Region ($R^2 = 0.62$). This level of explanation is regarded as high in the context of behavioral finance research and add credibility to the fit of TPB and Agency Theory constructs for explaining repayment behavior. Current literature increasingly acknowledges that repayment behavior is determined by individual cognitive and behavioral factors and shaped by the lender–borrower relationship (Kaiser & Menkhoff, 2020; Sari & Totosy de Zepetnek, 2021). In line with the TPB, borrower's characteristics was found to be an important determinant of loan repayment performance. Characteristics refers to a person's evaluative judgment towards performing an action and it determines how much the repayment is perceived as required, useful or morally obligatory. Within the cooperative perspective, borrower characteristics (as reflected by repayment belief, patience impatience and persuasive orientation) is a measure of potential members' internal tendency to fulfill borrowing agreement. Recent empirical research also corroborates that positive characteristics affect repayment performance significantly and lead to lower delinquency rate especially when community and cooperative oriented lending practices is closely emphasized (Ali et al., 2021; Ng & Johnson, 2022).

The final model was refined using Partial Least Squares–Structural Equation Modeling (PLS-SEM) to retain only those indicators that met acceptable standards of reliability and validity. In PLS-SEM, indicators are typically removed when they exhibit low outer loadings, weaken the construct's average variance extracted (AVE), or do not contribute meaningfully to the overall explanatory power of the model. Through this iterative process, the model was streamlined to include only the most relevant and statistically supported indicators for each latent construct.

The two dimensions of money attitude which are power prestige and retention time were retained in the model, suggesting that cooperative members' view of money as a status symbol and their future financial planning are major influences on repayment behavior. The removal of distrust and anxiety indicates that these are not major factors contributing to repayment behavior in this case; rather, they are weakly loaded or provide only a small share of variance. Thus, the primary factors affecting repayment behavior appear to be value orientation and time perspective, not emotions associated with money.

In terms of client literacy, financial literacy and anxiety were retained, and it is not surprising that financial literacy measures the borrower's ability to understand the terms of the loan and manage finances. Therefore, financial literacy's inclusion is anticipated. Anxiety measures the level of financial concern or caution a borrower has, which provides evidence that levels of financial concern or caution influence repayment behavior. Economic literacy, however, was excluded, meaning that the wider economic understanding by a person may not readily translate to daily financial decision making in terms of repayment of loans of a cooperative member.

For borrower's characteristics, the indicators spouse influence and credit schemes were retained, highlighting the importance of both household dynamics and the structure of lending programs. Spouse involvement may enhance accountability and shared decision-making, while well-designed credit schemes provide clearer guidance on loan use and repayment expectations. The removal of loan diversion and vicinity suggests that these factors were either inconsistent across respondents or did not significantly explain variation in the construct.

Finally, for loan repayment performance, these are the indicators that were retained: loan size, borrower capacity, loan processing period, loan repayment period, follow-up, business type, and business location reflect a combination of financial capability, institutional processes, and business conditions.

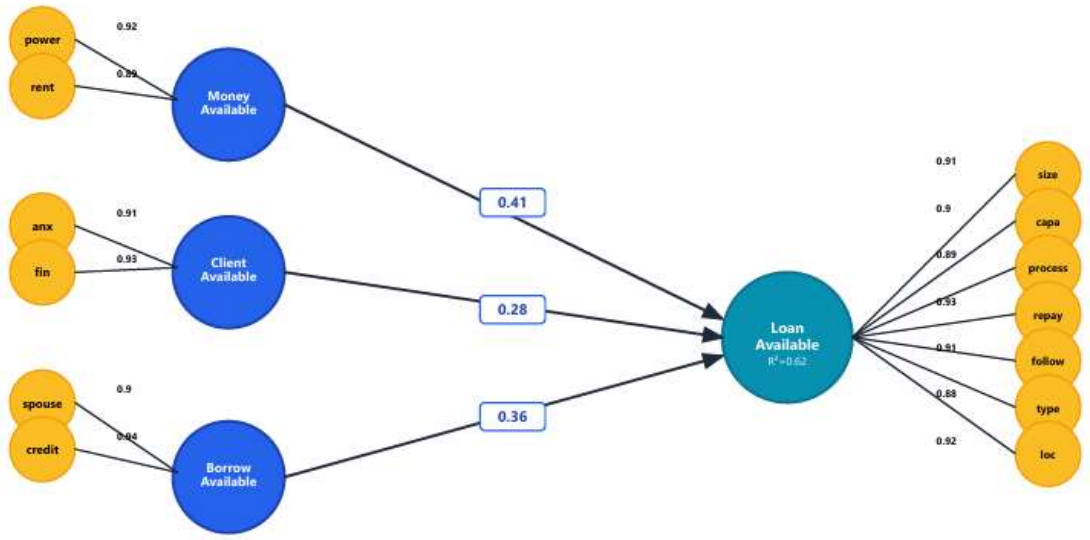

Figure 2. Best Fit Model of Loan Repayment

Legend:

Power- Power prestige
Rent- Retention Time
Anx- Anxiety
Fin- Financial Literacy
Spouse- spouse influence
Credit- Credit Schemes
Money- Money attitude
Client-Client's Literacy
Borrow-Borrower's Characteristics
Loan- Loan repayment performance
Size- Loan Size
Capa- Borrower Capacity
Process- Loan Processing Period
Repay- Loan Repayment Period
Follow- Follow-up
Type- Business Type
Loc- Business Location

These elements collectively capture the operational reality of repayment in credit cooperatives. The excluded indicators, including borrower experience, interest rate, weather condition, inflation, and political instability, were likely removed due to low statistical contribution. Their exclusion suggests that repayment outcomes in this study are more strongly influenced by borrower-specific and cooperative-controlled factors than by broader external conditions. Overall, the refined model presents a more focused and statistically sound representation of the determinants of loan repayment performance, ensuring that each retained indicator meaningfully contributes to its respective construct.

Moreso, the final model shows that loan repayment performance in credit cooperatives is a behavioral-institutional outcome, which is influenced by members' behavior towards money, their level of financial and economic competence, the role of household relationships, and the design of loan products in credit cooperatives. The findings of this study indicate that improving loan repayment performance necessitates a holistic approach that combines financial competence and a behavioral approach towards saving and planning, the role of household involvement, and properly designed credit schemes, as opposed to the current emphasis on the practices with regards to stricter enforcement and financial screening. This holistic interpretation is supported by the current literature on cooperative finance, which suggests that loan repayment performance is a behavioral-capability-institutional outcome.

CONCLUSION AND RECOMMENDATIONS

This research examines the determinants of loan repayment performance among credit cooperative members in the Davao Region using the Partial Least Squares-Structural Equation Modeling method. The findings show that loan repayment performance is determined by behavioral, cognitive, social, and institutional variables, rather than loan-related variables.

The best-fit model shows that the three sets of variables, namely: Money Attitude, Client Literacy and Borrower Characteristics, explained the variation in loan repayment performance among members in credit cooperative. More specifically, Money Attitude represent a key determination of the financial values and future orientation of borrowers, which then affects their loan repayment behavior. Members demonstrating disciplined and future-oriented Money Attitudes are much more likely to make their loan repayment payments on time. Behavioural assessments can be incorporated in the credit assessment process of credit cooperatives. Evaluating money attitudes of borrowers concentrating on financial discipline and future orientation can help credit cooperatives identify members.

A key component of loan repayment success is the client literacy, including economic and financial literacy of the borrower. The borrower with higher levels of financial and economic knowledge is better able to manage their loans, coordinate income and borrowing for income-generating activities, and adjust to changing market conditions. The result of having a higher level of literacy is an increase in loan repayment performance. Credit cooperatives can also increase members' levels of financial and economic literacy through regular training in budgeting, debt management, business planning, and other basic concepts of economics. Providing these services to members on a regular basis is in addition to recommended business development services.

Borrower characteristics, particularly the role of spouses and the design of credit schemes, also strengthen repayment practices. Joint involvement in financial planning and the effective design of cooperative credit schemes enhance accountability and income coordination, thus mitigating repayment risk. These findings emphasize the role of social context and institutional design in cooperative lending. Credit cooperative's lending practices may take into consideration the role of household and social factors, especially the inclusion of spouses. Joint financial planning or spousal awareness for certain types of loans can help increase accountability and ensure responsible use of loans.

Finally, loan repayment performance is found to be influenced by several operational factors, such as loan amount, borrower ability, repayment term, follow-up, and business characteristics. This finding suggests that loan repayment is not a discrete financial transaction, but a continuous process influenced by both borrower practices and cooperative management approaches. Overall, the findings suggest the value of a behavioral and institutional approach to studying loan repayment performance in credit cooperatives. Credit cooperatives may continue to improve and diversify their credit programs to suit the income-generating activities of their members. The amount and duration of loans, as well as the time taken to process them, may be tailored to suit the cash flow cycles of different businesses to reduce the burden of repayment. Finally, there may be a need to establish more effective loan monitoring and follow-up systems. Follow-ups, advice, and intervention programs for members at risk can improve repayment performance without undermining the developmental mandate of the credit cooperative.

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