

Debt-to-Income Ratio and Financial Vulnerability of Rural Households: Evidence from Weekly Microfinance Practices in Boawae District, Nagekeo Regency

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Received: 24 May 2026 | **Revised:** 27 January 2026 | **Accepted:** 29 February 2026

Keywords: Debt-to-Income Ratio | Financial Vulnerability | Microfinance | Rural Households

ABSTRACT

The proliferation of weekly microfinance known as "koperasi mingguan" in rural areas provides quick credit access but introduces severe financial risks for rural households. This study aims to analyze the Debt-to-Income (DTI) ratio, determine financial vulnerability levels, and identify the key factors driving financial distress across 7 villages in Boawae District, Nagekeo Regency. Using a quantitative descriptive and inferential approach, data from 149 rural households were analyzed using descriptive statistics and Ordinary Least Squares (OLS) regression via SPSS. The empirical results reveal a critical situation: the average DTI ratio across the sub-district reaches 89.35%, and 68.46% of surveyed households suffer from structural financial deficits. Spatially, Rowa, Raja Selatan, and Gerodhere villages face severe debt traps with average DTI ratios exceeding 100%. Furthermore, regression analysis confirms that the number of weekly cooperatives joined is the single most significant factor undermining household financial health ($\beta = 41.436$, $p = 0.000$), meaning every additional cooperative membership spikes the DTI ratio by 41.44%. Occupationally, casual laborers and weavers suffer from the highest financial vulnerability. This study implies that local governments must implement stricter regulations on informal micro-lending and initiate gender-responsive financial education in rural Nagekeo.

1 | Introduction

The development of microfinance institutions in rural areas plays a strategic role in expanding public access to financial resources, particularly for households that are excluded from formal banking systems or unbankable society (Milana & Ashta, 2020). In many developing regions, including Indonesia, savings and loan cooperatives and various forms of informal microfinance have become essential instruments in supporting rural economic activities (Santoso et al., 2020; Sutiyo et al., 2020). These institutions facilitate access to capital for micro-enterprises, enable households to meet consumption needs, and provide financial support for urgent situations. In addition, they compensate for limited access to formal financial services in remote areas. Within the broader framework of inclusive economic development, access to financial services is widely recognized as a key driver of community welfare and poverty reduction (Mishra et al., 2024).

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However, the expansion of microcredit access is not always accompanied by improvements in household financial management capacity (Akhter & Cheng, 2020). In many rural areas of Indonesia, including Nagekeo Regency, a growing phenomenon of weekly-payment savings and loan cooperatives has emerged. These institutions typically offer rapid loan disbursement, minimal administrative requirements, and flexible procedures, making them highly attractive to low-income households. Despite these advantages, such financing schemes often impose rigid and high-frequency repayment obligations. While they may provide short-term solutions to liquidity constraints, they also have the potential to increase household financial pressure (Ganong & Noel, 2020). This risk becomes more pronounced when households participate in multiple cooperatives simultaneously, as overlapping repayment obligations accumulate and significantly intensify the overall debt burden (Mikuš, 2019).

The situation is further complicated by the economic characteristics of rural households, which are generally marked by unstable and irregular income sources. Most households depend on informal sectors, agriculture, and seasonal employment, resulting in fluctuating cash inflows (Nchor, 2023). This condition creates a mismatch between income patterns and fixed weekly repayment schedules, leading to what is commonly referred to as a cash flow mismatch. In addition to these external pressures, internal household characteristics also play an important role in shaping financial outcomes (Altundere-Dogan, 2025). For instance, households with a larger number of dependents tend to face higher consumption demands, which may increase reliance on borrowing. Similarly, the age of the household head may influence financial decision-making, reflecting differences in experience, risk tolerance, and income stability (Pinjisakikool, 2018).

In Boawae District, Nagekeo Regency, the practice of simultaneously utilizing multiple loans from different cooperatives has become increasingly widespread. Households often take out new loans to repay existing obligations, creating a recurring cycle of debt. This pattern reflects a deeper level of financial vulnerability, driven not only by limited income but also by weak debt management capacity and low levels of financial literacy among rural communities. This condition also extends to the need to finance children's higher education (Sanga et al., 2026), which in many cases still heavily depends on scholarship support. As a result, households face compounded financial pressures, as they must balance daily consumption needs, debt repayment obligations, and long-term educational investments under constrained financial resources.

In the context of household financial management, the Debt-to-Income (DTI) ratio is one of the most widely used indicators to assess financial health (Haijun et al., 2025). The DTI ratio measures the proportion of total debt repayment obligations relative to household income, thereby reflecting a household's ability to meet its financial commitments sustainably. Higher DTI ratios indicate greater financial pressure and a higher risk of economic vulnerability (Ybrayev et al., 2024). Financial institutions generally consider a DTI ratio 40% as a safe threshold, while ratios exceeding this level signal increased financial risk and the potential for budget deficits (Lee & Kim, 2016). Therefore, the DTI ratio serves not only as a measure of debt burden but also as a critical indicator of household financial vulnerability.

Despite the growing body of literature on microfinance and financial inclusion, empirical studies that specifically examine rural household financial vulnerability using the DTI framework remain limited, particularly in the context of Eastern Indonesia. Existing research has largely focused on access to credit, customer satisfaction, or the impact of microfinance on small business performance. However, a more comprehensive understanding of financial vulnerability requires an analysis of household debt structures and their key determinants, including the number of cooperative memberships, household dependency ratios, and demographic characteristics (Martín-Legendre & Sánchez-Santos, 2024).

Specifically, this study seeks to answer the following research questions:

1. How does participation in multiple weekly cooperatives affect household Debt-to-Income (DTI) ratios?
2. Which occupational groups are most vulnerable to financial stress?

3. To what extent do weekly repayment structures contribute to household financial vulnerability?

Therefore, this study aims to analyze the Debt-to-Income (DTI) ratio of rural households in Boawae District, identify the level of financial vulnerability, and examine the factors influencing household debt burden. Specifically, this study investigates the effect of the number of weekly cooperatives joined, the number of household dependents, and the age of the household head on the DTI ratio. In addition, the study examines the relationship between the DTI ratio and household financial vulnerability, as well as conducts a comparative analysis across villages to spatially map vulnerability levels. This study contributes to the literature in three important ways. *First*, it provides empirical evidence on the relationship between repayment frequency and financial vulnerability, an aspect that has been largely overlooked in previous studies. *Second*, it highlights the structural risks embedded in informal microfinance systems in rural contexts. *Third*, it offers policy-relevant insights for designing more adaptive and inclusive financial systems that better align with the economic realities of rural households.

Drawing on the theoretical framework and prior empirical studies, the hypotheses of this study are formulated as follows:

- H1 : The number of weekly cooperatives joined has a positive and significant effect on the household Debt-to-Income (DTI) ratio
- H2 : The number of household dependents has a positive and significant effect on the household Debt-to-Income (DTI) ratio
- H3 : The age of the household head has a significant effect on the household Debt-to-Income (DTI) ratio

2 | Method

2.1 | Research Design

This study employs a quantitative research approach using both descriptive and explanatory research designs. The descriptive design aims to provide an overview of the financial characteristics of rural households, particularly in relation to debt behavior and income structure. Meanwhile, the explanatory design is used to examine the causal relationships between selected independent variables and the household Debt-to-Income (DTI) ratio.

2.2 | Population and Sample

The population of this study consists of all households with active loans from weekly-payment cooperatives in seven villages located in Boawae District, Nagekeo Regency. The sampling technique applied is purposive sampling, with the following criteria: (1) respondents are household heads or family members responsible for managing household finances, and (2) respondents have active installment obligations to weekly cooperatives. These criteria ensure that the selected respondents possess relevant financial information required for the analysis.

2.3 | Data Collection Techniques

The data used in this study are primary data collected through structured questionnaires. The questionnaire was designed to obtain detailed information regarding respondents' socioeconomic characteristics, including household income, number of cooperative memberships, total debt obligations, weekly installment amounts, routine expenditures, age, and number of family dependents. To maintain consistency and comparability, all financial data were converted into monthly values (Sanga, 2026).

2.4 | Research and Measurement Variables

This study involves one dependent variable and several independent variables. The dependent variable is the Debt-to-Income (DTI) ratio, which reflects household financial vulnerability and is measured using the following formula:

$$DTI = \left(\frac{\text{Total Monthly Debt Installments}}{\text{Total Monthly Income}} \right) \times 100\%$$

The independent variables include: (1) Number of weekly cooperatives joined (measured by the total number of active cooperative memberships), (2) Number of family dependents (measured by the number of individuals financially supported within the household), and (3) Age of the household head (measured in years). All variables are measured using ratio scales.

2.5 | Test Research Instruments

To ensure data quality, the research instruments were tested for validity and reliability. The validity test was conducted using the Pearson Product-Moment correlation to determine whether each questionnaire item accurately measures the intended construct. An item is considered valid if the correlation coefficient exceeds the critical value. Reliability testing was performed using Cronbach's Alpha, where a coefficient value greater than 0.70 indicates that the instrument is reliable and consistent.

2.6 | Data Analysis Techniques

Data analysis was carried out using descriptive and inferential statistical methods. Descriptive statistics were used to summarize the characteristics of respondents and to classify household DTI levels. Inferential analysis was conducted using multiple linear regression with the Ordinary Least Squares (OLS) method to examine the influence of independent variables on the DTI ratio. Prior to regression analysis, classical assumption tests were performed, including tests of normality, multicollinearity, and heteroscedasticity, to ensure the robustness of the regression model.

2.7 | Hypothesis Testing

Hypothesis testing was conducted using the t-test to evaluate the partial effect of each independent variable on the dependent variable, and the F-test to assess the simultaneous effect of all independent variables. A significance level of 5% ($\alpha = 0.05$) was used as the decision criterion. If the p-value is less than 0.05, the hypothesis is accepted, indicating a statistically significant effect. The coefficient of determination (R^2) was also used to measure the proportion of variation in the DTI ratio explained by the independent variables.

3 | Results and Discussion

3.1 | Overview of the Financial Condition of Rural Households

Based on the data analysis of 149 respondent households across seven villages in Boawae District, it was found that the financial condition of rural communities was at a concerning level. The average total active loan owned by households reached IDR 4,983,396, with an average installment obligation of IDR 241,742 per week. After converting the data into a monthly basis, the average *Debt-to-Income* (DTI) Ratio was found to be 89.35%. This figure indicates that a substantial portion of household income has been allocated to debt repayment obligations. From the perspective of household financial health, a DTI ratio exceeding the 40% threshold indicates high financial pressure and an increased risk of households being unable to sustainably meet their basic needs. Therefore, the average DTI ratio of 89.35% demonstrates that rural households in Boawae District fall into a highly financially vulnerable category.

The high DTI ratio also indicates that weekly cooperatives function not only as sources of productive financing but have also become instruments for household consumption and short-term liquidity support. According to Ullah & Khan (2017) this condition reflects the community's dependence on informal microfinance institutions to sustain daily household consumption and economic survival. This condition reflects the community's dependence on informal microfinance institutions to sustain daily household consumption and economic survival. This dependence is further reinforced by limited access to formal banking services, as noted by Kamran & Uusitalo (2024), who highlight that financially excluded populations tend to utilize alternative financial mechanisms to cope with liquidity constraints and income instability.

3.2 | Spatial Analysis of Financial Vulnerability Across Villages

The spatial analysis reveals differences in the level of financial vulnerability among villages in Boawae District. These variations are reflected in differences in average household income, weekly installment amounts, and household Debt-to-Income (DTI) ratios.

TABLE 1 | Financial Matrix and Classification of Household Vulnerability by Village

Village	Number	Average Weekly Income (IDR)	Average Weekly Installment (IDR)	Average DTI Ratio (%)	Dominant Vulnerability Status
Rowa	31	182,226	172,935	136.14%	77.42% Highly Vulnerable
Raja Selatan	20	392,350	417,150	119.53%	60.00% Highly Vulnerable
Gerodhere	21	385,000	390,405	119.02%	80.95% Highly Vulnerable
Raja	20	372,400	205,550	63.60%	50.00% Highly Vulnerable
Dhereisa	20	367,850	230,500	62.87%	70.00% Highly Vulnerable
Kelimado	20	399,000	130,600	46.27%	50.00% Safe
Raja Timur	17	547,647	163,765	44.03%	35.29% Alert

Source: Primary data processed by the researcher, 2026

To provide a more comprehensive overview of the distribution of household debt burdens across regions, the average DTI ratio in each village was visualized using a horizontal bar chart. The visualization demonstrates disparities in the level of financial vulnerability among villages in Boawae District.

Based on **Table 1**, there are clear disparities in the level of household financial vulnerability among villages in Boawae District. Rowa Village recorded the highest average DTI ratio at 136.14%, followed by Raja Selatan Village at 119.53% and Gerodhere Village at 119.02%. The high DTI ratios in these three villages indicate that total household debt repayment obligations have exceeded the income capacity of the community. This condition reflects the occurrence of over-indebtedness, which has the potential to push households into a debt trap condition. These findings are consistent with Dunn & Mirzaie (2016) stated that households with high debt levels tend to experience prolonged economic pressure because most of their income is allocated to maintaining loan repayments. In the context of this study, the high DTI ratios indicate that households no longer possess sufficient financial capacity to adequately meet their basic consumption needs.

In addition to recording the highest DTI ratios, these three villages were also dominated by the “Highly Vulnerable” household category. Gerodhere Village had the highest proportion of highly vulnerable households at 80.95%, followed by Rowa Village at 77.42% and Raja Selatan Village at 60.00%. This condition indicates that the majority of households in these areas are experiencing serious financial

pressure due to their heavy dependence on weekly cooperative loans. The high dependence on microcredit also indicates limited household financial management capacity. According to Latumahina et al. (2026), low financial literacy may affect people’s ability to manage debt and make rational financial decisions. When access to loans is easier than financial management capacity, households become more vulnerable to debt accumulation and long-term financial difficulties. **Figure 1** below visually shows the average DTI ratio by village in Boawae.

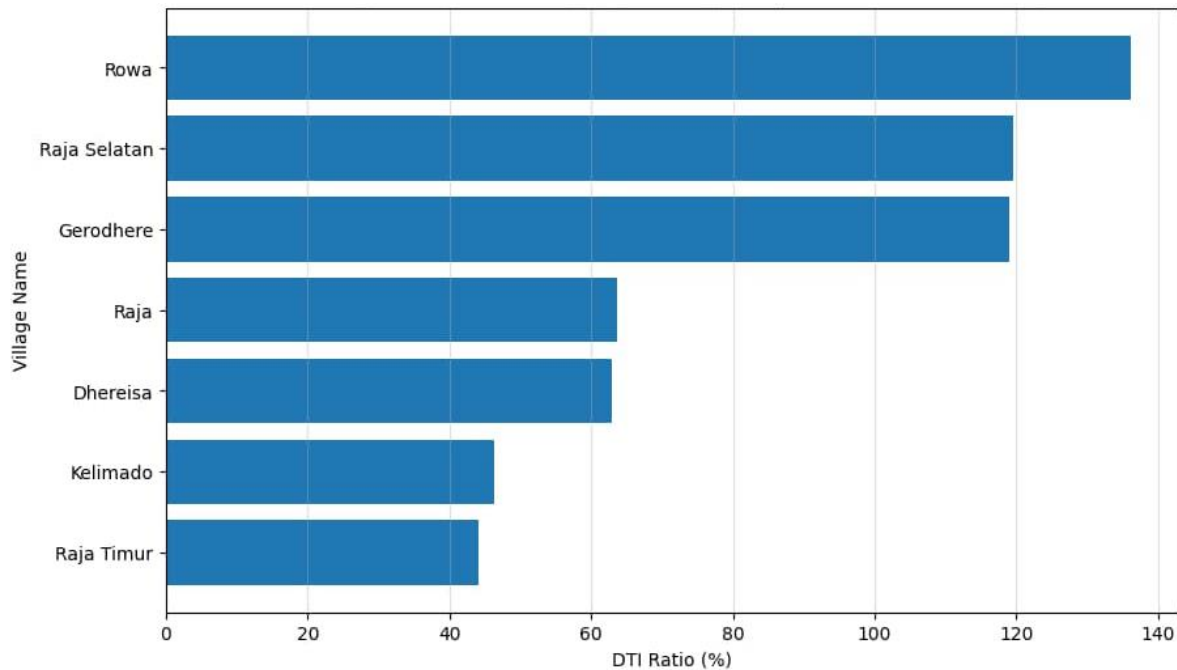


FIGURE 1 | Average debt-to-income (DTI) ratio by village in Boawae district (%)
Source: Primary data processed by the researcher, 2026

Meanwhile, Raja and Dhereisa Villages recorded average DTI ratios of 63.60% and 62.87%, respectively. Although lower than those of the previous three villages, both villages still fall into the highly vulnerable category because their DTI ratios remain far above the ideal threshold for household financial health. This condition suggests that a substantial portion of household income is still absorbed by debt repayment obligations, thereby reducing the ability of households to meet other essential needs. On the other hand, Kelimado and Raja Timur Villages showed relatively better financial conditions compared to the other villages. Kelimado Village recorded an average DTI ratio of 46.27%, with 50.00% of households categorized as “Safe,” while Raja Timur Village recorded an average DTI ratio of 44.03%, with 35.29% categorized as “Alert.” Nevertheless, both villages still indicate considerable financial pressure because their DTI ratios remain above the recommended threshold for healthy household finances.

3.3 | Household Financial Health Status: Budget Deficit Analysis

The high burden of weekly cooperative loan installments has had a direct impact on households’ ability to meet their basic living needs. This condition is reflected in the increasingly limited amount of household net income remaining after covering routine expenditures, such as food, education, healthcare, and social as well as customary obligations. Based on the analysis results, 102 households, or 68.46% of respondents, were classified as being in deficit conditions, while only 47 households, or 31.54%, remained in relatively secure financial conditions. These findings indicate that most rural households in Boawae District are facing considerable financial pressure due to the large proportion of income allocated to debt installment payments. The deficit condition suggests that household income is no longer sufficient to simultaneously cover consumption needs and debt repayment obligations. Under such circumstances, households tend to adopt various economic adjustment strategies, such as reducing

basic consumption, postponing important expenditures, or taking new loans to maintain household economic sustainability. This phenomenon is consistent with Frigerio et al. (2020) that households with high debt levels tend to experience consumer over-indebtedness, a condition in which debt repayment obligations begin to disrupt household consumption stability and overall welfare.

Spatially, Dhereisa and Raja Selatan Villages were identified as areas with the highest vulnerability to basic needs deficits. In each of these villages, 18 out of 20 households were recorded as experiencing monthly budget deficits. The large number of deficit households in these two villages indicates that the burden of weekly cooperative installment payments has significantly reduced the economic capacity of households to meet their daily living needs. These findings also support Kasoga & Tegambwage (2021) stated that micro-borrower households often make economic and social sacrifices in order to maintain loan repayments, including reducing expenditures on food, education, and family healthcare. In the context of this study, the high household debt ratio not only affects financial conditions but also has the potential to negatively influence the broader social welfare of rural communities. The financial deficit conditions experienced by most respondents indicate that access to microfinance without adequate financial management capacity may increase household economic vulnerability. According to Katnic et al. (2024), low financial literacy may reduce people’s ability to manage debt effectively, making them more vulnerable to long-term financial pressure. Therefore, the high level of household deficits in Boawae District serves as an important indicator that rural financial vulnerability is associated not only with low-income levels but also with weak household financial management capacity.

3.4 | Multiple Linear Regression Analysis

To identify the factors influencing the increase in the household debt-to-income (DTI) Ratio in Boawae District, this study employed multiple linear regression analysis using the ordinary least squares (OLS) method through SPSS software. The independent variables tested included the number of weekly cooperatives joined, the number of family dependents, and the age of the household head.

TABLE 2 | Determinants of rural household debt-to-income (DTI) ratio

Variables	Unstandardized Coefficients (B)	Standard Error	t-Statistic	p-value	Conclusion
Constant	-3.052	31.726	-0.096	0.923	-
Number of Weekly Cooperatives	41.436	8.362	4.955	0.000	Significant
Number of Dependents	0.872	3.496	0.249	0.803	Not Significant
Age of Household Head	0.442	0.652	0.678	0.499	Not Significant

Source: Primary data processed using SPSS, 2026.

The regression results reveal that H_1 is accepted: the number of weekly cooperatives joined has a positive and statistically significant effect on the DTI ratio ($p < 0.05$). It is indicating that greater participation in multiple weekly cooperatives significantly increases household financial pressure. Substantively, each additional cooperative membership raises the DTI ratio by 41.44%, confirming that debt accumulation is strongly driven by multiple borrowing practices. These findings indicate that the greater the number of weekly cooperatives accessed by households, the higher the financial pressure resulting from installment payment obligations. This condition reflects a tendency among households to use new loans as a mechanism to cover previous debt obligations, thereby triggering debt accumulation and increasing the financial vulnerability of rural households. According to Hamid (2025) excessive credit use without adequate financial management capacity may increase the risk of consumer over-indebtedness. When households simultaneously access multiple loan sources, their debt repayment capacity tends to weaken, potentially creating long-term financial pressure. Furthermore, Kim et al. (2017) emphasized that low financial literacy contributes to weak household capacity in making rational financial decisions, particularly in debt management and family financial planning. In rural communities, easy access to weekly cooperative loans often becomes more dominant than considerations regarding long-term repayment capacity.

In contrast, H_2 is rejected: the number of household dependents does not have a statistically significant effect on the DTI ratio ($p > 0.05$). Although dependents increase household expenditure, they do not directly explain variations in debt burden relative to income. Instead, financial vulnerability is more closely linked to borrowing behavior rather than household size. The findings suggest that debt accumulation is not merely a function of household needs, but is more strongly driven by behavioral and institutional factors, particularly access to and reliance on multiple microfinance sources (Tehulu, 2023). Households with greater exposure to weekly cooperatives may be more inclined to engage in repeated borrowing cycles, regardless of their household size. This indicates that financial vulnerability is more closely linked to borrowing behavior, financial decision-making, and credit accessibility rather than demographic structure alone. Therefore, policies aimed at reducing household financial risk should focus more on regulating lending practices and improving financial literacy, rather than solely addressing household demographic characteristics (Situmorang & Sanga, 2024).

H_3 is rejected: the variables representing the number of family dependents and the age of the household head did not show a significant effect on the household DTI ratio, with significance values of 0.803 and 0.499 ($p > 0.05$), respectively. These results indicate that household financial pressure in Boawae District is more strongly influenced by the intensity of involvement in weekly cooperative loans than by household demographic factors. This finding suggests that demographic characteristics do not automatically translate into higher debt burdens, as households may adopt adaptive strategies to manage increased consumption needs, such as reducing non-essential expenditures or relying on informal social support systems (Murshed, 2022). Similarly, the age of the household head does not appear to significantly affect financial vulnerability, which may indicate that both younger and older household heads face similar structural constraints in accessing stable income sources and managing debt (Haq et al., 2018). The results highlight that debt accumulation is largely shaped by behavioral and institutional dynamics, particularly the ease of access to multiple loan sources and the repayment structure imposed by weekly cooperatives. Households that are more actively engaged in multiple lending schemes are more exposed to repayment pressures, regardless of their demographic profile (Iqbal et al., 2025). This reinforces the argument that financial vulnerability in rural areas is less about who the households are, and more about how they interact with available financial systems. Therefore, policy interventions should prioritize regulating lending practices and promoting responsible borrowing behavior rather than focusing solely on demographic characteristics.

3.5 | Financial Vulnerability Analysis Based on Occupation Type

The level of household financial vulnerability in Boawae District also shows significant differences based on the respondents' occupational backgrounds. These differences are primarily influenced by the stability of income and the cash flow patterns associated with each occupational group.

TABLE 3 | Average debt-to-income (DTI) ratio by occupation type

Occupation Type	Average DTI Ratio (%)	Financial Risk Category
Laborers / Casual Workers	352.14%	Extremely Vulnerable (<i>Critical Debt Trap</i>)
Traditional Weavers	97.29%	Highly Vulnerable
Farmers	88.02%	Highly Vulnerable
Village Officials / Staff	55.71%	Vulnerable
Self-Employed	66.57%	Vulnerable
Small Traders	33.21%	Alert (Relatively Safe)

Source: Primary data processed by the researcher, 2026.

Based on Table 3, the laborer and casual worker group exhibited the highest level of financial vulnerability, with an average *Debt-to-Income* (DTI) Ratio reaching 352.14%. This figure indicates an extremely severe debt burden condition because installment payment obligations have far exceeded household income capacity. The high DTI ratio among this group is influenced by unstable income characteristics that heavily depend on the availability of daily work opportunities. When income

fluctuates while debt installment obligations must be fulfilled routinely every week, households become more vulnerable to liquidity pressure and default risk. These findings are consistent with Hiilamo (2021) that households with unstable incomes are more likely to experience *over-indebtedness* due to their inability to align cash inflows with fixed loan repayment obligations. Under such circumstances, households are often forced to reduce basic consumption expenditures or seek new loans to maintain repayment of previous debts.

Traditional weavers and farmers also demonstrated very high levels of financial vulnerability, with average DTI ratios of 97.29% and 88.02%, respectively. This condition reflects a mismatch between income receipt patterns and weekly loan repayment systems. In the agricultural and weaving sectors, income is generally received seasonally or after products have been successfully marketed, while debt repayment obligations must be made regularly every week. This imbalance in cash flow makes households more susceptible to financial deficits and short-term economic pressure. This condition also supports Latumahina et al. (2026) argued that household financial management capacity is strongly influenced by income stability and financial planning capability. Households with unstable incomes tend to face greater risks in debt-related decision-making due to limited ability to manage cash flow and expenditures sustainably.

Meanwhile, self-employed workers and village officials/staff recorded relatively lower DTI ratios than the previous groups, at 66.57% and 55.71%, respectively. Nevertheless, these figures still exceed the ideal threshold for healthy household finances, indicating persistent economic pressure due to high debt repayment obligations. On the other hand, small traders recorded the lowest average DTI ratio at 33.21% and represented the relatively most financially stable occupational group. This condition is likely because small traders generally have more consistent daily cash inflows from trading activities in local markets, enabling them to better fulfill debt repayment obligations.

4 | Conclusion

This study reveals that the level of financial vulnerability among rural households in Boawae District is considerably high, primarily driven by strong dependence on weekly cooperatives. The average household Debt-to-Income (DTI) ratio of 89.35% indicates that most household income is heavily allocated to debt repayment. Furthermore, the fact that 68.46% of households experience monthly budget deficits highlights the limited financial resilience of rural families in meeting their basic needs sustainably. Spatial analysis shows that Rowa, Raja Selatan, and Gerodhere Villages exhibit the highest levels of financial vulnerability, with average DTI ratios exceeding 100%. This condition reflects a serious risk of over-indebtedness, where household debt obligations surpass income capacity, potentially leading to persistent debt traps. These findings confirm that financial pressure is not evenly distributed but concentrated in specific rural areas.

The regression results further indicate that participation in multiple weekly cooperatives significantly increases household DTI ratios, implying that greater loan engagement intensifies financial burdens. This pattern suggests the presence of overlapping loan commitments that cumulatively strain household financial capacity. In contrast, demographic factors such as the number of dependents and the age of the household head do not significantly influence financial vulnerability. Additionally, laborers, traditional weavers, and farmers are identified as the most vulnerable groups due to unstable income patterns and the incompatibility between irregular earnings and fixed weekly repayment systems. This mismatch often forces households to rely on new borrowing to cover existing obligations, thereby reinforcing a cycle of debt dependence. Based on these findings, stronger regulatory oversight of weekly cooperatives is necessary to prevent exploitative lending practices, particularly for low-income households with limited financial literacy. At the same time, local governments should promote adaptive financing schemes through village-owned enterprises and formal cooperatives that align with community income patterns. Expanding financial literacy programs and encouraging future research using longitudinal approaches will also be essential to better understand and address the dynamics of

rural household financial vulnerability. Such efforts are crucial to ensure that microfinance serves as a tool for economic empowerment rather than a source of prolonged financial distress.

References

- Akhter, J., & Cheng, K. (2020). Sustainable empowerment initiatives among rural women through microcredit borrowings in bangladesh. *Sustainability (Switzerland)*, *12*(6). <https://doi.org/10.3390/su12062275>
- Altundere-Dogan, M. B. (2025). The Role of Personality Traits on Intra-Household Financial Decision-Making and Household Debt. *Journal of Family and Economic Issues*, *46*(2). <https://doi.org/10.1007/s10834-025-10045-9>
- Dunn, L. F., & Mirzaie, I. A. (2016). Consumer debt stress, changes in household debt, and the great recession. *Economic Inquiry*, *54*(1). <https://doi.org/10.1111/ecin.12218>
- Frigerio, M., Ottaviani, C., & Vandone, D. (2020). A meta-analytic investigation of consumer over-indebtedness: The role of impulsivity. *International Journal of Consumer Studies*, *44*(4). <https://doi.org/10.1111/ijcs.12570>
- Ganong, P., & Noel, P. (2020). Liquidity versus wealth in household debt obligations: Evidence from housing policy in the great recession. *American Economic Review*, *110*(10). <https://doi.org/10.1257/aer.20181243>
- Haijun, W., Xin, L., Jianshuo, W., Guoyang, C., & Rijimoleng, S. (2025). A Review of Research on Household Debt Risk: Measurement, Causes, and Impact. In *Journal of Economic Surveys*. <https://doi.org/10.1111/joes.70030>
- Hamid, F. S. (2025). Behavioral biases and over-indebtedness in consumer credit: evidence from Malaysia. *Cogent Economics and Finance*, *13*(1). <https://doi.org/10.1080/23322039.2024.2449191>
- Haq, W., Ismail, N. A., & Satar, N. H. M. (2018). Household debt in different age cohorts: A multilevel study. *Cogent Economics and Finance*, *6*(1). <https://doi.org/10.1080/23322039.2018.1455406>
- Hiilamo, H. (2021). The legacy of economic recession in terms of over-indebtedness: A framework and review of the evidence. *Social Policy and Society*, *20*(1). <https://doi.org/10.1017/S1474746420000354>
- Iqbal, Z., Rao, Z. U. R., & Akram, M. (2025). From credit to crisis: the impact of distress-driven and opportunity-driven multiple borrowing on loan repayment. *Journal of Economic and Administrative Sciences*. <https://doi.org/10.1108/JEAS-02-2025-0114>
- Kamran, S., & Uusitalo, O. (2024). How informal financial service institutes facilitate the financial inclusion of low-income, unbanked consumers. *International Journal of Bank Marketing*, *42*(6). <https://doi.org/10.1108/IJBM-03-2023-0148>
- Kasoga, P. S., & Tegambwage, A. G. (2021). An assessment of over-indebtedness among microfinance institutions' borrowers: The Tanzanian perspective. *Cogent Business and Management*, *8*(1). <https://doi.org/10.1080/23311975.2021.1930499>
- Katnic, I., Katnic, M., Orlandic, M., Radunovic, M., & Mugosa, I. (2024). Understanding the Role of Financial Literacy in Enhancing Economic Stability and Resilience in Montenegro: A Data-Driven Approach. *Sustainability (Switzerland)*, *16*(24). <https://doi.org/10.3390/su162411065>
- Kim, J., Gutter, M. S., & Spangler, T. (2017). Review of family financial decision making: Suggestions for future research and implications for financial education. *Journal of Financial Counseling and Planning*, *28*(2). <https://doi.org/10.1891/1052-3073.28.2.253>
- Latumahina, O., Faley, H. G., & Sanga, M. H. (2026). Analisis Faktor-Faktor yang Memengaruhi Intensi Penggunaan Peer-to-Peer Lending dengan Kemudahan sebagai Variabel Moderasi pada UMKM di Kota Kupang. *Jurnal Ilmiah Akuntansi Dan Humanika*, *16*(1), 13–25.
- Lee, J. M., & Kim, K. T. (2016). Assessing Financial Security of Low-Income Households in the United States. *Journal of Poverty*, *20*(3). <https://doi.org/10.1080/10875549.2015.1094773>
- Martín-Legendre, J. I., & Sánchez-Santos, J. M. (2024). Household debt and financial vulnerability: empirical evidence for Spain, 2002–2020. *Empirica*, *51*(3). <https://doi.org/10.1007/s10663-024-09617-z>
- Mikuš, M. (2019). Contesting household debt in Croatia: the double movement of financialization and the fetishism of money in Eastern European peripheries. *Dialectical Anthropology*, *43*(3). <https://doi.org/10.1007/s10624-019-09551-8>
- Milana, C., & Ashta, A. (2020). Microfinance and financial inclusion: Challenges and opportunities. *Strategic Change*, *29*(3). <https://doi.org/10.1002/jsc.2339>
- Mishra, D., Kandpal, V., Agarwal, N., & Srivastava, B. (2024). Financial Inclusion and Its Ripple Effects on Socio-Economic Development: A Comprehensive Review. In *Journal of Risk and Financial Management* (Vol. 17, Number 3). <https://doi.org/10.3390/jrfm17030105>
- Murshed, M. (2022). Pathways to clean cooking fuel transition in low and middle income Sub-Saharan African countries: The relevance of improving energy use efficiency. *Sustainable Production and Consumption*, *30*. <https://doi.org/10.1016/j.spc.2021.12.016>

- Nchor, J. U. (2023). Livelihood Strategies and Their Determinants among Informal Households in Calabar, Nigeria. *Sustainability (Switzerland)*, 15(4). <https://doi.org/10.3390/su15042855>
- Pinjisakikool, T. (2018). The Influence of Personality Traits on Households' Financial Risk Tolerance and Financial Behaviour. *Journal of Interdisciplinary Economics*, 30(1). <https://doi.org/10.1177/0260107917731034>
- Sanga, M. H. (2026). Social Capital and Entrepreneurial Orientation on Micro-business Performance: A Study on Business Actors in East Nusa Tenggara. *Journal of Business, Accounting and Information Technology*, 1(1), 42–52. <https://doi.org/10.5281/zenodo.18665486>
- Sanga, M. H., Situmorang, R., & Hale, K. D. (2026). The Effectiveness of KIP-Kuliah Scholarships on Student Academic Achievement in NTT Province: A Dual-Process Theory Approach to Financial Behavior and Social Environment. *International Journal of Social Learning (IJSL)*, 6(2), 439–456. <https://doi.org/10.47134/ijsl.v6i2.558>
- Santoso, D. B., Gan, C., Revindo, M. D., & Massie, N. W. G. (2020). The impact of microfinance on Indonesian rural households' welfare. *Agricultural Finance Review*, 80(4). <https://doi.org/10.1108/AFR-11-2018-0098>
- Situmorang, R., & Sanga, M. H. (2024). Effectiveness of BRILink service in enhancing financial inclusion and wellbeing in East Nusa Tenggara. In *Mantik Journal* (Vol. 8, Number 2). Online. <https://doi.org/https://iocscience.org/ejournal/index.php/mantik/article/view/5438>
- Sutiyo, Pitono, A., Raharjanto, T., & Sinaga, J. B. B. (2020). Woman Microfinance in Indonesia: Present Status and Future Direction. *International Journal of Rural Management*, 16(1). <https://doi.org/10.1177/0973005219898922>
- Tehulu, T. A. (2023). What drives microfinance institution lending behavior? Empirical evidence from Sub-Saharan Africa. *International Journal of Emerging Markets*, 18(8). <https://doi.org/10.1108/IJOEM-08-2020-1002>
- Ullah, I., & Khan, M. (2017). Microfinance as a tool for developing resilience in vulnerable communities. In *Journal of Enterprising Communities* (Vol. 11, Number 2). <https://doi.org/10.1108/JEC-06-2015-0033>
- Ybrayev, Z., Talakin, A., Kairullayev, Y., & Zharkynbay, T. (2024). Household debt service ratio in a developing economy: borrower-based analytical tools and macroprudential policy overview in Kazakhstan. *Journal of Banking Regulation*, 25(1). <https://doi.org/10.1057/s41261-023-00218-7>