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Abstract

There has been limited systematic exploration of the intersection of poverty, gender, and psychological well-being; particularly in developing countries. Analysing data from a representative sample of both male and female primary financial decision-makers of 608 rural poor households in Kerala, this exploratory study examines the gender dimensions of the relationship between three latent concepts—debt-related stress, debt attitudes, and debt literacy—under multiple economic constraints. Findings indicate that the debt attitudes of our respondents can be characterised by three dimensions; general acceptability of debt, circumstantial acceptability of debt, and debt prudence. Consistent with prior findings, significant gender differences in debt stress and debt literacy were observed, with females typically reporting higher degrees of debt stress and lower levels of debt literacy compared with males. The study highlights the role of gender in predicting debt stress; with debt attitudes being key predictors for males, while individual-level factors such as financial decision-making power, income, and educational attainment explain more of the variation in debt stress among females. The analysis further provides preliminary evidence for the potential influence of male decision-makers' debt stress and debt attitudes on the level of debt stress experienced by female decision-makers within the same household. From a policy perspective, the study advocates gender-specific and targeted financial education and financial literacy programmes, complemented by public policies aimed at improving material conditions of the population to mitigate the overall debt stress experienced by the rural poor in developing countries.

1. Introduction

Scholars across disciplines have outlined the implications for poverty and deprivation on psychological well-being (e.g., Alloush, 2024; Haushofer & Salicath, 2024; Irianto et al., 2021; Knifton & Inglis, 2020). According to social stress theory, individuals with disadvantaged social status experience increased exposure to stressors and heightened vulnerability to stress due to limited coping abilities, which subsequently elevates their risk of mental illness (Mossakowski, 2014). Poverty arguably affects mental health through various mechanisms, one of which may be the level of debt possessed by an individual (Jenkins et al., 2008; Mental Health Foundation, 2020). For people living in poverty, borrowing is an unavoidable financial strategy and coping mechanism in their day-to-day lives (Collins et al., 2009). However, empirical evidence shows that, debt obligations adversely affects the mental health of individuals (e.g., Amit et al., 2020; Brown et al., 2005; Fitch et al., 2011; Keatley et al., 2014).

Much of the existing research linking indebtedness and mental health has relied on general measures of stress, which are not necessarily tied to debt-specific stress (Dunn & Mirzaie, 2016). Recognising debt stress as an important mechanism mediating the relationship between debt and overall psychological well-being, scholars have recently sought to examine debt stress more explicitly (e.g., Chen et al., 2021; Drentea, 2000; Drentea & Lavrakas, 2000; Dunn & Mirzaie, 2016; Hamilton et al., 2019; Haurin et al., 2021). However, these studies predominantly focus on consumer debt in developed countries, leaving a critical gap in our understanding of debt stress experienced in developing countries; particularly among impoverished populations who depend on loans for daily survival.

One of the key individual-level characteristics that is likely to influence debt-related stress is gender. The available evidence consistently highlights gender variations in debt-related stress, with women tend to report a higher debt stress than men (e.g., Chen et al., 2021; Dunn & Mirzaie, 2016; Hamilton et al., 2019; Haurin et al., 2021). Moreover, a number of academic studies have highlighted gender differences across a range of financial behaviours, practices and money management, which could possibly influence an individual's psychological well-being in relation to his/her debt situation (see Sesini et al., 2023 for a scoping review). Nevertheless, despite the importance of the topic, little is known about the potential interrelationships between poverty, gender and debt-related

stress. Moreover, while there is an increasing recognition of individual-level dispositional attributes—such as debt attitudes and debt literacy—as critical predictors of an individual's debt burden, no research has explored how these attributes influence the debt stress experienced by the person.

Against this backdrop, this exploratory study aims to fill these knowledge gaps by focusing on the intersection of gender with three latent constructs—debt stress, debt attitudes, and debt literacy, within the context of rural poverty in Kerala, the southernmost state of India. Specifically, our work addresses the following research question: *how do the factors that associate with debt stress vary between male and female financial decision-makers among rural poor households in a developing country?* As a related issue, we specifically investigate if debt attitudes and debt literacy influence the debt stress levels experienced by individuals, and whether these relationships differ by gender.

This paper contributes to the extant literature in the following ways. First, it enhances our understanding of the previously unexplored relationship between individual-level debt-related dispositional attributes and debt stress. While it is reasonable to presume that individuals with more favourable debt attitudes may experience lower levels of debt stress due to a greater acceptance of their debt situations, no studies have investigated such a relationship between the direct attitudinal antecedent and the immediate psychological consequence of indebtedness. Similarly, the literature offers limited insights into whether a deeper understanding of debt-related concepts would exacerbate or mitigate debt-related stress experienced by an individual.

Second, this paper advances our understanding of the gender dynamics of debt stress. While, as noted earlier, previous studies have identified the existence of gender differences in debt-related stress levels, none have systematically examined the contributing factors from a gender-specific perspective, particularly the role of dispositional attributes. To the best of our knowledge, this study is the first to comprehensively characterise the gender differences in debt stress.

Third, this paper concentrates on studying debt stress among rural poor households in a developing country, a cohort that has received limited attention in previous research. As noted above, the majority of existing research on debt stress focuses on developed countries, thereby largely neglecting the unique context of developing countries. Moreover, even within developed countries, the debt stress of low-income groups, who

often rely on loans to manage budgetary constraints rather than augment consumer spending (Zhu & Meeks, 1994), has not been adequately studied. Consequently, it is not surprising that the rural poor in developing countries have been largely overlooked in previous research, especially given the scarcity of data on the individual level debt-related dispositional attributes and debt stress from these regions. However, this research gap is critically important from both academic and policy perspectives, as this population group is more susceptible to the adverse effects of indebtedness and financial stress due to multiple economic constraints they face in their daily lives; including irregular employment, income volatility, low wages, and underdeveloped credit markets.

Thus, by uniquely identifying the linkage between the direct dispositional antecedents and the immediate psychological consequence of indebtedness within real-life contexts of constrained choices from a gender perspective, this study is expected to have implications for both economists and psychologists, especially in light of the increasing global household indebtedness and its associated psychological consequences.

The subsequent sections of the paper are organised as follows: Section 2 reviews the existing literature relevant to this study. Section 3 outlines the conceptual framework, and Section 4 details the data and methodology employed. Section 5 presents the results from the data analysis. Section 6 discusses the findings that emerge from the study and their implications. Section 7 addresses the study's limitations and suggests avenues for future research. Section 8 concludes the paper.

2. Review of Literature

Several media reports based on recent surveys from a range of countries highlight money and debt as significant sources of stress (e.g., Koterbski, 2022; Noronha, 2021; Zadikian, 2022). Financial burdens exacerbated by the COVID-19 pandemic have further intensified concerns among psychologists about the potential impact of rising debt on both physical and mental health (e.g., Nigatu et al., 2023; Uniyal, 2022).

Recognising this role of debt as a significant source of stress, scholars have recently turned their attention to a specific type of stress directly associated with indebtedness, which is commonly refer to as "debt stress." One of the earliest efforts to conceptualise and measure this construct can be found in the work of Drentea (2000) and Drentea & Lavrakas (2000). These studies introduced an index specifically designed to quantify debt-

related stress, and observed that the measure is significantly linked to overall anxiety levels (Drentea, 2000), as well as general health outcomes (Drentea & Lavrakas, 2000). Subsequent studies by Hamilton et al. (2019) and Swanton & Gainsbury (2020) have reaffirmed these findings, further validating the association between debt stress and the well-being of physical and mental health.

Shen et al. (2014) advanced the research on debt stress by investigating the temporal effects of debt on debt stress levels. Their analysis revealed the time-sensitive nature of this relationship, by observing that that individuals with short-term credit card debt tended to experience higher levels of debt stress compared to those with longer-term debt (Shen et al., 2014). A notable contribution to identifying the determinants of debt stress was made by Dunn & Mirzaie (2016), who found that non-collateralised debts are more stressful than collateralised debts. Expanding on this, Haurin et al. (2021) demonstrated that consumer debt induces more stress per dollar than mortgage debt, emphasising the differential psychological impacts of various forms of debt.

A critical dimension missing from the available analysis of debt stress is the influence of individual-level dispositional attributes—specifically debt attitudes and debt literacy—on stress arising from indebtedness. Despite established links between these attributes and an individual's debt burden (e.g., Almenberg et al., 2018; Cao-Alvira et al., 2021; Chien & Devaney, 2001; Disney & Gathergood, 2011; Klapper et al., 2015; Kurowski, 2021; Lebdaoui & Chetioui, 2021; Livingstone & Lunt, 1992; Lusardi & Tufano, 2015; Schicks, 2014), there has been limited examination of how these factors contribute to debt stress specifically. This gap is particularly pronounced given Lever's (2005) emphasis on the potential impact of personality traits on mental health. To bridge these gaps, this paper investigates the influence of debt attitudes and debt literacy on debt stress among individuals in a developing country, experiencing chronic financial difficulties in their daily lives, adopting a gendered perspective to examine potential disparities.

An in-depth gender-differentiated understanding of debt stress is important as the available evidence consistently highlights gender variations in psychological well-being and mental health, with women typically found to be more prone to general stress and anxiety (e.g., Archuleta et al., 2013; Richardson et al., 2017). A recent systematic review by Farhane-Medina et al. (2022) elucidates both biological and psychological factors contributing to this phenomenon. These factors encompass variances in genetic

components (Ask et al., 2014), hormonal fluctuations (Gitay et al., 2019), gender roles (Seedat et al., 2009), and gender socialisation (Zalta & Chambless, 2012).

In line with the observed gender differences in general stress level, existing literature also provides evidence of gender differences in self-reported debt stress (Callegari et al., 2020; Chen et al., 2021; Dunn & Mirzaie, 2016; Hamilton et al., 2019; Haurin et al., 2021; Shen et al., 2014). Keese (2012) finds that women typically report higher subjective debt burdens compared with men. This gender difference in the perception of debt burden could be largely attributable to women's higher caution and responsibility in handling household finances, as well as gender differences in personality traits and expectations (Keese, 2012).

Besides, previous research has identified gender differences across a range of financial practices that may influence individual debt behaviours and debt situations. Compared with men, women are more inclined to prioritise savings and securing money (Lee & Pocock, 2007) and employ a wider array of financial management practices, such as maintaining budgets and financial records (Hayhoe et al., 2000). Additionally, women are more likely to express frustration over a lack of money (Prince, 1993) and are less supportive of incurring debt for luxury purchases compared to men (George et al., 2018). Women are also often regarded as more reliable in repaying loans and adhering to loan agreements (e.g., Cavallero & Gago, 2021; Okesina, 2022; Zainuddin & Yasin, 2020).

Prior studies have also noted gender differences in individual-level debt-related dispositional attributes, such as debt attitudes and debt literacy. Although Białowolski et al. (2018) and Lea et al. (1993) found no significant differences between genders regarding debt attitudes, most studies observed more favourable debt attitudes among men compared with women (e.g., Abdul-Muhmin, 2008; Almenberg et al., 2018; Beale & Cude, 2017; Goedde-Menke et al., 2017; Haultain et al., 2010; Loibl et al., 2021; Xiao et al., 1995). This difference may be attributed to the tendency for higher risk-aversion among women compared to men (Dawson, 2023; Fisher & Yao, 2017; Garrison & Gutter, 2010; Powell & Ansic, 1997). Furthermore, research consistently indicates a higher level of financial or debt literacy among men than women (e.g., Agnew & Harrison, 2015; Almenberg & Dreber, 2015; Cwynar et al., 2019; Disney & Gathergood, 2011; Klapper et al., 2015; Lusardi & Tufano, 2015; Tinghög, et al., 2021; van Ooijen & van Rooij, 2016); a pattern that is quite understandable in the present male dominated social system.
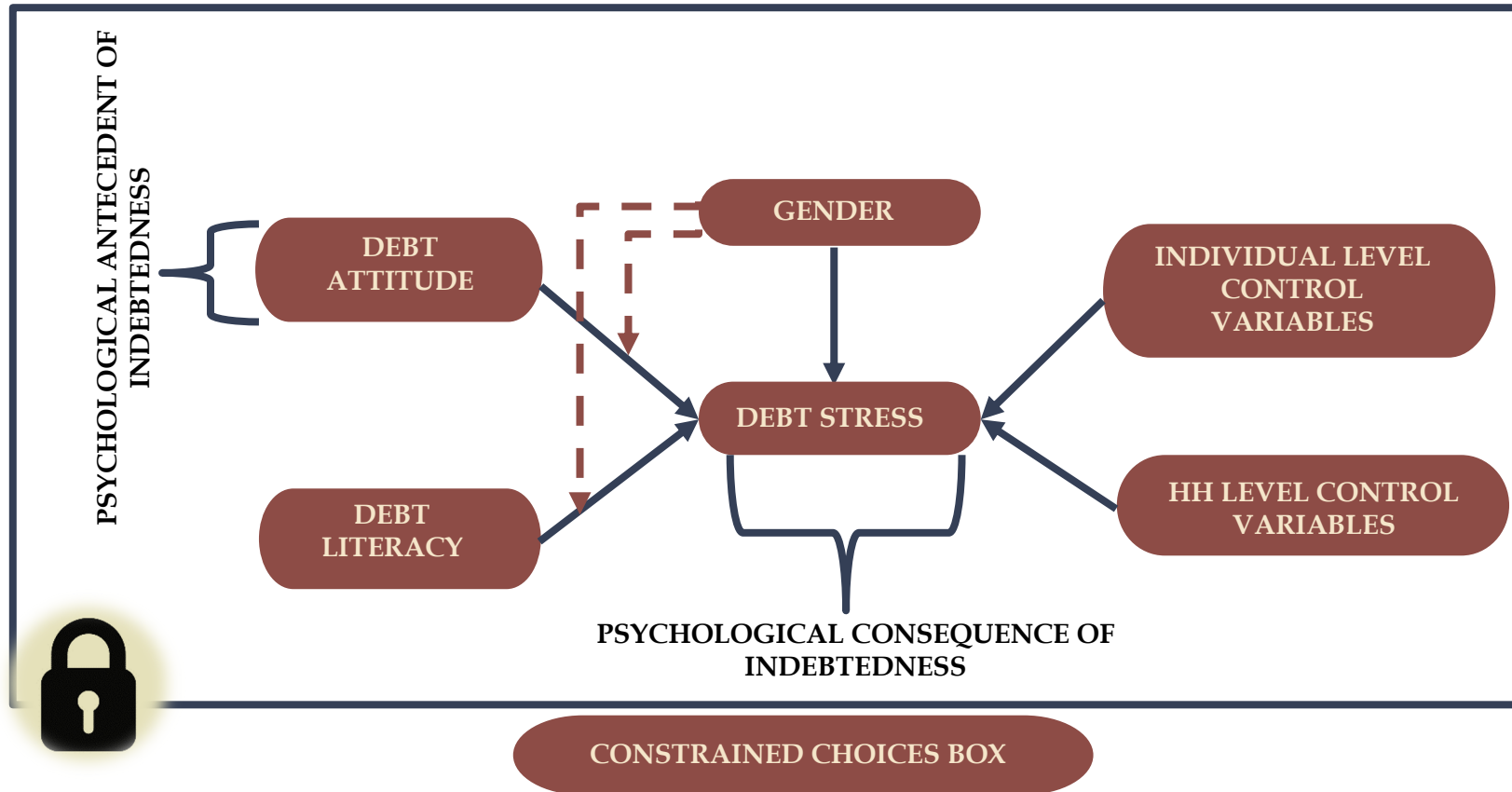
Against this backdrop, this paper advances the literature on the gendered understanding of debt stress and its determinants by extending the analysis to explore the relationships between debt stress, debt attitudes, and debt literacy, while also examining the gender dimensions that influence these dynamics.

3. Conceptual Framework

The conceptual framework employed in this paper, illustrated in Figure 1, integrates four key constructs: poverty, gender, individual-level debt-related dispositional attributes, and debt stress. The "constrained choice box" depicts the limited resources and coping mechanisms available to the target population to manage debt burden and related stress. These limitations arise from multiple structural and financial constraints they encounter in their daily lives, such as low wages, unpredictable income, unemployment, irregular job, and imperfect credit markets.

We seek to understand how, within these constraints, an individual's debt-related dispositional attributes interact with their debt-related stress, and what role gender plays in shaping this relationship. By exploring the potential connection between debt attitudes – a key attitudinal attribute directly associated with debt - and debt stress – a direct and immediate psychological outcome of indebtedness - we aim to elucidate the potential relationship between psychological antecedents and the psychological consequences of indebtedness.

Figure 1: Conceptual Framework

Figure 1: Conceptual Framework

PSYCHOLOGICAL ANTECEDENT OF INDEBTEDNESS

GENDER

DEBT ATTITUDE

INDIVIDUAL LEVEL CONTROL VARIABLES

DEBT STRESS

DEBT LITERACY

HH LEVEL CONTROL VARIABLES

PSYCHOLOGICAL CONSEQUENCE OF INDEBTEDNESS

CONSTRAINED CHOICES BOX

4. Data and Methodology

4.1. Geographical Field

The data for this study was collected from Kerala, the southernmost state in India. India was chosen as the focus of this research, due to the considerable rise in household indebtedness in recent years and the paucity of research on debt-related psychological stress in the context of developing countries. A recent report revealed a significant increase in household debt, rising to 37 per cent of GDP during the pandemic year from 32.5 per cent in the previous year, aggravating the financial stress among Indian households (SBI, 2021). However, no study has until now attempted to understand the debt-related psychological stress among Indians, who constitute around 18 per cent of the total world population. Given the vastness of the country, and the pioneering nature of a study of this type within the Indian context, we selected Kerala as the geographic focus of our inquiry. The choice was primarily driven by Kerala's status as the state with the highest level of household indebtedness (NSO, 2019) in India.

4.2. Data

Data for this study was derived from a sub-sample of a representative household survey conducted among 720 low-income[1] rural households in Kerala, selected through multi-stage cluster sampling.[2] Data collection was carried out using a pre-tested structured questionnaire administered by experienced and trained field investigators.

Of the 720 surveyed households, 608 households with at least one outstanding loan were selected for this study to assess the level of debt stress experienced by respondents

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[1] Low-income households were identified through the Public Distribution System (PDS) cards. Currently, there are four types of PDS cards in Kerala—yellow, pink, blue and white each with different benefits. Of these, yellow and pink cards are given to the most deprived sections of the society, covering around 42 per cent of the total households in the state. This paper had selected the households holding yellow and pink cards as its respondents.

[2] Administratively, Kerala is divided into 14 districts, and the rural regions of each district is further divided into local administrative units known as Grama Panchayats. From 941 Grama Panchayats in Kerala, for the purpose of our research, we selected nine Grama Panchayats from three districts. We followed the following steps to identify the sample households:

> Step 1: The 14 districts were ranked in descending order based on the proportion of low-income households. Using a systematic random sampling method, three districts were selected from the ranked list.
>
> Step 2: Within each selected district, the Grama Panchayats were arranged in descending order based on the proportion of low-income households. From each district, three Grama Panchayats were chosen using a systematic random sampling method.
>
> Step 3: From each selected Grama Panchayat, a sample of 85 low-income households was randomly chosen for the survey.

regarding their current level of household debt. To explore gender differences in debt stress, debt attitudes, and debt literacy, separate individual interviews were conducted with both the male and female primary financial decision-makers within each household. During these interviews, caution was taken to minimise external influences on their responses, helping to achieve accuracy and independence of their respective answers.

To account for potential gender disparities in household financial decision-making power, respondents were 'ranked' based on their financial decision-making authority within the household (i.e., highest authority ranked 1, next-highest authority ranked 2, etc.).[3] This rank was then formally incorporated into our model. However, due to factors such as single-member households, the absence of individuals from different genders, or the unwillingness of the second member to participate, only one member could be interviewed in 83 households (68 females, 15 males). Hence, the final sample consisted of 1133 observations, comprising 593 females and 540 males.

4.3. Adaptation of Constructs

Given that the existing scales for measuring debt stress, debt literacy and debt attitude were primarily designed for use in developed countries, we selected those outlined in Table 1 as the most appropriate starting points for modification to suit the specific context of Kerala. Appendix A presents the full list of indicators included in implemented scales.

Table 1: Selected Scales to Measure Debt Stress, Debt Attitude and Debt Literacy

Construct	Definition	Source
Debt stress	The self-reported aspects of financial stress that directly stem from all debts within the respondent's household. (Dunn & Mirzaie, 2016; Hamilton et al., 2019)	Debt Stress Score (Drentea, 2000)
Debt attitude	Individuals' judgement about engaging in debt obligations and the inclination to respond favourably to borrowing. (de Matos et al., 2019)	Debt Attitude Scale (Lea et al., 1995)
Debt literacy	The ability to make simple debt-related decisions by applying basic knowledge about interest. (Lusardi & Tufano, 2015)	Debt Literacy Scale (Disney & Gathergood, 2011)

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[3] In some households, both male and female respondents were ranked 1, suggesting that they share equal responsibility as primary decision-makers in the household.

For locally adapting these scales, we followed a step-by-step procedure, which included forward translation, seeking opinions from an expert panel, conducting pilot tests, and back translation.

4.4. Factor Analysis

We undertook a confirmatory factor analysis in order to validate the key elements of our measurement models, based around the debt attitude scales outlined above. The analysis identified three distinct dimensions characterising the debt attitudes of our respondents; general acceptability of debt, circumstantial acceptability of debt, and debt prudence.

The results of the factor analysis are presented in Table 2. Almost all of the t-values reported for each item were statistically significant with $p<0.05$ level or above. Standardised factor loadings are generally high and, in most cases, are in excess of the desirable threshold of 0.7. The one latent variable that is slightly weaker in this regard is general acceptability of debt. Even in this case, all of the factor loadings are above the minimum acceptable threshold of 0.5 recommended by Hair et al. (2018). Overall, we are generally satisfied that our observed variables from the survey demonstrate acceptable correlation/loading with the respective latent variables.

Table 3 presents descriptive statistics for variables used in our model, as well as measures of their correlations alongside standard measures of reliability and validity. The mean values corresponding to each latent variable derived from the survey question responses are observed to be relatively low, indicating there was typically some extent of disagreement with the respective statements on the survey. The one exception (and the only latent variable with average Likert responses above neutral) was debt prudence. Standard deviations in the survey responses were generally found to be relatively lower compared with the respective means.

The Average Variance Explained (AVE), which measures the construct's convergent validity, were mostly in excess of the recommended minimum of 0.5 for each our constructs. The one exception is the construct reflecting general acceptability of debt, where the AVE of 0.49 is marginally below the normally accepted threshold. A similar pattern is observed for the Cronbach's Alpha (CA) values, where most of the multi-item constructs weref above the standard threshold of 0.7, indicating a good level of consistency and reliability. Again, the one exception is general acceptability of debt, which

is somewhat below this threshold (CA = 0.53), but still acceptable in the context of for use in exploratory research (Nunnally, 1967).

However, it should be noted that CA scores are limited by the assumptions of tau equivalence, which assumes that all indicators are equally reliable (Raykov, 2007). Therefore, we also present Composite Reliability (CR) scores for each of our constructs as an alternative measure of internal consistency and reliability, which are not limited by such assumptions. The CR values for all of our constructs exceed the conventional threshold of 0.7 suggested by Hair et al. (2014). As a result, even though the AVE and CA values for one of the constructs (general acceptability of debt) are somewhat below the conventional thresholds of acceptability, the high CR values for this and all of our other variables do not suggest a problem (Fornell & Larcker, 1981). On this basis, we argue that all of our model variables generally demonstrate acceptable levels of reliability and validity.

Table 3 also contains correlation coefficients measured between each of our model constructs. These correlation coefficients are generally low and are significantly below the generally accepted maximum absolute threshold of 0.9 (Henseler et al., 2015). The highest single level of correlation between constructs is +0.41, which is observed between general acceptability of debt and circumstantial acceptability of debt. All other correlations are below an absolute value of 0.3. In all cases, the square roots of the AVE range between 0.70-0.84, which in each case is significantly larger than the respective correlations. This result implies that each construct exhibits stronger correlation with its measure than the other model constructs and therefore complies with the Fornell-Larcker criterion (Fornell and Larcker, 1981).

Table 2: Assessment of Measurement

Construct	Indicator	Standardised Factor Loading	t-value	Mean	Std Dev
Debt Stress	How often do you worry about household debt?	0.895	67.78***	3.195	1.331
	When you think about your household debt, how much stress do you feel?	0.912	109.76***	2.921	1.317
	How confident are you that your family will be able to pay off your current debt?	0.696	20.62***	2.279	1.105
General acceptability of debt	Taking loans would help us make our life more comfortable	0.541	1.61	1.891	0.640
	Taking a loan is not at all a good thing ®	0.930	2.90***	2.109	0.710
	It is better to starve than to borrow money for food ®	0.561	1.65*	2.785	1.053
Circumstantial acceptability of debt	Taking a loan even for medical purposes is not right ®	0.722	1.90*	3.626	0.859
	It is OK to borrow money to repay an earlier debt	0.870	3.21***	2.696	0.972
	It is OK to have debt if you know you can pay it off	0.732	1.97**	3.612	0.936
Debt prudence	We should live within our income ®	0.670	2.34***	1.934	0.443
	Even on a low income, one should save a little every month ®	0.770	2.75***	2.027	0.460
	Borrowed money should be repaid as soon as possible ®	0.891	2.86***	1.847	0.449

Note: All indicator variables measured on a 1-5 Likert scale; ® denotes reverse-coded items; ***$p< .01$; **$p< .05$; *$p< .10$.

Table 3: Descriptive Statistics, Reliabilities, Correlations and Validities

	Mean	SD	CA	CR	1	2	3	4
1. Debt Stress	2.26	0.90	0.79	0.88	**0.71**			
2. General acceptability of debt	1.93	0.46	0.53	0.73	-0.05	**0.49**		
3. Circumstantial acceptability of debt	2.80	1.31	0.72	0.82	0.03	0.41	**0.61**	
4. Debt prudence	3.31	1.02	0.74	0.82	0.05	0.28	0.05	**0.60**

Note: The diagonal values in bold indicate the average variances extracted (AVE). The scores in the lower diagonal indicate inter-construct correlations (IC). CA: Cronbach's Alpha; CR: Composite Reliability. All indicator variables measured on a 1-5 Likert scale.

4.5. *Analysis*

To explore the gender dimensions of debt stress and examine the role of gender in shaping the relationship between debt stress, debt attitudes, and debt literacy, we employed a range of statistical techniques. These included plotting density diagrams and conducting Mann-Whitney U tests (Wilcoxon Rank-Sum test), household fixed effects regressions, hierarchical multiple linear regressions, and the Blinder-Oaxaca decomposition method.

5. Results

Descriptive statistics of the variables employed in our analysis are provided in Table 4. For analytical purposes, we categorised the independent variables into three groups: individual-level dispositional attributes; individual-level control variables; and household-level control variables.

Table 4: Descriptive Statistics

Measure	Description	Item	Obs	Mean	Std. Dev.	Min	Max
Dependent Variable							
Debt stress	Measures the level of debt stress experienced by the respondent.	-	1,133	0.000	1.001	-1.71	2.03
Individual-level Dispositional Attributes							
General acceptability of debt	Captures the respondent's attitude towards borrowing in general. Assesses, whether the concept of loan is generally acceptable to the respondent or not.	-	1,133	0.000	1.000	-2.00	4.54
Circumstantial acceptability of debt	Captures the respondent's attitude toward borrowing in particular situations. Measures if borrowing is acceptable for the respondent under specific circumstances.	-	1,133	0.000	1.001	-2.56	2.47
Debt prudence	Captures the respondent's overall perspective on financial discipline.	-	1,133	-0.003	1.001	-5.63	2.49
Debt literacy	Measured by counting the correct answers given by the respondent to the three questions provided in Appendix A.	-	1,133	1.199	0.961	0	3
Individual-level Control Variables							
Gender		Male	1133	0.48	-	0	1
		Female*	1133	0.52	-	0	1
Age		-	1133	49.22	13.44	18	86
Education	The highest level of education attained by the respondent. The educational levels were categorised into seven distinct tiers and assigned numerical values ranging from 1 to 7, with lower values	-	1133	3.45	1.19	1	7

	representing lower educational attainment and higher values denoting higher levels of education.						
Marital status		Currently married	1133	0.84	-	0	1
		Currently not married*	1133	0.16	-	0	1
Income	Total income earned by the respondent in a normal month	-	1133	5123.48	6090.05	0	35000
Having fixed income	This variable aims to capture the type of employment in which the respondent is engaged. It distinguishes between formal employment, which provides a regular and fixed income, and informal employment, characterised by irregular and volatile income.	Fixed income	1133	0.05	-	0	1
		Volatile income*	1133	0.95	-	0	1
Decision making power within the household	Captures the financial decision-making power held by the respondent within a household.	Primary decision-maker	1133	0.67	-	0	1
		Secondary decision-maker*	1133	0.33	-	0	1
Household-level Control Variables							
Religion		Hindu*	1133	0.80	-	0	1
		Christian	1133	0.10	-	0	1
		Muslim	1133	0.11	-	0	1
Social category[4]		SC	1133	0.22	-	0	1

[4] Population in India is officially classified into four groups based on their social positioning considering historical, socio-economic and educational factors; scheduled castes (SCs), scheduled tribes (STs), other backward castes (OBCs) and general. SCs and STs are constitutionally recognised as the most disadvantaged social groups in India, who have historically faced severe social discrimination and oppression. To address the historical injustices, they are granted special constitutional protections and reservation benefits under the Indian legal system. OBC is a collective term used to denote educationally and socially backward communities. Although OBC communities are eligible for reservation in educational institutions and government jobs, they do not receive the same level of social and legal protection as SCs and STs. The general category includes the social groups that do not fall into the SC/ST/OBC categories. These communities have historically been considered privileged in terms of opportunities, wealth and education.

		ST	1133	0.12	-	0	1
		OBC*	1133	0.51	-	0	1
		General	1133	0.15	-	0	1
HH educational attainment	The highest level of education attained by any member of the household. The educational levels were categorised into seven distinct tiers and assigned numerical values ranging from 1 to 7, with lower values representing lower educational attainment and higher values denoting higher levels of education.	-	1133	4.78	1.19	1	7
HH average age	The average age of the adult members (+15 years) of the household	-	1133	45.44	10.04	23	82
HH employment ratio	The proportion of employed household members to the total household size	-	1133	0.52	0.50	0	1
HH income	Total income of the household in a normal month	-	1133	17,015	10,393	200	62,110
Housing tenure		Own home with title deed	1133	0.82	-	0	1
		Do not own home with title deed*	1133	0.18	-	0	1
HH stable income count	Number of household members with stable jobs and regular income	-	1133	0.20	0.48	0	3
HH economic category	This variable aims to capture the economic differentiation within low-income groups based on the colour of the PDS card held by a household. In Kerala, although both yellow and pink cardholders are considered low-income households, those holding yellow cards are considered extremely poor.	Yellow PDS card	1133	0.24	-	0	1
		Pink PDS card*	1133	0.76	-	0	1
HH debt	Total amount of outstanding debt owed by the household	-	1133	233,415	350,342	300	5,166,200

Note: Categories with asterisk (*) signs serve as the reference categories in the quantitative modelling; therefore, do not appear in the subsequent analyses

5.1. *Gender differences in Constructs*

First, we plotted density diagrams for male and female respondents for the factor scores derived for debt stress and different dimensions of debt attitudes, as well as the absolute value of the debt literacy score (Figure 2). This visualisation aimed to provide a preliminary understanding of gender differences within these constructs. The figure reveals a significant gender disparity in debt stress, along with a notable gender gap in debt literacy. The distributions of the three dimensions of debt attitudes appear to be more or less similar across genders.

Figure 2: Density Distribution of Debt Stress, Debt Attitudes and Debt Literacy Score by Gender
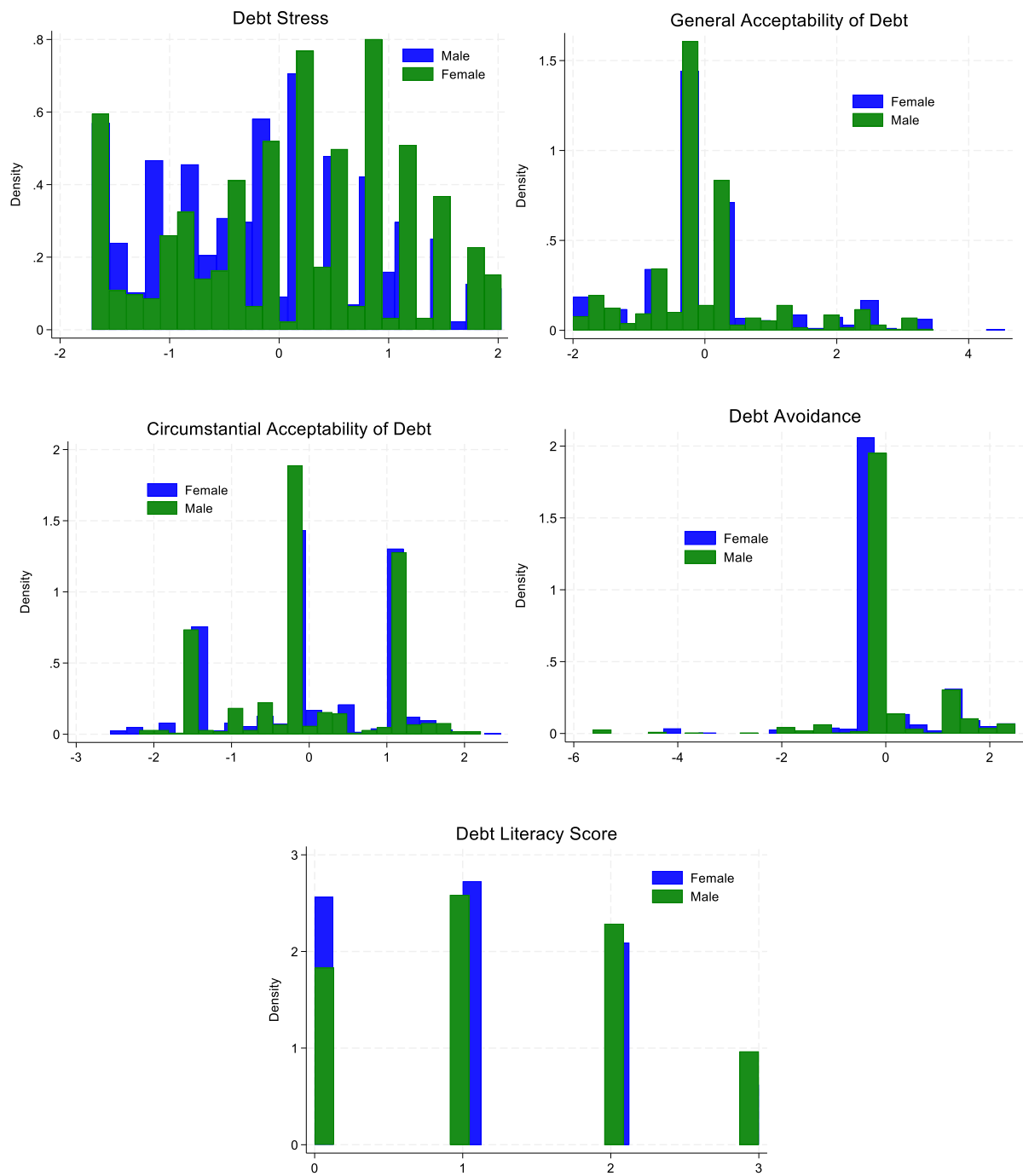
To examine the statistical significance of the gender differences observed in the Figure 2, Mann-Whitney U tests were employed. Table 5 presents the mean factor scores for debt stress and debt attitudes, as well as the mean score for debt literacy, for male and female respondents separately. The results of the Mann-Whitney U test are also provided. Consistent with prior literature and with the histograms presented above, statistically significant gender differences were observed in debt stress and debt literacy. Female respondents tended to report higher levels of debt stress and demonstrated lower levels of debt literacy compared with male respondents. However, no statistically significant gender differences were found across the three dimensions of debt attitudes.

Table 5: Mann-Whitney U tests

Construct	Mean		|z| value
	Female (n=593)	Male (n=540)	
Debt stress	0.123	-0.135	4.594***
General acceptability of debt	0.029	-0.031	0.749
Circumstantial acceptability of debt	0.009	-0.009	0.628
Debt prudence	0.005	-0.012	0.486
Debt literacy score	1.09	1.31	3.695***

Note: ***$p < .01$; **$p < .05$; *$p < .1$

To ensure the robustness of these outcomes, we also conducted regressions where debt stress and debt literacy were used respectively as dependent variables, with a binary measure of gender as the independent variable along with household fixed effects. The results from these regressions confirm that females tend to experience a higher debt stress and a lower debt literacy level compared with males, even while accounting for the unobservable factors specific to each household.

5.2. *Hierarchical Multiple Regression Analysis*

The next stage of analysis involved assessing the influence of individual debt attitudes and debt literacy on the debt stress experienced by individuals, controlling for both individual and household-level socio-economic variables. For the purpose, hierarchical multiple linear regressions were employed using factor score derived for debt stress as the dependent variable. To explore potential gender differences in the determinants of debt stress, separate regressions for male and female samples were also conducted.

The pair-wise correlations between the independent variables were generally low. Only a very small number of pairs demonstrated a correlation coefficient of above 0.4 in absolute terms, and none exceeded a level of 0.6 (Appendix B). To ensure the robustness of our models, we undertook a Variance Inflation Factor (VIF) analysis to check for multicollinearity among the independent variables. The results indicated that our data did not suffer from any issue of multicollinearity, as all VIF values were well below the commonly accepted threshold of 10. We also employed robust standard errors throughout our analysis to control for non-constant variance in the residuals.

Association between Debt Stress and Debt Attitudes / Debt Literacy

Results of the hierarchical linear regression model is presented in Table 6. The first step of the model included only the three dimensions of debt attitudes and debt literacy. The results indicate that all three dimensions of debt attitudes are significant predictors of debt stress in both the pooled (full) and male sub-samples, but not for the female sub-sample.

In the subsequent step, gender was incorporated into the regression model for the full sample. This addition confirmed the presence of gender differences in debt stress, revealing that male respondents typically experience significantly lower levels of debt stress compared with females.

In the third step, other individual-level control variables were incorporated into the regression models. The results indicate that, even after accounting for these factors, the three dimensions of debt attitudes remain significant predictors of debt stress for both the pooled sample and the male sub-sample, but not for the female sub-sample.

In the fourth step, which introduced household-level control variables, only the general acceptability of debt emerged as a significant predictor of debt stress in the pooled sample. This result implies that after accounting for household-level control variables, the other two dimensions of debt attitudes – circumstantial acceptability of debt and debt prudence lose their significance, suggesting that their effects on debt stress may be partially explained by the household characteristics of the respondents. Notably, debt literacy emerged as a significant factor in explaining debt stress for the pooled sample at this stage, indicating that higher levels of debt literacy are associated with reduced debt stress. This relationship likely stems from the fact that individuals with greater debt literacy are better informed about their financial situations. Such enhanced understanding may allow them

to better negotiate with their financial circumstances, both practically and psychologically, thereby alleviating overall debt stress. However, all three dimensions of debt attitudes continued to be significant for the male sub-sample at this stage, even when controlling for both individual and household-level factors. This finding suggests a consistent and robust relationship between debt attitudes and debt stress among the male sub-sample.

Regarding the direction of relationships between different dimensions of debt attitudes and debt stress, general acceptance of debt is observed to be negatively associated to debt stress. This suggests that individuals who view borrowing more favourably tend to experience lower levels of debt-related stress, likely because their acceptance of borrowing partially mitigates their stress when and if they incur debt. Interestingly, debt prudence is also negatively related to debt stress, indicating that individuals who prefer to avoid debt or place greater emphasise on financial discipline tend to experience lower levels of debt stress. This relationship may seem counterintuitive, as one might expect that those with stronger debt prudent attitudes would feel increased pressure when faced with debt obligations due to their desire to repay on time. Although we could not definitively ascertain the reasons for this relationship—given the lack of prior theoretical explanations—it may be attributed to their cautious borrowing behaviour and better preparedness to manage debt when it becomes necessary. By contrast, circumstantial acceptance of debt is positively related to debt stress. This relationship may be attributed to the specific socioeconomic context of the study population, such as the rural poor in Kerala, who continue their daily lives under multiple constraints as outlined in the conceptual framework of this paper. Due to these constraints such as low and irregular income and limited savings, this group is often forced to rely on loans to manage unexpected or large expenses. Given their financial conditions, this group may perceive debt as a necessary evil in certain situations - such as medical emergencies or loan repayments - despite concerns about repayment. Even their acceptance of borrowing may stem from a recognition of their precarious financial situation, understanding that they lack the means to cover these expenses otherwise. This realisation can exacerbate their debt stress, as they grapple with the necessity of borrowing in certain situations while simultaneously worrying about their capacity to repay these debts.

It is noteworthy that, across all steps, neither the three dimensions of debt attitudes nor debt literacy proved statistically significant in explaining the variations in debt stress

among the female sub-sample. Overall, the regression analysis indicates that, for males in rural poor households in Kerala, debt attitudes do play a role in predicting debt stress. In contrast, debt-related attitudinal factors are less influential in determining their debt stress levels for females.

Influence of Individual-level and Household-level Control Variables

Along with debt attitudes and debt literacy, certain individual-level and household-level control variables are observed to predict debt stress of male and female respondents. The full regression results can be found in Appendix C.

Age demonstrates a statistically significant association with debt stress in both the pooled sample and the male sub-sample, suggesting that debt stress tends to increase with age. For the female sub-sample, education level and income tend to associate more strongly with debt stress, whereby higher levels of education typically correspond to lower debt stress. Surprisingly, higher incomes among female respondents also tend to associate with higher levels of debt stress. Similarly, when female respondents are the primary decision-makers in the family, they are more likely to experience higher levels of debt stress. Taken together, these observations could suggest that shouldering greater financial responsibilities within the household increases debt stress among females, at least those in vulnerable groups. While this study does not have sufficient empirical evidence to provide definitive justification for this observed relationship, one possible explanation could be the role overload experienced by female respondents included in our sample. In rural regions of Kerala, where deep-rooted patriarchal structures and gendered divisions of labour persist, women from low-income families often undertake a disproportionate share of unpaid household and caregiving responsibilities, exacerbated by insufficient income to hire domestic help. The added burden of managing household finances may further amplify their debt-related stress. Although the evidence has been mixed, prior literature has highlighted the potential adverse impact of this role overload on the stress experienced by women (e.g., Mossakowski, 2014; Pearlin, 1989). Additionally, studies indicate that women tend to be more emotionally involved in the lives of those around them, which increases their psychological vulnerability (Kessler & McLeod, 1984). This heightened 'emotional cost of caring' could further exacerbate debt stress among women when they assume greater decision-making power within the household.

Household income and household debt consistently predict levels of debt stress across all three samples. Specifically, higher household income tends to associate with lower levels debt stress, whereas higher household debt is linked to higher debt stress, which aligns with expectation. In fact, these two variables emerged as the strongest predictors of debt stress across the samples. Additionally, the highest education level achieved by a household member is associated with lower debt stress in the pooled sample. Belonging to the lowest economic category is associated with higher debt stress among the male sub-sample.

Table 6: Hierarchical Multiple Regression Results

Model No.	Constructs	Regression I			Regression II			Regression III		
		Pooled (N=1133)			Female (N= 593)			Male (N= 540)		
Model I	**Includes only Debt Attitudes & Debt Literacy**	R²=0.013	F=3.72	***	R²=0.004	F=0.52		R²=0.014	F=4.51	***
	General acceptability of debt	-0.092	(0.034)	***	-0.060	(0.048)		-0.129	(0.047)	***
	Circumstantial acceptability of debt	0.071	(0.032)	**	0.037	(0.044)		0.111	(0.046)	**
	Debt prudence	-0.066	(0.032)	**	-0.012	(0.045)		-0.128	(0.044)	***
	Debt literacy	-0.052	(0.030)	*	-0.017	(0.043)		-0.062	(0.043)	
Model II	**Adding Gender**	R²=0.029	F=7.16	***						
	General acceptability of debt	-0.098	(0.034)	***						
	Circumstantial acceptability of debt	0.071	(0.032)	**						
	Debt prudence	-0.070	(0.032)	**						
	Debt literacy	-0.036	(0.030)							
	Gender_Male	-0.256	(0.060)	***						
Model III	**Adding Other Individual-level Control Variables**	R²=0.044	F=5.02	***	R²=0.029	F=1.91	***	R²=0.052	F=2.77	***
	General acceptability of debt	-0.088	(0.034)	***	-0.048	(0.047)		-0.120	(0.048)	**
	Circumstantial acceptability of debt	0.065	(0.032)	**	0.027	(0.045)		0.104	(0.046)	**
	Debt prudence	-0.067	(0.032)	**	-0.005	(0.045)		-0.125	(0.044)	***
	Debt literacy	-0.027	(0.032)		-0.004	(0.045)		-0.058	(0.046)	
	Gender_Male	-0.296	(0.032)	***						

		Coef.	SE	Sig.	Coef.	SE	Sig.	Coef.	SE	Sig.
Model IV	**Adding Household-level Control Variables**	**R²=0.264**	**F=21.37**	*******	**R²=0.273**	**F=13.06**	*******	**R²=0.276**	**F=10.60**	*******
	General acceptability of debt	-0.073	(0.029)	**	-0.050	(0.042)		-0.088	(0.041)	**
	Circumstantial acceptability of debt	0.039	(0.028)		-0.007	(0.040)		0.087	(0.041)	**
	Debt prudence	-0.046	(0.028)	*	0.010	(0.037)		-0.096	(0.041)	**
	Debt literacy	-0.065	(0.030)	**	-0.063	(0.040)		-0.083	(0.043)	*
	Gender	-0.299	(0.067)	***						
Model V	**Adding Gender Moderating Effect**	**R²=0.269**	**F=19.32**	*******						
	General acceptability of debt	-0.061	(0.042)							
	Circumstantial acceptability of debt	-0.006	(0.040)							
	Debt prudence	0.006	(0.036)							
	Debt literacy	-0.059	(0.038)							
	Gender_Male	-0.270	(0.099)	***						
	Gender_Male * General acceptability of debt	-0.014	(0.056)							
	Gender_Male * Circumstantial acceptability of debt	0.100	(0.056)	*						
	Gender_Male * Debt prudence	-0.106	(0.054)	**						
	Gender_Male * Debt literacy	-0.024	(0.054)							

Note: Robust standard errors in parentheses, ***$p<$ .01; **$p<$ .05; *$p<$ .1; Complete results of models III, IV and V are provided in Appendix C

Gender Moderating Effect

To explore the moderating effect of gender on the relationship between debt stress and different dimensions of debt attitudes and debt literacy, interaction terms were incorporated into the analysis of the pooled sample. The results revealed a statistically significant moderating effect of gender on the association between debt prudence and debt stress, implying that debt prudent attitudes tend to have a more pronounced impact on debt stress for males compared with females among the rural poor in Kerala. Specifically, as debt prudent attitudes increase, the reduction in debt stress is notably greater for males compared with females. As can be seen in Figure 3, a negative association between debt prudence and debt stress is notable only for the male sub-sample. By contrast, no significant moderating effects of gender were observed in the relationships between debt stress and general acceptability of debt, circumstantial acceptability of debt, or debt literacy.

Figure 3: Graphic Representation of the Gender Moderating Effect on the Relationship between Debt Prudent Attitudes and Debt Stress
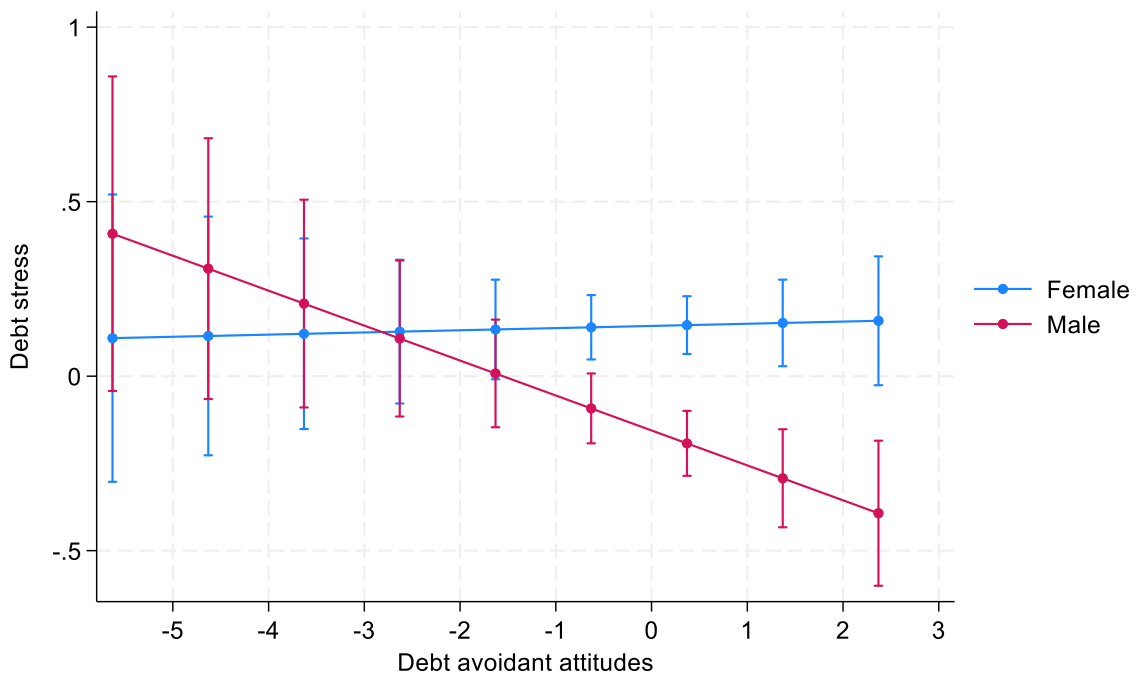
5.3. Intra-Household Dynamics

Our earlier analysis suggested that debt-related attitudes and debt literacy have limited influence in shaping the debt stress levels of females. To further investigate the factors that might better explain debt stress among females, we examined whether female debt stress is associated with the debt stress, debt attitudes, and debt literacy of the primary male financial decision-maker within the same household. This analysis draew on data from a reduced sub-sample of 525 households from our original dataset, where responses from both genders were available.[5] The findings of this analysis are presented in Table 7. The full regression result is presented in Appendix D.

The results indicate that the debt stress of the female financial decision-maker is better explained when the debt stress and debt attitudes of the male counterpart in the same household are accounted for. Specifically, there is a positive and significant relationship between the debt stress of the male and female financial decision-makers, indicating that as male partners experience greater debt stress, female partners also tend to exhibit higher levels of debt stress. Additionally, the findings suggest that female debt stress increases as male partners display a more favourable attitude toward borrowing in general. This may be attributed to the fact that females, being generally more risk-averse (as noted in the prior studies mentioned earlier), might perceive their male partner's more favourable attitude toward borrowing as a potential risk to the family's financial stability, thus heightening their own debt-related stress.

Notably, when the debt stress, debt attitudes and debt literacy of male decision-makers are incorporated into the model, the variable representing females' general acceptability of debt becomes statistically significant, with an expected negative coefficient. This suggests that once the debt-related factors of the male partner are accounted for, the female debt stress decreases, as her attitude towards borrowing becomes more favourable in general.

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[5] The primary male and female financial decision-makers in our dataset are not necessarily married couples; other relationships, such as father-daughter, mother-son, or brother-sister are also possible.

Table 7: Influence of Male Debt Stress, Male Debt Attitudes and Male Debt Literacy on Female Debt Stress

Dependent variable: Female debt stress			
Predictors	Female (N=525)		
General acceptability of debt_Female	-0.088	(0.039)	**
Circumstantial acceptability of debt_ Female	-0.032	(0.040)	
Debt prudence_ Female	-0.003	(0.039)	
Debt literacy_ Female	-0.018	(0.039)	
Debt stress_Male	0.438	(0.045)	***
General acceptability of debt_Male	0.078	(0.039)	**
Circumstantial acceptability of debt_ Male	0.014	(0.039)	
Debt prudence_ Male	0.026	(0.041)	
Debt literacy_ Male	-0.022	(0.040)	

Note: Robust standard errors in parentheses, ***$p< .01$; **$p< .05$; *$p< .1$

Given the observed association between individual-level dispositional attributes and debt stress, as well as gender differences in influencing these relationships, using the Blinder-Oaxaca decomposition method, we sought to determine whether the gender gap in debt stress could be explained by parallel gender differences in debt attitudes and debt literacy. However, we found no evidence to support this proposition and, consequently, have omitted this analysis from the final draft.

6. Discussion and Implications

Financial strain is an inescapable part of everyday life for many, and therefore is recognised as a daily stressor (Drentea, 2000). The stress arising from increased debt levels is identified as a significant psychological mechanism that links debt to broader mental health issues, such as depression (Guan et al., 2022; Simonse et al., 2022; Swanton & Gainsbury, 2020). Consequently, a comprehensive understanding of debt-related stress across various population segments is critical for ensuring the psychological well-being of society.

Psychological studies have identified poverty itself as a chronic stressor (Pearlin, 1989; Thoits, 1995). This argument raises the question of how an additional stressor, such as indebtedness, affects the psychological well-being of individuals who already experience chronic stress from poverty. Previous research, primarily from developed countries, has shown that the debt burden, measured as the debt-to-income ratio, tends to be higher among lower-income households, leading to greater debt stress within this group

(Hamilton et al., 2019). Nevertheless, there is a notable lack of research focusing on debt stress among the rural poor in developing countries, for whom borrowing is often a daily necessity due to numerous financial constraints they face in their everyday lives. Moreover, existing research has not explored how an individual's debt attitudes and their debt literacy levels may influence his/her debt-related stress.

This study aims to fill these gaps by examining debt stress among rural poor households in Kerala, India, with a specific focus on the roles of debt attitudes and debt literacy from a gender perspective. By undertaking a confirmatory factor analysis, we demonstrated that the debt attitudes of our respondents can be characterised by three dimensions; general acceptability of debt, circumstantial acceptability of debt, and debt prudence. Consistent with prior literature, we observed significant gender differences in debt stress and debt literacy among the target group, with females reporting higher levels of debt stress and lower levels of debt literacy.

Our study confirmed the role of gender in predicting debt stress. Results revealed that debt attitudes are key predictors of debt stress among rural poor men in Kerala. On the contrary, individual-level characteristics such as financial decision-making power within the household, the level of income, and education attainment play more critical roles in explaining the debt stress experienced by women. Further analysis indicated a potential influence of male decision-makers' debt stress and debt attitudes on the level of debt stress experienced by female decision-makers within the same household. However, this intra-household gender dynamics of debt stress, along with its contributing factors, require a more comprehensive investigation, which lies beyond the scope of this paper. This issue will be addressed in detail in our forthcoming paper. Additionally, at one stage of our modelling, we observed that debt literacy emerges as a significant predictor of debt stress among our respondents.

Theoretically, our study offers preliminary empirical evidence of the relationship between debt stress and both debt attitude and debt literacy for a given level of household debt, while also highlighting potential gender differences in these associations. Thus, the findings that emerge from this study emphasise the importance of focusing on changing debt attitudes and enhancing debt literacy of individuals to improve their psychological well-being.

As predicted by theory, our study suggests that individuals who are more accepting of taking loans tend to experience less debt stress, likely because they view borrowing as a normal financial activity. Similarly, individuals who exhibit greater prudence regarding debt also tend to report lower levels of debt stress. Given this potential role of debt attitudes in influencing debt stress, programmes aimed at shaping these attitudes could be beneficial. By analysing various psychological factors influencing debt behaviours, Lea (2021) identifies debt attitudes as the most promising target for policy intervention. He argues that public policy should be carefully crafted to prevent situations where people perceive their debt as unmanageable, even if these situations are challenging to avoid (Lea, 2021).

Our findings also highlight a potential link between debt literacy and debt stress, indicating that higher levels of debt literacy are associated with lower levels of debt stress. Given the influence of both debt attitudes and debt literacy on the level of debt stress experienced by individuals, we advocate for targeted financial education and financial literacy programmes. Such programmes can assist individuals in managing their finances and debt behaviours more effectively, enabling them to navigate their financial situations in a better manner. Financial education may help individuals distinguish between different types of loans and perceive their debt burden more accurately, rather than viewing all loans as uniformly burdensome. Financial literacy programmes that cover topics such as different loan arrangements, interest rate calculations, distinguishing between avoidable and unavoidable loans, budgeting, and overall financial management could alleviate debt-related stress. Additionally, considering the role of gender in shaping the relationship between debt attitudes, debt literacy and debt stress, it may be valuable to include gender-specific modules in these programmes.

On the other hand, our study indicates that individuals, who are more accepting to borrowing under specific circumstances are more likely to experience a higher debt stress. This dimension primarily reflects situations where borrowing is seen as unavoidable, or contingent upon the ability to repay, which could be linked to the socio-economic context of the study population, who face significant financial challenges in their daily lives. In light of this observation, we believe that public policies aimed at ensuring a stable income flow, reducing the need for emergency borrowing, and improving access to affordable credit sources are essential. Apart from improving the overall material conditions of the population, such measures would also enhance the effectiveness of direct interventions

like financial education and financial literacy programmes. As argued by Lea (2021), Lea et al. (1995), and Walker et al. (2015), no psychological factor alone can effectively prevent the issue of excessive indebtedness without addressing the underlying socioeconomic disadvantages and poverty.

7. Limitations and Directions for Future Research

Being a first study that explores the relationships between debt-related dispositional attributes and debt-related psychological consequence, this study has several limitations.

First, our research is limited to a specific population group from a geographically restricted area, who view borrowing as a daily necessity and an unavoidable coping strategy. Caution is advised when extending or generalising these results to more heterogeneous populations, as the identified relationships may vary or be interpreted differently in other contexts, such as among consumer-oriented groups.

Second, due to the unavailability of secondary data, our analysis relied on a cross-sectional dataset. This limited our ability to account for potential endogeneity between debt attitudes and debt stress. Future research employing longitudinal data could better address this issue and provide a clearer understanding of the dynamic relationship between debt attitudes and debt stress.

Third, our analysis was limited to identifying the link between dispositional attributes directly related to debt and debt stress. Other psychological factors, such as risk aversion or self-esteem, might also directly or indirectly affect the debt stress experienced by different genders. By incorporating these psychological attributes into the analytical frameworks, future studies could further advance this field.

Finally, while our study confirmed a potential link between debt attitudes, debt literacy, and debt stress, as well as possible gender disparities in this relationship, we were unable to establish that differences in average debt stress could be attributed to corresponding gender differences in debt attitudes or debt literacy. Even conventional socio-economic and demographic characteristics failed to account for this discrepancy. This suggests that additional, non-measurable factors may contribute to the observed gender disparities in debt stress. Therefore, future qualitative research involving separate interviews with men and women about their debt-related stress and the factors that exacerbate it is necessary to uncover the underlying reasons for these gender differences.

8. Conclusion

By analysing data from a representative household survey in Kerala, this paper brings out the various gender dimensions underlying debt stress experienced by rural poor population in a developing country. Consistent with prior literature, we observed significant gender differences in debt stress. Our study further confirmed the gender differences in the factors predicting debt stress, with debt attitudes emerging as a significant predictor among rural poor men, but not among women. Further analysis revealed a potential intra-household, cross-gender influence on debt stress, which warrants a more detailed investigation.

Overall, beyond confirming existing theories, this manuscript introduces novel theoretical insights by exploring how an individual's debt-related dispositional attributes interact with their debt stress under multiple economic constraints, and what role gender plays in moulding these relationship. Thus this paper offers a valuable contribution to the existing literature on poverty, gender, and debt stress.

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Table A1: Full list of indicators employed in the survey

Construct	Indicator
Debt Stress Score	1. How often do you worry about household debt? 2. When you think about your household debt, how much stress do you feel? 3. In the next five years, how severe do you think will be the debt situation of your family compared to the present situation? 4. How confident are you that your family will be able to pay off your current debt? ®
Debt Attitude Scale	1. Taking loans would help us make our lives more comfortable. 2. There is nothing wrong in buying home appliances in instalments if we don't have money to pay the entire amount together. 3. Taking a loan is not at all a good thing. ® 4. Credit is an essential part of today's lifestyle. 5. One should gift new dresses to family members for festivities like Onam, Ramzan and Christmas, even by taking a loan. 6. It is better to starve than to borrow money for food. ® 7. We should live within our income. ® 8. Even on a low income, one should save a little every month. ® 9. Borrowed money should be repaid as soon as possible. ® 10. Taking a loan, even for medical purposes, is not right. ® 11. There is nothing wrong in celebrating events like marriage and childbirth, even if by taking loans. 12. It is OK to borrow money to repay an earlier debt. 13. It is OK to have debt if you know you can pay it off. 14. Borrowing money to build or buy a house is never a good idea. ®
Debt Literacy Scale	1. You owe Rs. 100 from your neighbour for an interest rate of 10% per year. If you haven't paid anything off, how much money should you pay back after one year? 2. Suppose you owe Rs. 100 to your friend for a monthly interest rate of 1%. What is the annual interest rate? 3. Suppose you need a loan of Rs. 1000. You have two sources of immediate credit, a private lender and a private financing company. The private lender charges Rs. 5 per day for a sum of Rs. 100 borrowed. The private financing company charges 100 per cent interest per month. Which is the better choice for you?

Note: ® denotes reverse items

	Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	1
1.	Debt stress	1																
2.	General acceptability of debt	-0.05	1															
3.	Circumstantial acceptability of debt	0.05	0.28	1														
4.	Debt prudence	0.03	0.41	0.05	1													
5.	Debt literacy	-0.05	0.03	0.04	-0.05	1												
6.	Gender_Male	-0.13	-0.03	-0.01	0.01	0.11	1											
7.	Age	0.12	-0.09	-0.02	0.01	-0.16	0.01	1										
8.	Education	-0.06	0.11	0.07	-0.04	0.33	0.03	-0.50	1									
9.	Marital status_Married	0.03	-0.05	-0.02	0.02	0.00	0.08	0.06	-0.09	1								
10.	Income	-0.07	0.05	0.06	-0.03	0.14	0.50	-0.21	0.18	0.08	1							
11.	Having fixed income	0.01	0.08	0.06	-0.03	0.09	0.01	-0.12	0.22	-0.03	0.25	1						
12.	Decision-making power within the household_Primary decision maker	-0.02	-0.06	0.01	-0.02	0.04	0.44	0.17	-0.10	0.05	0.33	0.05	1					
13.	Christian	0.02	0.08	0.06	0.01	0.17	0.01	-0.01	0.09	-0.02	0.01	0.02	-0.01	1				
14.	Muslim	-0.03	-0.11	-0.09	-0.04	0.06	0.00	-0.13	-0.05	0.02	-0.05	-0.07	-0.04	-0.11	1			
15.	SC	0.08	-0.09	0.01	-0.05	-0.04	0.00	0.05	-0.02	-0.01	0.05	0.03	0.03	-0.17	-0.18	1		
16.	ST	-0.15	0.06	-0.07	0.08	-0.18	0.01	-0.19	-0.18	0.06	-0.03	-0.05	-0.01	-0.12	-0.13	-0.20	1	
17.	General	-0.05	-0.04	0.01	-0.04	0.15	0.00	0.03	0.13	-0.02	-0.04	0.04	0.01	0.51	-0.15	-0.22	-0.16	1
18.	HH educational attainment	0.02	0.08	0.07	-0.03	0.21	0.02	-0.17	0.46	0.02	0.10	0.12	-0.08	0.07	-0.02	0.02	-0.14	0.0
19.	HH average age	0.03	-0.09	-0.03	-0.04	-0.12	-0.02	0.56	-0.23	-0.05	-0.16	-0.03	0.05	-0.02	-0.17	0.03	-0.18	0.0
20.	HH employment ratio	-0.04	0.03	-0.06	0.00	-0.07	0.02	0.08	-0.08	-0.06	0.09	0.04	0.07	0.01	-0.15	0.01	0.07	-0.
21.	HH income	-0.06	0.10	0.05	0.03	-0.01	0.02	-0.12	0.12	0.04	0.36	0.12	-0.04	0.03	-0.10	0.06	-0.01	-0.
22.	Own home with title deed	0.05	0.00	0.01	-0.07	0.07	0.00	0.17	0.06	-0.02	-0.06	0.01	0.00	0.11	-0.18	-0.04	-0.19	0.
23.	HH stable income count	-0.06	0.10	0.05	0.03	-0.01	0.02	-0.12	0.12	0.04	0.36	0.12	-0.04	0.03	-0.10	0.06	-0.01	-0.
24.	HH economic category_Yellow PDS card	-0.04	0.04	-0.03	0.06	-0.16	0.00	-0.07	-0.15	-0.06	-0.05	-0.02	0.01	-0.11	-0.14	-0.02	0.57	-0.
25.	HH debt	0.27	-0.01	0.00	0.01	0.10	0.01	0.02	0.15	-0.01	0.05	0.10	0.00	0.13	-0.05	-0.03	-0.17	-0.

Table C1: Hierarchical Multiple Regression Results (Model III)

Predictors	Regression I			Regression 2			Regression 3		
	Dependent variable: Debt stress								
	Pooled (N=1133)			Female (N= 593)			Male (N= 540)		
Gender_Male	-0.296	(0.075)	***						
General acceptability of debt	-0.088	(0.034)	***	-0.048	(0.047)		-0.120	(0.048)	**
Circumstantial acceptability of debt	0.065	(0.032)	**	0.027	(0.045)		0.104	(0.046)	**
Debt prudence	-0.067	(0.032)	**	-0.005	(0.045)		-0.125	(0.044)	***
Debt literacy	-0.027	(0.032)		-0.004	(0.045)		-0.058	(0.046)	
Age	0.010	(0.003)	***	0.010	(0.004)	***	0.010	(0.004)	**
Education	0.022	(0.031)		-0.001	(0.041)		0.056	(0.047)	
Marital status_Married	0.073	(0.084)		0.172	(0.117)		0.069	(0.156)	
Income	0.000	(0.000)		0.000	(0.000)		0.000	(0.000)	
Having fixed income	0.097	(0.121)		-0.218	(0.200)		0.288	(0.168)	*
Decision-making power within the household_Primary decision maker	0.038	(0.076)		0.120	(0.089)		-0.134	(0.168)	
_cons	-0.476	(0.215)	**	-0.609	(0.321)	*	-0.711	(0.310)	**

Note: Robust standard errors in parentheses, ***$p< .01$; **$p< .05$; *$p< .1$

Table C2: Hierarchical Multiple Regression Results (Model IV)

Predictors	Regression I			Regression 2			Regression 3		
	Pooled (N=1133)			Female (N= 593)			Male (N= 540)		
Gender_Male	-0.299	(0.067)	***						
General acceptability of debt	-0.073	(0.029)	**	-0.050	(0.042)		-0.088	(0.041)	**
Circumstantial acceptability of debt	0.039	(0.028)		-0.007	(0.040)		0.087	(0.041)	**
Debt prudence	-0.046	(0.028)	*	0.010	(0.037)		-0.096	(0.041)	**
Debt literacy	-0.065	(0.029)	**	-0.063	(0.040)		-0.083	(0.043)	*
Age	0.006	(0.003)	**	0.006	(0.005)		0.012	(0.005)	**
Education	-0.053	(0.031)	*	-0.083	(0.042)	**	-0.018	(0.049)	
Marital status_Married	-0.031	(0.077)		0.100	(0.107)		-0.178	(0.142)	
Income	0.000	(0.000)		0.000	(0.000)	**	0.000	(0.000)	
Having fixed income	0.092	(0.140)		-0.222	(0.212)		0.199	(0.209)	
Decision-making power within the household_Primary decision maker	0.064	(0.069)		0.184	(0.079)	**	-0.117	(0.154)	
Religion_Christian	0.112	(0.098)		0.197	(0.135)		0.078	(0.144)	
Religion_Muslim	-0.081	(0.099)		0.069	(0.140)		-0.207	(0.138)	
Social category_SC	0.131	(0.070)	*	0.161	(0.097)	*	0.100	(0.101)	
Social category_ST	-0.058	(0.122)		-0.008	(0.176)		-0.130	(0.163)	
Social category_General	-0.135	(0.083)		-0.206	(0.112)	*	-0.085	(0.124)	
HH educational attainment	-0.070	(0.031)	**	-0.075	(0.045)	*	-0.068	(0.044)	
HH average age	-0.006	(0.004)		-0.006	(0.005)		-0.009	(0.005)	
HH employment ratio	0.006	(0.056)		-0.014	(0.079)		-0.063	(0.083)	
Ln HH income	-0.214	(0.046)	***	-0.248	(0.058)	***	-0.186	(0.072)	***
Own home with title deed	0.050	(0.077)		0.092	(0.108)		0.007	(0.108)	
HH stable income count	-0.019	(0.077)		0.021	(0.102)		-0.033	(0.114)	
HH economic category_Yellow PDS card	0.053	(0.078)		-0.089	(0.116)		0.214	(0.102)	**
Ln HH debt	0.303	(0.018)	***	0.317	(0.024)	***	0.291	(0.026)	***
_cons	-0.814	(0.519)		-0.734	(0.671)		-1.131	(0.800)	

Note: Robust standard errors in parentheses, ***$p< .01$; **$p< .05$; *$p< .1$

Table C3: Hierarchical Multiple Regression Results (Model V)

Dependent variable: Debt stress			
Predictors	**Pooled (N=1133)**		
Gender_Male	-0.270	(0.099)	***
General acceptability of debt	-0.061	(0.042)	
Circumstantial acceptability of debt	-0.006	(0.039)	
Debt prudence	0.006	(0.036)	
Debt literacy	-0.059	(0.038)	
Age	0.006	(0.003)	*
Education	-0.055	(0.031)	*
Marital status_Married	-0.029	(0.078)	
Income	0.000	(0.000)	
Having fixed income	0.090	(0.141)	
Decision-making power within the household_Primary decision maker	0.075	(0.069)	
Religion_Christian	0.109	(0.098)	
Religion_Muslim	-0.082	(0.100)	
Social category_SC	0.131	(0.070)	*
Social category_ST	-0.076	(0.122)	
Social category_General	-0.130	(0.083)	
HH educational attainment	-0.070	(0.031)	**
HH average age	-0.006	(0.004)	
HH employment ratio	0.001	(0.056)	
Ln HH income	-0.210	(0.046)	***
Own home with title deed	0.056	(0.076)	
HH stable income count	-0.023	(0.076)	
HH economic category_Yellow PDS card	0.057	(0.078)	
Ln HH debt	0.303	(0.018)	***
Gender_Male * General acceptability of debt	-0.014	(0.056)	
Gender_Male * Circumstantial acceptability of debt	0.100	(0.056)	*
Gender_Male * Debt prudence	-0.106	(0.054)	**
Gender_Male * Debt literacy	-0.024	(0.054)	
_cons	-0.857	(0.515)	*

Note: Robust standard errors in parentheses, ***$p < .01$; **$p < .05$; *$p < .1$

Appendix D

Table D1: Regression of Female Debt Stress on Male Debt Stress, Male Debt Attitudes and Male Debt Literacy

Dependent variable: Female debt stress			
Predictors	Female (N=525)		
General acceptability of debt_Female	-0.088	(0.039)	**
Circumstantial acceptability of debt_ Female	-0.032	(0.040)	
Debt prudence_ Female	-0.003	(0.039)	
Debt literacy_ Female	-0.018	(0.039)	
Debt stress_Male	0.438	(0.045)	***
General acceptability of debt_Male	0.078	(0.039)	**
Circumstantial acceptability of debt_ Male	0.014	(0.039)	
Debt prudence_ Male	0.026	(0.041)	
Debt literacy_ Male	-0.022	(0.040)	
Age_ Female	0.007	(0.004)	
Education_ Female	-0.070	(0.040)	*
Marital status_Married_ Female	0.063	(0.114)	
Income_ Female	0.000	(0.000)	
Having fixed income_ Female	-0.123	(0.209)	
Decision-making power within the household_Primary decision maker_ Female	0.163	(0.073)	**
Religion_Christian	0.220	(0.116)	*
Religion_Muslim	0.147	(0.142)	
Social category_SC	0.185	(0.097)	*
Social category_ST	0.008	(0.166)	
Social category_General	-0.163	(0.097)	*
HH educational attainment	-0.029	(0.041)	
HH average age	-0.006	(0.005)	
HH employment ratio	0.023	(0.074)	
Ln HH income	-0.147	(0.056)	***
Own home with title deed	0.102	(0.110)	
HH stable income count	0.027	(0.091)	
HH economic category_Yellow PDS card	-0.115	(0.110)	
Ln HH debt	0.175	(0.025)	***
_cons	-0.275	(0.681)	

Note: Robust standard errors in parentheses, ***$p< .01$; **$p< .05$; *$p< .1$