Working Paper

Is Rural Household Debt Sustainable in a Financially Included Region? Evidence from Three Districts of Kerala, India*

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Abstract

This paper explores whether an institutional change brought about by financial inclusion has resulted in sustainable debt management by households. Towards this end, we analyse household indebtedness and its various dimensions using primary data collected from 600 households across 3 districts of rural Kerala in India. We find that more than half of the sample households are indebted and this is quite high when compared to the national average. Using two distinct methods (flow and stock analysis), we assess the repayment capacity of households. While the flow analysis based on interest and income comparison shows that debt is sustainable, the stock analysis indicates an alarming debt situation when we consider the illiquid nature of land assets. Both agricultural as well as non-agricultural households appeared to be in debt trap in this analysis. Our findings suggest that attempts to improve debt literacy could help in improving the rural poor's financial wellbeing.

Key words: financial inclusion; household debt; repayment capacity; rural India

1. Introduction

Household debt has risen dramatically in recent decades and has important consequences for short- and long-run economic growth (André, 2016; Lombardi et al., 2017). While debt is useful for smoothening consumption paths, beyond a certain point it can create financial pressure on vulnerable families (Brown and Taylor, 2008). Household debt has been extensively studied in developed countries (May et al., 2004; Keese, 2009; Zinman, 2015). However, it is surprising that developing countries, where the most vulnerable households live, particularly in rural regions, have received scant attention.

A unique feature of our study is the context of an institutional change brought about by high levels of financial inclusion. Such a transformation can be attributed to the various financial inclusion initiatives in developing countries that were scaled up massively ever since the UN declared 2005 as the International Year of Micro Credit. The World-Bank goal of achieving 'Universal Financial Access' by 2020 also stands as testimony to the global recognition of the need to improve financial inclusion and financial sector development. The aim of such initiatives was to provide sustainable financial services like savings, credit or insurance to the unbanked population.

As a positive outcome of such efforts, Global Findex 2017 data has shown that around 69 per cent of the adult population around the globe has been brought into the net of financial inclusion. There has been a reported increase in the banking population from 51 per cent in 2011 to around 69 per cent in 2017 (about 1.2 billion accounts). Around 55 per cent of the new bank accounts opened have been from India alone, thanks to government schemes like the Prime Minister's 'Jan Dhan Yojana' (a programme launched in 2014 to open basic no-frills bank accounts for the unbanked population). This makes India an interesting case to explore because of its unprecedented increase in the levels of financial inclusion and high share of rural

population. According to the NABARD All India Rural Financial Inclusion Survey 2016–2017 (NAFIS) data, around 88.1 per cent of the rural households have a bank account. Among the agricultural households, this penetration rate is 55 per cent (NAFIS 2016–2017).[1]

In this paper, we present evidence from a primary survey that we conducted in one part of rural India to analyse the status of financial inclusion, the extent and reasons of rural household indebtedness, the repayment capacity and the sustainability of debt management by rural households. We conducted the survey in the state of Kerala, which is one of the first two states (Goa is the other) in India to have achieved 100 per cent financial inclusion.[2] Some of the unique features of the state, such as recognition as a model state for its pioneering efforts in diverse aspects of economic development (Parayil, 1996; Véron, 2001), make the study relevant as its lessons may be transferred to other states of India or other parts of South Asia and the developing world.

In a developing country like India, even seven decades after independence, 68.84 per cent[3] of the population still lives in villages with the majority depending on informal sector for their livelihood. The main sources of income for the rural population continue to be agriculture and small indigenous businesses, which are constantly in need of credit, though in smaller amounts as compared to the capital-intensive industrial sector. Rural households often own assets that are not liquid, such as land, which makes it difficult to examine their net worth in relation to the outstanding debt.

Indebtedness can be understood as 'a state of obligation to pay another' (Greenberg, 1980). In the context of rural households in India, NAFIS 2016–2017 has defined the term 'indebtedness' as 'the state of being under obligation', which is financial in nature.[4] Rural indebtedness can be a stumbling block in the path to rural prosperity. However, if used in the right way, debt could be a means to smoothen consumption patterns of a household. What is worrisome,

therefore, is a 'debt trap', the lexicographic meaning of which suggests being in a situation where it is difficult or impossible to repay debt because of multiple reasons, especially high interest rates. Hence, it is important to understand whether the indebted farmers are actually in a debt trap or not, so as to design interventions to help them find a way out of the debt trap. If they are, then loan waivers could be a policy solution and if they are not, there arises the possibility of multiple policy options including the welfare improving features of financial innovation.

Tandon (1988) has classified rural indebtedness into two categories based on the nature of the borrower. While the upper stratum consists of indebtedness of landlords and rich peasants, the larger mass of the rural poor who are indebted constitutes the other section. It is indebtedness of these small farmers that is of concern to policy makers, particularly in the aftermath of rapid growth in the supply of institutional credit over the past few decades. Our study also covers the relatively smaller farmers in rural India.

Among the Indian states, Kerala has earned a reputation for being a model for land reforms through the Kerala Land Reforms Act of 1969. The state has a unique agricultural sector with highly fragmented and small-size holdings (Bandyopadhyay, 1986; Besley and Burgess, 2000; Radhakrishnan, 1981). Apart from the abovementioned achievement in financial inclusion, the state has the highest Human Development Index in India and is among the top 12 states in terms of per capita income. It is worth noting that even with easier accessibility to institutional credit, which is aimed at improving household welfare, Kerala was reported as having high indebtedness of farmers in the recent past. For instance, Jeromi (2007a) observed that the incidence of indebtedness in rural areas of Kerala was 39 per cent in 2002 as compared to the national average of 27 per cent. Our descriptive analysis of rural households in Kerala also seeks to explain this puzzle of social progress and financial inclusion co-existing with rural distress and indebtedness.

The major objective of this study is to explore whether an institutional change brought about by financial inclusion has resulted in sustainable debt management by households or not. Using primary data collected from 600 households across three districts of rural Kerala, this study aims to assess the extent of household indebtedness and its various dimensions. It attempts to assess the repayment capability of households using two different methods (stock and flow analysis) in order to identify whether they are in debt trap or not. While the flow analysis based on interest and income comparison shows that household debt may be sustainable, the stock analysis suggests an alarming debt situation when we consider that land assets may be illiquid due to sociological reasons. Both agricultural and non-agricultural households appear to be in a debt trap when we exclude land value from household assets.

2. Literature Review

Household finance has risen to prominence as an emerging field in the last decade because of phenomena like liberalisation of credit markets, privatisation of pension reforms, financial innovation, and so on (Guiso and Sodini, 2013). The financial crisis of 2007–2008 underscored the importance of household financial decisions, especially in the domain of credit (Dynan, 2009; Büyükkarabacak and Valev, 2010; Brown et al., 2013). Though the past two decades have seen an interest in exploring several aspects of household financial decision making like savings, investment, credit, insurance and payment choices (Guiso and Sodini, 2013), most of the research focus has been on developed countries that have formal financial systems. However, developing nations have recently started getting attention as a result of the transition happening in the household finance landscape due to globalisation.

As access to formal financing options has been a challenge in the context of poor and developing countries around the globe, most of the initial research in this context focused on financial access. Frequently explored dimensions were the extent of financial access in terms

of deposit accounts, outstanding loans, insurance coverage, and so on (Basu, 2006; Beck et al., 2006; Demirgüç-Kunt et al., 2008). As these studies brought to light the low levels of financial access in developing countries, subsequent studies looked at the potential of micro finance in enhancing the wellbeing of these underserved geographies in terms of credit (Gonzalez and Rosenberg, 2006; Cull et al., 2009). Several studies have used interventions to assess the impact of relaxing the credit constraints faced by the poor. These studies focussed on micro, small and medium enterprises (McKenzie and Woodruff, 2008 for Mexico; Armendáriz and Morduch, 2010 for Sri Lanka; Banerjee and Duflo, 2014 and Banerjee, et al., 2015 for India) and consumers (Karlan and Zinman, 2009 for South Africa).

Household debt is the next important aspect that deserves research and policy attention once the issue of financial access gets tackled by government policies to a reasonable extent. Household debt (especially from formal institutions) has been extensively studied in the context of developed countries, which had witnessed the phenomenon of financial innovation and liberalisation of credit markets decades before their developing counterparts (May et al., 2004; Keese, 2009; Zinman, 2015). However, there exists scant literature on household debt in the context of developing countries where gaps in financial access continue to be filled.

Among the developing countries, India is a case where the credit/liability side of the household balance sheet became a topic of interest for researchers. However, the focus of these studies was informal finance because of the poor financial inclusion levels in the country. Most of these studies used data from All India Rural Credit Survey Committee (1954), Report of the All India Rural Credit Review Committee (1966) and Decennial All India Debt and Investment Surveys (RBI Reports). Given the case that informal finance was traditionally the major source of credit, various dimensions of the same were examined by researchers (Timberg and Aiyar, 1984; Ghate, 1988; Swaminathan, 1991; Jeromi, 2007b). These studies threw light on several policy challenges in improving financial access in the underserved regions. Closely related to

our work are four case studies on rural indebtedness and microfinance conducted for Punjab (Satish, 2006), Telangana (Kumari, 2005) and Assam (Mitra et al., 1986; Purkayastha, 2001). More recently, Pradhan (2013), through a comprehensive review of the previous surveys, noted that around two-fifths of the rural households in India depend on informal credit, pointing at further scope of financial inclusion in rural areas.

With the roll out of national-level initiatives for financial inclusion such as Swabhimaan scheme in 2011[5] and another ambitious scheme called Prime Minister's 'Jan Dhan Yojana' (PMJDY) in 2014 to improve financial inclusion in the country, around 322.5 million bank accounts were opened for the unbanked sections of the society.[6] As a major boost to the government's efforts in improving the financial access of citizens, two states (Kerala and Goa) along with three union territories (Chandigarh, Puducherry and Lakshadweep) became the firsts in the country to achieve 100 per cent financial inclusion, defined as having at least one bank account per household, according to the Ministry of Finance, in November 2014.[7]

It is expected that once financial inclusion is achieved, a natural consequence would be to assess whether there is any improvement in the wellbeing of citizens. One of the ways to assess financial wellbeing is to study the pattern of indebtedness and loan repayment in the target population. Jappelli et al. (2013) studied household indebtedness and financial fragility in the context of developed countries and suggested that institutional arrangements do matter in influencing the household credit markets. To the best of our knowledge, there exists hardly any literature assessing the pattern of indebtedness in the above Indian states after the declaration of 100 per cent financial inclusion. In other words, after a change in the institutional arrangement in the household credit markets of these states, there has not been any follow up study to assess the extent of household indebtedness, the nature of assets, their liquidity and what it means for debt servicing capacity and therefore debt trap. The present study intends to fill this gap.

Given this backdrop, Kerala becomes an interesting case study to explore because of its unique co-existence of social development and 100 per cent financial inclusion along with high reported household indebtedness. It is important to study rural indebtedness and also understand whether the extent of indebtedness is beyond the repayment capability of the households. There is a distinct absence of primary studies to understand the extent and causes of rural indebtedness in Kerala in the last 10 years. The present study is an attempt in this direction. We use two modes of assessment, viz., flow assessment (comparing the interest outflow with the income flow) and stock assessment (comparing asset value with debt levels of households) to assess whether a household is in debt trap or not. This is a novel approach to better understand the repayment capacity of households so as to enable suitable policy solutions that can enable more efficient management of household finance in rural areas.

3. Data and Methodology

Our study is based on primary data that were hand-collected from households residing in three representative wards belonging to three different districts of Kerala. Each state of India is divided into administrative areas known as districts and within each district, wards are the lowest levels of local authority area defined for electoral purposes. Residents of each ward elect their own representative to the local government body known as gram panchayat. Kerala has 14 districts and a mid-size district like Kozhikode has over 1,000 wards.

3.1 Sample

[Figure 1 near here]

Three districts of Kerala, viz., Kozhikode, Idukki and Wayanad were selected purposefully to represent districts with larger presence of farmers as well as signs of rural distress such as higher incidence of farmer suicides. From each of the selected districts, one ward was identified in consultation with the local gram panchayat to represent the district. The districts were chosen

such that they represent different parts of the state in terms of their divergent demographic, educational, social, economic and financial aspects in order to allow extrapolation of the findings of the study with respect to indebtedness in Kerala. Idukki, towards the south of the state (see figure 1), is a relatively affluent region (with per capita income among the top five districts) and Wayanad, towards the north, is among the poorest regions (per capita income is the second lowest in Kerala). Agriculture is the primary occupation in both these states. Kozhikode, on the other hand, serves as a contrast, being an urban settlement with a few rural pockets such as the ward chosen for our study.

The first ward was chosen from Kozhikode district (ward No. 9 – Aanayodu, of Koodaranji gram panchayat). The second ward was chosen from Wayanad district (ward No. 12 – Karinkanikkunnu in Muttil gram panchayat). The third ward was chosen from Idukki district (ward No. 4 – Pathumuri in Kumily gram panchayat). Each of these wards belong to rural areas of the state.

The sample coverage is described in Table 1. Two hundred households were surveyed in each of the three wards. The households are equally divided into agricultural and non-agricultural in the overall sample even while some districts have more agricultural than non-agricultural families.

[Table 1 near here]

3.2 Data Collection

The primary data for the study was hand collected through direct interview method. A detailed questionnaire (available on request) was prepared that covers basic demographic information as well as information about indebtedness and household financial behaviour. The questionnaire was first pre-tested in a few rural households in two different districts of Kerala.

Based on the experience and feedback from the pilot study, the questionnaire was then improved and finalised for the primary data collection. The final questionnaire was used to collect data from the abovementioned three wards with the help of Kudumbashree[8] workers who acted as the field staff for data collection.

In each ward, with the help of gram panchayat representatives, we conducted training sessions for the Kudumbashree workers to familiarise them with the questionnaire. After the training sessions, we distributed copies of the questionnaire (translated in the local language, Malayalam) among the Kudumbashree workers whom we accompanied during their visits to the first few households in each ward to ensure that the survey is conducted properly. After hand-holding each field staff till they became confident in recording the responses to the entire questionnaire, the remaining data were collected by the Kudumbashree workers using first-hand information from 200 households in each of the three wards. The households were selected using systematic sampling method based on the latest electoral list, prepared by the Chief Election Commissioner, Kerala. However, in some cases, convenience sampling had to be relied upon especially in locations that were hard to access due to difficult terrains.

In addition to the interaction with the sample units and the data collection, detailed discussions were also held with gram panchayat members, people's representatives and other ground-level functionaries to understand field-level realities in respect of indebtedness and related issues.

3.3 Method of Analysis

The data collection exercise resulted in comprehensive data for 200 households from each of the districts covered under the study taking the total sample to 600 rural households. As the study is intended to reflect the state's overall condition, all the 600 sample households have been consolidated and then analysed. Those households who identified agriculture as the major

source of their income were classified as agricultural households (AHHs) and the remaining were classified as non-agricultural households (NAHHs).

The analysis was done at two levels, viz., individual and household. Some aspects such as employment status, access to credit and purpose of loan were analysed for all adults in the sample households (i.e., by excluding household members below the age of 18 years). But the major aspects of the study such as indebtedness, income, income coverage of indebtedness and repayment capability were analysed household-wise by including all adult individuals in the respective sample household covered under the study.

The field visits for data collection were conducted during the period from May 2017 to August 2017 and all the financial information in respect of the indebtedness position were collected as on 31 March 2017.

4. Results and Analysis

4.1 Profile of Main Earners

Based on the consolidated data, we could observe that most of the households were headed by men and only 5.6 per cent households were headed by women. The share of women headed households was found to be more in case of NAHHs. The following figures present the profile of the main earners in each of the 600 households. We begin our discussion with Figure 2 that shows the job profile of the main earner in a household. We can see that 48 per cent of the main earners are farmers and 33 per cent are daily wage workers.

[Figure 2 near here]

Analysis of the age profile of the main earners in the households showed that the main earners' age was mainly in the range of 36–50 years (44 per cent of the households) followed by 51–65 years (39 per cent). The categories of 18–35 years and 66–80 years constitute only 8 and 9 per

cent of the main earners, respectively. Similar to the overall sample profile, it was observed that (Figure 3) the main earners' years of schooling lies mostly in 8–10 years range with 52 per cent of the households falling in this category. Overall, we noted that 65 per cent of the main earners have studied up to the 10th standard of school or less.

[Figure 3 near here]

In general, it was observed that the adult members in the sample households were well educated and depended heavily on primary sector activity such as agriculture or daily wages.

4.2 Household income and debt levels

The sample households are categorised as per their monthly income level in Table 2. All financial information is presented in Indian Rupees (INR) where 1 USD equalled INR 64.8 as on 31 March 2017.

[Table 2 near here]

Based on the data contained in Table 2, the monthly average household income has been worked out at INR 30,228/- for AHHs and INR 25,055/- for NAHHs. Our analysis shows that 34 per cent of the individuals and 56 per cent of the households in our sample of rural households in Kerala are indebted (i.e., had at least one outstanding loan). This suggests a higher level of indebtedness when compared to the national incidence of indebtedness of rural households, which was reported as 31.4 per cent of the households as per the latest All India Debt and Investment Survey (AIDIS 2012)[9] and 47.4 per cent of the households as per the recent NAFIS, 2016–2017.[10] More importantly, of the total AHHs in our sample, 69.23 per cent are indebted, and of the total NAHHs, 56.63 per cent are indebted. These levels are also higher compared to the national figures of 45.94 per cent of cultivator households and 28.85 per cent of non-cultivator households according to AIDIS, 2012 and 52.5 per cent of AHHs

and 42.8 per cent of NAHHs as per NAFIS 2016–2017. Moving to the originators of debt, we found that commercial banks are the most important credit source in rural Kerala accounting for 32 per cent of the loans, followed by cooperative banks (21 per cent) and regional rural banks (19 per cent). Seventy-seven per cent of the loans are from formal institutional sources, which is higher than what has been seen for other states of India. This is in line with the achievement of financial inclusion in Kerala ahead of most other states of India.

Table 3 presents the distribution of loans taken by the sample households. The figures reveal that formal sources dominate in the sample and there are very few households that have loans only from informal sources (0.77 per cent for AHHs and 2.15 per cent for NAHHs). There is not much difference between the AHHs and NAHHs in terms of the choice of loan source. About 16.15 per cent of AHHs had at least one loan from a non-banking financial company (NBFC) or a microfinance institution (MFI) while the corresponding figure for NAHHs was 12.9 per cent. Around 15.38 per cent of AHHs had at least one SHG loan while the corresponding figure for NAHHs is 12.9 per cent. Therefore, the pattern of dependence of AHHs on loans from NBFCs/MFIs or SHGs is not very different from NAHHs. However, the percentage of AHHs with loans from informal sources only (0.77 per cent) is quite low as compared with the percentage of NAHHs with loans from informal sources only (2.15 per cent). This means that agricultural households are less dependent on only informal sources of loans compared with non-agricultural households possibly due to the prevalence of crop loans, which are available from formal institutions. Indeed, the overall share of households with sole dependence on informal loans is very low (1.48 per cent).

As regards the purpose of debt, we found that agricultural workers, whether from formal or informal sources, have mainly borrowed for productive purposes such as crop cultivation and investment in farm related activity (in the form of agricultural term loan). However, for the

other individuals in our sample, the main purpose of taking a loan is housing, irrespective of whether the loan is from a formal or an informal source.

[Table 3 near here]

The mean household debt of AHHs in our sample is INR 2,19,425 while in case of NAHHs, mean debt outstanding is INR 1,78,843. Thus, agricultural households have a higher level of debt than non-agricultural households. This is in accordance with the national level pattern observed in AIDIS 2012 and NAFIS 2016–2017. However, these debt numbers are very high compared to the average amount of debt per household at the national level, that is, INR 70,589/- for cultivator households and INR 25,741/- for non-cultivator households as per AIDIS 2012, and also in comparison with the recent figures from NAFIS 2016–2017 (INR 1,04,602/- for agricultural households and INR 76,731/- for non-agricultural households). This indicates a higher dependence on debt by rural households in Kerala than in other parts of India. Once again, this could be an outcome of the high level of financial inclusion leading to easy credit conditions even for rural households.

In Table 4, we compare the average debt levels of agricultural households as per the size of landholding. It can be noted that the category of small farmers (landholding between 1–2 hectares) has the highest average debt of INR 2,99,469/-, followed by marginal farmers (landholding less than 1 hectare) at INR 2,04,669/-. Others (landholding of more than 2 hectares) have the lowest average debt of INR 1,54,333/-. It seems, therefore, that small farmers (rather than marginal) are the ones most burdened by debt obligations and the larger farmers are the least affected. However, a comparison based on the average debt per hectare of land operated shows that marginal farmers having a mean debt of INR 4,44,933/- (and median debt of INR 3,26,087/-) per hectare of land are more distressed by outstanding loans compared to other categories of households, given their respective sizes of land. To assess the distribution

of household level debt, we compare the number of households from each landholding category that lie above or below the average debt of the entire sample (INR 1,88,524/-). We find that the number of marginal landholders holding higher than average debt is more than three times that of small and others categories of landholders put together (the numbers of households in each category are 129, 30 and 5 respectively). The number of AHHs having higher than average debt level is quite large when compared to that of NAHHs (the numbers of such households are 101 and 65 respectively).

[Table 4 near here]

4.3 Debt servicing capability of indebted households: Flow analysis

We assess the debt repayment capacity of the sample households by first analysing their capability to service the debt every month (*flow analysis*) and then their capability to repay the entire loan at any point of time (*stock analysis*). To study the debt servicing capabilities (*flow analysis*) we compared the monthly interest outflow on account of debt with the monthly income flow for the indebted households. The comparison revealed that the average monthly income level of AHHs as well as NAHHs is sufficient to cover the interest obligation every month. The average annual income level of AHHs (INR 3,62,736/-) and of NAHHs (INR 3,00,660/-) is more than adequate to cover their entire outstanding loan amounts. While only 4.8 per cent of the household income is required to meet interest payments for AHHs, the ratio is 5.35 per cent for NAHHs.

4.4 Loan repayment capability of indebted Households: Stock Analysis

We analyse the repayment capability of the different types of households by calculating the average value of their assets and comparing it with the average outstanding loan size. Table 5 shows the mean values of land, animals/livestock, capital/equipment and movables/consumer durables owned by the agricultural and non-agricultural households. We can see that the value

of landholdings is significantly high as can be expected in the state of Kerala where, due to high population density, land prices are known to be steep. For example, mean land value is close to INR 9 lakhs for AHHs and close to INR 27 lakhs for NAHHs. The next highest mean value of assets for AHHs is in the form of capital/equipment (INR 57,000/-) and for NAHHs is in terms of movables/consumer durables (nearly INR 50,000/-).

[Table 5 near here]

Specifically, for the agricultural households we now compare their mean asset values across size of holdings of the households, as shown in Table 6. Once again, the value of land assets is significantly higher than that of other categories of assets across the three categories of land holdings. We can see that marginal farmers reported higher value of animals/livestock than small farmers, whereas for all other asset categories, size of landholding is positively related to the asset value.

[Table 6 near here]

Next, we analyse repayment capability by comparing asset value with debt levels of households (see Table 7). We found that the mean asset value of AHHs is INR 89.16 lakh. The mean debt of such households is INR 2.19 lakh indicating that although agricultural households are in debt, their asset value exceeds the outstanding debt, implying that they may not be in a debt trap. In the case of NAHHs, the mean asset value is INR 27.89 lakh, but the mean debt of these households is INR 1.79 lakh. Once again, we see that while such households are in debt, their asset value exceeds the outstanding debt. It is observed that only 2.5 per cent of the asset value (including land) is required to clear the outstanding debt for AHHs, and the requirement for NAHHs is 6.4 per cent.

[Table 7 near here]

However, it is important to note that land alone accounts for about 98.5 per cent of the value of total assets of AHHs and 96.7 per cent of the value of total assets of NAHHs. Considering the illiquid nature of the land owned by the households, it may not be meaningful to consider land value as an indicator of repayment capacity. Our field experience revealed that among the rural households of Kerala giving up land is akin to a social dishonour for farmers, and they feel that once they lose their land, they would not have any other survival option. This loss of self-respect associated with the sale of land could be a reason why indebtedness is identified as a major reason (58.32 per cent) behind farmer suicides in Kerala even though the land value is higher than the debt levels assessed as per our study. This supports previous literature that identifies non-economic value attached to land ownership (Mearns, 1999; Flemsæter and Setten, 2009). Hence, there arises a question as to whether repayment capacity of marginal and small farmers can be assessed based on the market value of their land in Kerala as we have done so far. Interestingly, when we exclude land value from assets, both agricultural as well as non-agricultural households appear to be in debt trap as the mean debt value (INR 2,19,425/- for AHHs and INR 1,78,843/- for NAHHs) significantly exceeds the mean asset value (INR 1,36,028/- for AHHs and INR 94,553/- for NAHHs) (Table 7). Within agricultural households, marginal and small households (households with landholdings lesser than 2 hectares) in Kerala particularly appear to be in a debt trap (Table 8).

[Table 8 near here]

5. Discussion and Conclusions

This study brings to light that more than half (56 per cent) of the 600 households surveyed are indebted and this is quite high when compared with the national average. Though high level of financial inclusion (as in the case of Kerala) is considered desirable, unusually high levels of indebtedness in the rural areas can be quite alarming. However, the fact that most of the loans

with our sample households are taken from formal sources attests to the claim of improvement in financial inclusion. While agricultural households are observed to mostly borrow for productive purposes like crop cultivation, investment in farm equipment, etc., the non-agricultural households appear to be following a trend of higher spending on housing that is considered non-productive.

As per our flow analysis, the interest payment for both these categories of households appear to be within the limits of their income and therefore manageable. Even in the case of stock analysis, where the debt repayment capacity is assessed based on the asset value of a household, both agricultural and non-agricultural households seem to be comfortably well outside the debt trap if land value is considered as part of asset. However, an interesting finding is that when we exclude land value from assets, both agricultural and non-agricultural households in rural Kerala seem to be in a debt trap. Among agricultural households, it is important to note that both marginal and small farmers appear to be in debt trap, which certainly demands policy attention.

Given the expansion of financial services and an increasing number of credit options available as a result of financial innovation, it becomes important to understand the diverse aspects of indebtedness caused by institutional credit expansion. It has been hypothesised that the process of financial innovation often results in economic benefits like in the case of an increase in welfare induced by an improvement in physical technology (Silber, 1983). The findings from our study offer a new direction to policy makers in devising policies to improve the wellbeing of rural households. As indicated by the flow analysis, rural households in the sample seem to have the capacity to pay the interest on loans from their income. However, most of the households end up defaulting on these interest payments due to the mismanagement of household finances. As expenditures of rural households far exceed their incomes, high income itself may not be sufficient for clearing outstanding dues because of poor financial literacy or

knowledge. Furthermore, incomes in rural areas are highly uncertain due to dependence on agriculture as the main livelihood. Another important reason for potential defaults could be 'present bias' preferences, which explains that individuals are more impatient in the short run relative to the long run resulting in higher debts and defaults. Present bias has been identified to be resulting in various types of undesirable financial behaviours among consumers (Xiao and Porto, 2019). Empirical evidence confirms that failure to stick to debt repayment plans by consumers could be best explained by present bias (Kuchler and Pagel, 2020).

It is important to look at the long run debt repayment capacity of households that could be assessed based on their overall debt repayment ability. As even one loan default could lead to lower credit score, which might adversely affect the future availability of credit from formal institutions, no consumer can afford to default on loans from formal institutions. In such cases, each existing loan needs to be repaid in entirety before the due date by paying the principal amount along with the accumulated interest. That is why, the value of existing assets owned becomes important as an indication of debt repayment capacity. As per our stock analysis, overall asset value of most of the households in our sample exceeds the debt outstanding, indicating that there is no debt trap. However, if the land value is excluded from the asset value because of its illiquid nature, the marginal and small farmer households appear to be in debt traps.

As the level of indebtedness seems quite high in Kerala compared to the national average, it deserves immediate policy attention to avoid the situation of indebtedness leading to debt trap resulting in tragedies like suicides. Instead of costly and one-off solutions like loan waivers, which often involve issues like moral hazard, the indebted households could be made aware of their capacity to escape the debt trap by tapping the unexplored potential of their income or wealth through efficient financial management. Attempts to improve financial literacy could

be a step forward in helping the rural poor to sustainably improve their financial wellbeing using available institutional credit supply.

Notes

1. *NABARD All India Rural Financial Inclusion Survey 2016–2017*. National Bank for Agriculture and Rural Development Department of Economic Analysis & Research. Retrieved from NABARD website: https://www.nabard.org/auth/writereaddata/tender/1608180417NABARD-Repo-16_Web_P.pdf

2. Two states, three UTs achieve 100 per cent inclusion in Jan Dhan (2014, November 15). *ENS Economic Bureau.* Retrieved from https://indianexpress.com

3. *Census of India. 2011*. Ministry of Home Affairs, Government of India, New Delhi, India. Retrieved from Census of India website: http://censusindia.gov.in/

4. *NABARD All India Rural Financial Inclusion Survey 2016–2017*. National Bank for Agriculture and Rural Development Department of Economic Analysis & Research. Retrieved from NABARD website: https://www.nabard.org/auth/writereaddata/tender/1608180417NABARD-Repo-16_Web_P.pdf

5. Swabhimaan: Transforming Rural India through Financial Inclusion. (2012, 21 May) *Press Information Bureau, Government of India*. Retrieved from: http://pib.nic.in/newsite/mbErel.aspx?relid=84236 (accessed 17 August 2018)

6. Pradhan Mantri Jan Dhan Yojana. Department of Financial Services, Ministry of Finance, Government of India. Retrieved from PMJDY website: https://pmjdy.gov.in/

7. Two states, three UTs achieve 100 per cent inclusion in Jan Dhan. (2014, November 15). *ENS Economic Bureau.* Retrieved from https://indianexpress.com

8. Kudumbashree is a women's Self-Help Group (SHG) whose members undertake various economic and social activities on behalf of the state government and local governments.

9. *Key Indicators of Debt and Investment in India, NSS 70th Round 2013, December 2014*. National Sample Survey Office, Ministry of Statistics and Program Implementation (MOSPI). Retrieved from MOSPI   website: http://www.mospi.gov.in/sites/default/files/publication_reports/KI_70_18.2_19dec14.pdf

10. *NABARD All India Rural Financial Inclusion Survey 2016–2017*. National Bank for Agriculture and Rural Development Department of Economic Analysis & Research. Retrieved from NABARD website: https://www.nabard.org/auth/writereaddata/tender/1608180417NABARD-Repo-16_Web_P.pdf

References

André, C. (2016). *Household debt in OECD countries: Stylised facts and policy issues (OECD Economics Department Working Papers No. 1277).* OECD Publishing.

Armendáriz, B., & J. Morduch (2010). *The Economics of Microfinance* (2nd ed.). MIT Press.

Bandyopadhyay, D. (1986). Land reforms in India: An analysis. *Economic and Political Weekly*, A50–A56.

Banerjee, A. V., & Duflo, E. (2014). Do firms want to borrow more? Testing credit constraints using a directed lending program. *Review of Economic Studies, 81*(2), 572–607.

Banerjee, A., Duflo, E., Glennerster, R., & Kinnan, C. (2015). The miracle of microfinance? Evidence from a randomized evaluation. *American Economic Journal: Applied Economics, 7*(1), 22–53.

Basu, P. (2006). Improving access to finance for India's rural poor. The World Bank, Washington, D.C. https://elibrary.worldbank.org/doi/abs/10.1596/978-0-8213-6146-7

Beck, T., Demirguc-Kunt, A., & Martinez Peria, M. S. (2006). *Banking services for everyone? Barriers to bank access and use around the world* (Mimeo; Working paper 3754). The World Bank Policy Research, The World Bank, Washington, D.C.

Besley, T., & Burgess, R. (2000). Land reform, poverty reduction, and growth: Evidence from India. *The Quarterly Journal of Economics, 115*(2), 389–430.

Brown, S., & Taylor, K. (2008). Household debt and financial assets: evidence from Germany, Great Britain and the USA. *Journal of the Royal Statistical Society: Series A (Statistics in Society), 171*(3), 615–643.

Brown, M., Haughwout, A., Lee, D., & Van der Klaauw, W. (2013). The financial crisis at the kitchen table: Trends in household debt and credit. *Current Issues in Economics and Finance, 19*(2), 1–9.

Büyükkarabacak, B., & Valev, N. T. (2010). The role of household and business credit in banking crises. *Journal of Banking & Finance, 34*(6), 1247–1256.

Cull, R., Asli Demirgüç-Kunt, A., & Morduch, J. (2009). Microfinance meets the market. *Journal of Economic Perspectives, 23*(1), 167–192.

Demirgüç-Kunt, A., Honohan, P., & Beck, T. (2008). Finance for all? Policies and Pitfalls in Expanding Access. World Bank. Washington, D.C.

Dynan, K. E. (2009). Changing household financial opportunities and economic security. *Journal of Economic Perspectives, 23*(4), 49–68.

Flemsæter, F., & Setten, G. (2009). Holding property in trust: Kinship, law, and property enactment on Norwegian smallholdings. *Environment and Planning A: Economy and Space, 41*(9), 2267–2284.

Ghate, P. B. (1988). Informal credit markets in Asian developing countries. *Asian Development Review, 6*(1), 64–85.

Gonzalez, A., & Rosenberg, R. (2006). The state of microfinance-outreach, profitability and poverty: Findings from a Database of 2600 Microfinance Institutions." Presentation at World Bank Conference on Access to Finance, May 30, 2006.

Greenberg, M. S. (1980). A theory of indebtedness. In K. Gergen, M. S. Greenberg, & R. Willis (Eds.), Social exchange: Advances in theory and research (pp. 3–26). New York: Plenum Press

Guiso, L., & Sodini, P. (2013). Household finance: An emerging field. In *Handbook of the Economics of Finance*, 2 (pp. 1397–1532). Elsevier.

Jappelli, T., Pagano, M., & Di Maggio, M. (2013). Households' indebtedness and financial fragility. *Journal of Financial Management, Markets and Institutions, 1*(1), 23–46.

Jeromi, P. D. (2007a). Farmers' indebtedness and suicides: Impact of agricultural trade liberalisation in Kerala. *Economic and Political Weekly, 42*(31), 3241–3247.

Jeromi, P. D. (2007b). Regulation of informal financial institutions: A study of money lenders in Kerala. *Reserve Bank of India Occasional Papers, 28*(1), 1–32.

Karlan, D., & Zinman, J. (2009). Observing unobservables: Identifying information asymmetries with a consumer credit field experiment. *Econometrica, 77*(6), 1993–2008.

Keese, M. (2009). Triggers and determinants of severe household indebtedness in Germany (Ruhr Economic Paper No. 150).

Kuchler, T., & Pagel, M. (2020). Sticking to your plan: The role of present bias for credit card paydown. *Journal of Financial Economics*. https://doi.org/10.1016/j.jfineco.2020.08.002

Kumari, R. V. (2005). An economic analysis of rural indebtedness in Northern Telangana Zone of Andhra Pradesh. Indian Journal of Agricultural Economics, 60(3), 302-308.

Lombardi, M, Mohanty, M., & Shim, I. (2017). *The real effects of household debt in the short and long run* (BIS Working Papers, no 607), January.

May, O., Tudela, M., & Young, G. (2004). British household indebtedness and financial stress: A household-level picture. *Bank of England Quarterly Bulletin*, Winter.

Mearns, R. (1999). Access to land in rural India. Policy Research Working Paper 2123. The World Bank: Washington, D.C.

McKenzie, D., & Woodruff, C. (2008). Experimental evidence on returns to capital and access to finance in Mexico. *The World Bank Economic Review, 22*(3), 457–482.

Mitra, M., Roy, D., & Mishra, S. (1986). *Rural indebtedness: Concept, correlates and consequences—A study of four tribal villages in the North Lakhimpur subdivision, Assam* (MPRA Paper 1824). University Library of Munich, Germany.

Parayil, G. (1996). The 'Kerala model' of development: Development and sustainability in the Third World. *Third World Quarterly, 17*(5), 941–958.

Pradhan, N. C. (2013). *Persistence of informal credit in rural India: Evidence from 'All-India Debt and Investment Survey' and beyond* (WPS (DEPR): 05/2013, RBI Working Paper Series). Department of Economic and Policy Research.

Purkayastha, G. (2001), "Rural Indebtedness in Assam", Economic and Political Weekly, 36(25), 2239-2241.

Radhakrishnan, P. (1981). Land reforms in theory and practice: The Kerala experience. Economic and Political Weekly 16(52), A129–137.

Rajan, R., & Zingales, L. (1998). Financial development and growth. *American Economic Review, 88*(3), 559–586.

Satish, P. (2006). Institutional Credit, Indebtedness and Suicides in Punjab", Economic and Political Weekly 41(26), 2754-2761.

Silber, W. L. (1983). The process of financial innovation. *The American Economic Review, 73*(2), 89–95.

Swaminathan, M. (1991). Segmentation, collateral undervaluation, and the rate of interest in agrarian credit markets: Some evidence from two villages in South India. *Cambridge Journal of Economics, 15*(2), 161–178.

Tandon, P. K. (1988). A profile of rural indebtedness. *Social Scientist*, *16*(4), 49–63.

Timberg, T. A., & Aiyar, C. V. (1984). Informal credit markets in India. *Economic Development and Cultural Change, 33*(1), 43–59.

Véron, R. (2001). The 'new' Kerala model: Lessons for sustainable development. *World Development, 29*(4), 601–617.

Xiao, J. J., & Porto, N. (2019). Present bias and financial behaviour. *Financial Planning Review, 2*(2), e1048.

Zinman, J. (2015). Household debt: Facts, puzzles, theories, and policies. *Annual Review of Economics, 7*(1), 251–276.
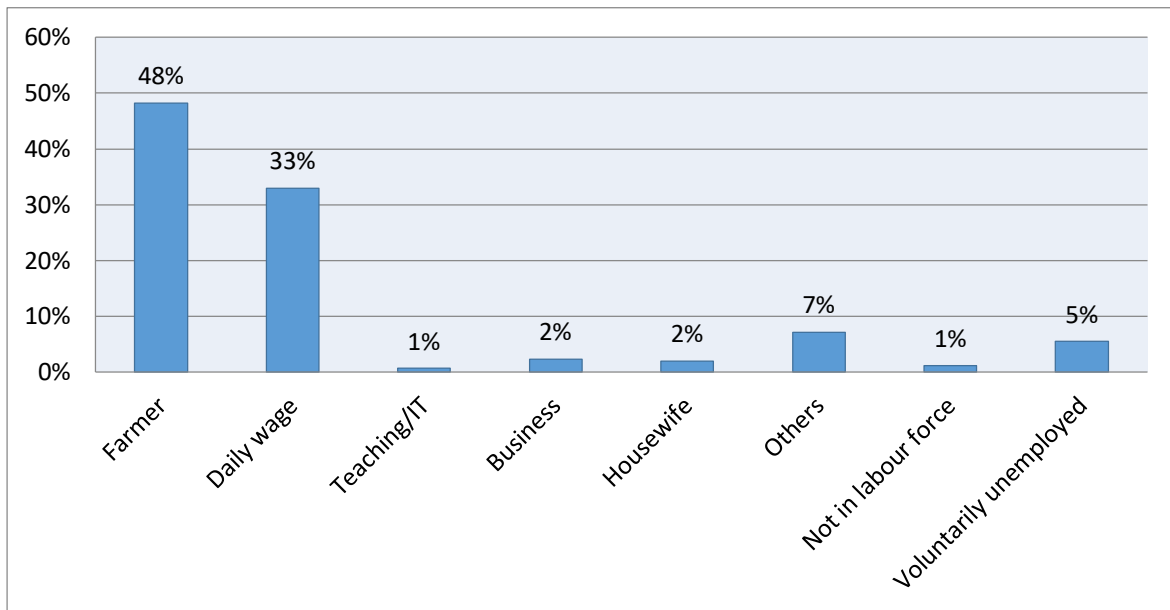
Appendix

Figures

|	Figure Captions
Figure 1	Districts selected for the study
Figure 2	Job Profile of the Main Earners in the Households
Figure 3	Years of Schooling of Main Earners in the Households

Figure 1. Districts selected for the study

Source: Authors

Figure 2. Job profile of the main earners in the households

Source: Authors

Figure 3. Years of schooling of main earners in the households
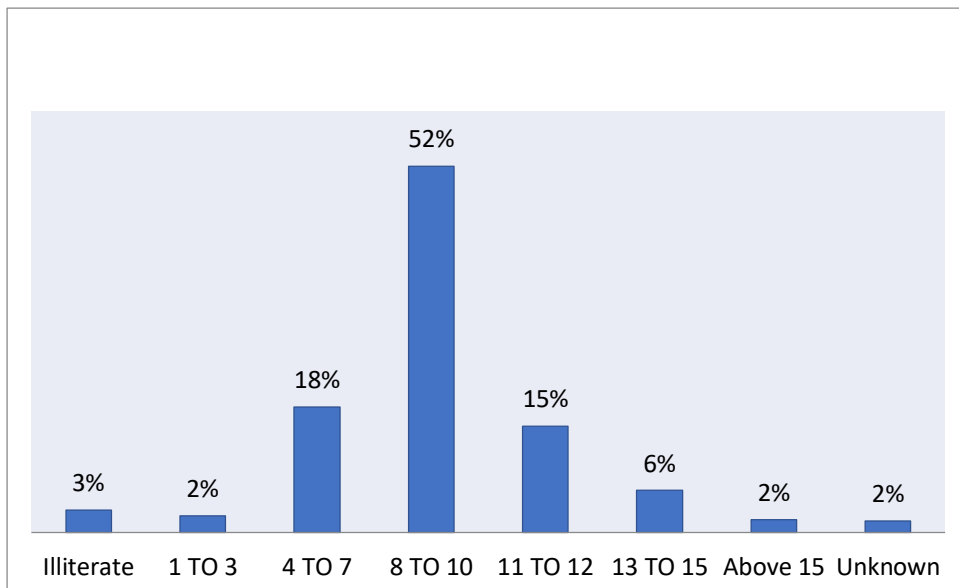
Source: Authors

Tables

Table 1. Sample coverage of the study (Number of households)

District and ward	Agricultural households			Non-agricultural households	Did not reveal main source of income or land size
	Marginal	Small	Others		
Kozhikode (Aanayodu in Koodaranji GP)	33	22	5	132	8
Wayanad (Karinkanikkunnu in Muttil GP)	88	13	4	72	23
Idukki (Pathumuri in Kumily GP)	78	14	3	75	30
Total	199	49	12	279	61

Table 2. Distribution of Households as per the income level

	Average household income (INR per month)*					
	< 5000	5001–10000	10001–25000	25001–50000	50001–100000	>100000
AHHs	38	56	51	35	26	13
NAHHs	73	49	22	10	11	16
Total	111	105	73	45	37	29

Notes: The remaining households did not reveal their income.

* INR refers to Indian Rupees and 1 USD equaled INR 64.8 on 31 March 2017

Table 3. Sources of loans taken by agricultural households (AHHs) and non-agricultural households (NAHHs)

	Households with loan from Formal sources			Households with loans from informal sources only
	At least one loan from a formal source	Out of which, at least one NBFC/MFI loan	Out of which, at least one SHG loan	
AHHs	178 (68.46 per cent)	42	40	2 (0.77 per cent)
NAHHs	152 (54.48 per cent)	36	36	6 (2.15 per cent)
Total	330 (61.22 per cent)	78	76	8 (1.48 per cent)

Notes: Figures in parenthesis refer to share to total households in that category

Table 4. Average loan size of agricultural households (AHHs) by size of landholding

Category	Mean debt (in INR)		Median debt (in INR)	
	per household	Per ha. of land operated	per household	Per ha. of land operated
Marginal	204669	444933	150000	326087
Small	299469	215445	263500	189568
Others	154333	37369	170000	41162
All AHHs	219425	36693	182500	30518

Table 5. Average asset value of agricultural households (AHHs) as compared to mon-agricultural households (NAHHs) (in INR)

Category	Land	Animals/livestock	Capital/equipment	Movables/consumer durables
AHHs	8813830	16066	57023	51028
NAHHs	2694558	9892	32043	49679

Table 6. Average asset value of agricultural households (AHHs) by size of landholding (in INR)

	Land	Animals/livestock	Capital/equipment	Movables/consumer durables
Marginal	4429247	16558.29	53331.66	43341.71
Small	16277362	13428.57	87142.86	54938.78
Others	51048754	20000	Nil*	166766.7

Notes: *None of the agricultural households in this category (landholding of more than 2 hectares) reported any assets owned under this head (capital/equipment). Also note that the column totals in this table will not match with the figures for AHHs in Table 8 because the figures in this table are sub-group means, separately calculated for marginal, small and others, whereas the figures Table 8 shows the overall mean values for AHHs.

Table 7. Average asset size vs. debt of agricultural households (AHHS) vs. non-agricultural households (NAHHS) (In INR)

Households	Asset (including land)		Asset (excluding land)		Debt	
	Mean	Median	Mean	Median	Mean	Median
AHHs	8916089	4729179	136028	80000	219425	182500
NAHHs	2789111	1000005	94553	60000	178843	100000

Table 8. Average asset (with and without land) vs. debt of agricultural households (AHHS) (in INR)

AHHs	Asset (including land)		Asset (excluding land)		Debt	
	Mean	**Median**	**Mean**	**Median**	**Mean**	**Median**
Marginal	4554760	2685000	125513	80000	204669	150000
Small	16446444	20000100	145000	60000	299469	263500
Others	51235521	40460200	186767	50000	154333	170000