Saving Among Low-Income Households: Insights and Associates from an Indian Study

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Abstract

Savings play an important role in household finance. Savings aid in the accumulation of assets and financing investments. They are also important for smoothing consumption throughout the life-cycle of families providing them protection against economic and heath shocks they might face. The paper focuses on low-income households (LIH) in four districts of Telangana to gain insights into their saving behavior. Using the data collected from 1000 households, the study employed descriptive statistics and econometrics techniques such as multiple regression, logistic regression and tobit regression to understand the factors associated with higher odds and the magnitude of savings. The paper found that a majority of LIHs saved on a regular basis, though downward fluctuations in the saving amount were common. The households preferred instruments such as chit funds, gold and real estate for investing, owing to their convenience, safety and returns. The time horizon of financial planning ranged from short to medium with children's education and marriage being the most common objectives. Furthermore, econometrics modelling highlighted the importance of financial awareness, inclusion and knowledge of savings among LIHs.

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1.   Introduction

Domestic savings play the role of a shock absorber in the lives of middle- and low-income households. They also have important implications for the welfare of the households (Campbell, 2006). Be it in the form of financial assets or non-financial assets, savings serve the purposes of smoothening consumption, asset accumulation and safeguarding the household from economic shocks (Ando & Modigliani, 1963; Beverly & Sherraden, 1999; Morduch, 1995; Weil, 1993). Post the economic liberalization of India, numerous schemes and financial instruments have been introduced, targeting the upper- and middle-income groups—ranging from bank avenues such as flexible fixed deposits to numerous systematic investment plans, from real estate to golden harvest schemes. Unfortunately, the innovations have not been adapted to offer safe and high-return saving products for LIHs. This bias can also be observed in the policy focus on facilitating access to formal credit to such households by designing various low-cost products and improving accessibility to the same, but there are not many incentives or specific schemes to encourage savings among LIHs. The poor availability of innovative, safe, accessible and high-return formal channels of savings may lead these households to make financial decisions that can jeopardize the precarious financial situation they are already in. Inadequate presence of and access to formal savings also leave them vulnerable to unscrupulous elements.

In the field of academics, savings of LIHs in India is an under-appreciated and under-researched topic (as elaborated in Section 2). Against this backdrop, our paper focuses on the savings behavior of LIHs. Based on the primary data collected from two urban districts of Telangana, we make an attempt to understand the features of the savings in terms of quantum, different formal and informal instruments, and the difficulties and challenges in savings. Further, using econometrics modelling, we try to identify the factors associated with savings among households with low income. Hence, our paper makes an important contribution to the literature on savings among LIHs in the Indian context.

The paper is divided into five sections. Section 1 gives an introductory note and sets the context of the study. Section 2 reviews the existing literature, Section 3 discusses the data and methodology, while Section 4 reviews the results and discussions. The conclusion of the study is given in Section 5.

2. Literature Review

The discounted utility model tells us that what is received in the future is less valued in the present compared to the future. Most savings theories are based on this model. According to Keynes (1936), the determinants of savings change at a low speed and, in the long run, the effects of these motives are stable. Decisions to save are mainly decided by the propensity to consume and liquidity preferences. Keynes' theory is based on current income; this is challenged by the Life Cycle Hypothesis and Permanent Income Hypothesis (Ando and Modigiliani, 1963; Friedman, 1953), which explain savings by future expected income. Friedman concludes that households does not respond to changes in transitory income but to changes in permanent income. Keynes (1936) says savings lead to investment. He also stresses on the psychological impact on savings behaviour and mentions eight important indicators that might influence people to save more: precautions, calculation, foresight, improvement, independent, enterprise, pride and avarice. According to Kotana (1951), expectations and sentiments explain the willingness to save. Duesenberry (1949) emphasizes the importance of peers on savings.

2.1 Determinants of savings

At the household level, the savings—quantum and instruments—vary based on their preferences, socio-economic factors, saving ability and propensity, goals and the availability of various channels to save (Browning & Lusardi 1996; RBI, 2020).

Among demographic factors, the levels of income, educational status, occupation, number of dependents and assets influence household savings (Issahaku, 2011; Kibet et al., 2009; Rehman et al., 2010; Belay, 2016; Nwosu et al., 2020). According to Rehman et al. (2010), total household income, size of land holdings, spouse participation and low dependency rate have a significantly direct relationship with household savings and increased educational expenditure on children, family size and liabilities reduce savings. Xiao and Fan (2002) found that the difference in saving motives was dependent on cultures and stages in economic development.

West et al. (2017) analysed the role of family composition in household asset accumulation, particularly in case of lower- and higher-income single- and two-parent families. West found that lower-income single mothers saved less. Schaner, S (2015) found that intra-household heterogeneity affected savings behavior, wherein well-matched couples invested significantly in livestock and the family farm.

Socioeconomic factors such as financial knowledge, age distribution and gender too influence savings. Financial knowledge plays a vital role in household savings and asset accumulation. Income and education decide whether the right strategies are used to save and invest. More mistakes are made by the poor and less educated. If people in the households feel that they are not well qualified to make financial decisions, they delegate their decoctions to professionals by paying relevant fees (Campbell, 2006). In low-income countries, information failures are a major barrier to formal financial savings. Studies say that financial literacy is important for economic growth and livelihood, through improved money management and financial decision-making ability (Kefela, 2011; French and McKillop, 2016; Lusardi and Mitchell, 2017; Rooij et al, 2011).

Individuals who have knowledge of basic and advanced financial topics such as interest rates, inflation rates and stocks and are aware of the relative riskiness of financial assets are likely to have positive savings (Tabiani and Mahdzan, 2013; Rooij et al. 2011; Calderone et al. 2018; Behrman et al. 2012). According to Hassan, et. al (2009), the factors that affect financial literacy level are income level, education level, gender and workplace activities. Nick et al. (2010) conclude that various sources of information, such as websites, newspapers, telephone, magazines, family members, friends, financial professionals, company representatives, television and formal studies, are more likely to be used to build a background financial knowledge for various investment options.

Saving rate increases when people divide their money into two separate accounts, compared to one, make plans for retirement (Soman, and Cheema, 2011), engage in long-term planning, and have high income (Fisher and Anong, 2012).

Clark-Murphy and Gerrans (2001) highlight that age and gender influence savings. In their study, they found that younger women were more likely to save less. Yuh and Hanna (2010) found that single male households reported more savings in comparison to female households. Obayelu (2012) concluded that male-headed households saved more than female-headed households. Furthermore, saving decisions are also influenced by marital status, along with gender; single women save less compared to married women (Clark-Murphy and Gerrans, 2001). Suguino and Floro (2003) showed that, with a rise in women's relative income, aggregate savings increased.

Women have less financial knowledge than men (Goldsmith and Goldsmith, 2006), but it improves with higher education (Mahdavi and Horton, 2014). Poongodi and Gowri (2016) found that educated and women with moderate earnings were not only aware of traditional saving methods and investment avenues, but they also actively diverted their savings from traditional investment avenues to modern and technically risky capital market operations.

Presence of government-run schemes to give social security to individuals also influences savings. Studies show that introduction of social security schemes reduces savings due to increased security (Feldstein, 1974). Selection of low-income families in programs of health insurance reduces savings (Gruber & Yelowitz, 1997); generous unemployment insurance also reduces savings (Engen and Gruber, 2001).

Cultural and behavioral factors are also important determinants of savings. Various studies show that peers and family influence the financial decisions of individuals. Studies and field experiments have shown that individuals hide their publicly visible earnings to deter their relatives from asking them for loans (Baland, Guirkinger, and Mali, 2007). Jakiela and Ozier (2016) found that, in Kenyan villages, women concealed their earnings and investment to avoid social pressure to share their income with relatives. Social networks are a major source of information on new tools of borrowing. Awareness about microfinance spreads through the population and influences an individual's adoption of such programs (Banerjee et al., 2013; Breza & Chandrasekhar, 2019; Jackson, 2019). Ruthven (2002) points out that the sheer existence of services does not necessarily mean access to formal services. Use of social links for insurance and accessing credit is frequently observed in

several communities (Ray, 2013). Moreover, the use of social capital as a means of security can mitigate the need for collateral while carrying out credit transactions (La-Ferrara, 2003; Udry, 1994; Besley & Coate, 1995).

2.2 Poor households and savings

Since the poor earn very little, it is hard to imagine that they would save with their limited earning capacity. However, there are a number of studies that suggest that poor households can save and they do save. Beverly (1997) argues that LIHs rarely cover their basic expenses but, in spite of this, these households, in different countries, do accumulate substantial savings.

In their study, Hogarth and Anguelow (2003) highlight that 60% of LIHs do save and have low financial assets, which can be used to meet emergencies; these assets are highly liquid in nature. Several studies also discuss how many poor people save by purchasing lumpy illiquid assets like cattle and goats (Dercon, 1998; World Bank, 1994; Ray, 2013). In developing countries, the poor people keep their money hidden at home, buy animals as assets, or save through informal sources (Deshpande, 2006). According to World Bank (1994), having more children can be a form of savings for the poor, as they might look up to them for care in their old age.

Saving is a function of demographic, sociological, psychological and institutional variables. Among institutional variables, the important ones are saving incentives, institutionalized saving mechanisms, facilitation and financial education (Beverly and Sherraden, 1999). According to Banerjee and Duflo (2007), the poor do save, but they face higher constraints to use formal saving instruments, which include higher transaction cost, account opening fees and non-pecuniary cost such as travel time to the nearest bank. Moreover, the recent developments in behavioral economics suggest that time-inconsistent preferences of the poor might lead them to save below optimal levels, even when it is desirable for them to save (Phelps and Pollack, 1968; Loewenstein and Prelec, 1992; Diamond & Koszegi, 1999; Basu, 2011).

Behavioral influences can have adverse impacts on savings and the financial outcomes of poor families due to the following reasons: (i) The poor do not have access to technologies and institutions that can correct behavioral impulses. (ii) Given their small income, the impact of 'mistakes' is grave (Mullainathan & Shafir, 2009). Therefore, it is essential to understand how biases may affect the financial decisions of the poor.

The theory of present bias (Laibson, 1997, O'Donoghue and Rabin, 1999) stipulates that there is an inter-temporal asymmetry in one's preferences; for instance, individuals value higher consumption today and heavily discount their future consumption. This leads to a behavioral trap wherein the poor spend impulsively, resist savings and are compelled to borrow to smoothen their consumption (Banerjee & Mullainathan, 2010). Given these circumstances, the poor save less than they ideally should. This also explains their willingness to borrow money at high interest rates (Aleem, 1990; Dreze, Lanjouw & Sharma, 1997; Karlan & Mullainathan, 2009; Skiba and Tobacman, 2007).

Generally, well-to-do individuals can avert drastic implications from current bias through institutions – several workplaces offer automatic deductions for pension funds and other

savings (Mullainathan & Shafir, 2009). But the poor have no access to such facilities. Secondly, behavioral inattention is often used by firms to manipulate the choices of individuals (DellaVigna, 2009; Caplin, 2016). In particular, default options are used to trick consumers into selecting sub-optimal and more expensive products. This is called a 'status-quo bias' and it has been reported in studies such as Madrian & Shea (2001) for the case of 401(k) plans and Brown et al. (2011) for pension plans in universities.

Furthermore, consumers find it tough to process complex features of financial products, as witnessed in the non-response to tax incentives (Engen, 1994, 1996; Friedman, 2017) and the poor response to credit cards with different annual fees and interest rates (Agarwal et al., 2015).

Hogarth and Anguelov (2003) found that socioeconomic and demographic components played a significant role in the savings of low-income households. Also, access to resources, motivations and expectations, and institutional environment have a significant impact on savings, which shall be discussed further. In addition, incentives in saving schemes have encouraged people to save more, especially in the case of low-income households (Kempson et al, 2005).

2.3 Policies affecting savings of low income households

Savings behaviour depends on whether one has access to formal financial services or not. Aportela (1999) found, with the help of natural experiments in Mexico, that savings of affected households increased when financial access was increased. According to Somville and Vandewalle (2018), cash payments increase the consumptions of households whereas payments through accounts increase the household savings. But access to financial services will not improve savings until people don't have trust on financial institutions and financial service providers. Savings are strongly associated with trust in one's own banker (Mehrotra et al. 2019). The access to financial services not only improves the saving habits but is also helpful in reducing poverty.

According to Burgess and Pande (2005), opening branches in unbanked rural locations of India has been helpful in reducing rural poverty. Rosenzweig, M. (2001), who did research on low-income countries, found that savings helped to smoothen the consumption of the people throughout the period and that formal financial institutions increased financial savings and removed informal insurance arrangements.

In India, an important source of finance are chit funds for low income households and small businesses. Primarily, chit fund members participate to save money and think it is a safe saving mechanism (Kapoor et al., 2011). In a study on informal savings in the slums of Kenya, Anderson and Baland (2002) found that women who were married and had regular income had a high probability of participating in a rosca. Brune et al. (2019) found that household savings increased when a scheme allowed workers to get a part of their salary at a later period.

2.4 Savings scenario in India

In India, Max New York Life and National Council for Applied Research (NCAER) (2007) conducted India's Financial Protection Survey 2007, which provided an overview

of Indian households' financial behavior with respect to earning, spending and savings. The survey found people didn't save wisely. The results said that only 3 percent bought bonds and other financial instruments and 36% people saved cash at home. The results showed that savings were mostly for emergencies, weddings and social events, children's education and old age. The survey results found little correlation between savings and long-term gain. It was concluded that absence of long-term planning of finance and low level of financial literacy formed the core of India's financial insecurity.

In India, Kasilingam and Jayabal (2008) highlighted that savings in India not only depended on the ability to save but also depended on the level of motives. A study by Suri and Singh (2018) indicates that, in India, the domestic savings increase because of the cultural environment, wherein households worry more about the future than the present. In India, people prefer saving in physical assets such as gold and real estates; and there is less preference for investments in financial assets (Suri and Singh, 2018; RBI, 2017). Badarinza, Balasubramanium and Ramadorai (2016) highlight that there is a cultural effect, along with education, age, family composition and wealth, on the ratio of gold to total assets. Channu (2014), while analyzing saving trends in Manipur, comments that people work hard so that they can save for the future; the study also sees less penetration of formal financial institutions and reliance on informal institutions. Moulick et. al. (2008) found that formal institutions are inaccessible because of their limited outreach; they do not offer products according to the customer's need, and there is a lot of paper work, which adds opportunity cost to the borrowers. Pandey (2018) found that poor formal institutional access and a big role of intermediaries were the major impediments to the processing of savings in LIHs.

The Reserve Bank of India (RBI) report (2017) stressed the need for customized financial products at low marginal costs for the households' unique economic conditions and the need to reduce paperwork and bureaucratic impediments. Hnatkovaska and Lahari (2013) recommend policy-makers to provide a better safety net for the SC and ST categories. Gupta (2017) (Delhi and NCR) and Kamboj (2017) (Haryana) found that financial literacy affected savings positively. A study on households related to urban government employees in Andhra Pradesh found that savings increased with increase in income, education and age (middle-aged individuals save more) and existence of more female marriageable children (Viswanath, 2011).

Various studies related to India have identified the major determinants of savings to be income, age, area of residence, education, occupational status, number of dependents, family size, children's education, emergency and future needs, medical expenses, purchase of house or property and life cycle of households. The primary savings instruments are land, gold, silver, bank deposits, post office schemes, insurance, provident fund, government savings instruments and consumer durables (Ponnathpur and Dasgupta, 2020; Samant and Sudarsan, 2019; Maheshwari, 2018; Shree, 2017; Nithya, 2016; Vijayalakshmi, 2013; Jayachandra, 2006; Singaram, 1998).

For small investors in Tamil Nadu, Karthikeyan (2001) found that the level of awareness of Directorate of Small Savings and National Savings Organizations was more among urban investors and low in rural areas, due to illiteracy; the motives of savings for small investors were necessity and tax breaks. However, Pandey, et. al. (2017) did not find any

relation between tax breaks and savings. Nandhi (2012) analyzed the impact of mobile banking services on the household savings of the citizens of Delhi and found that lack of awareness, irregular income and other socioeconomic hurdles put a halt on the success of savings.

A study by Anukriti, et.al (2018) focused on how the traditional marriage market institution affected the financial decisions of the households and how the payment of dowry increased the savings of rural households. The review of the literature showed the saving behavior of the low-income households in Indian context. The paper makes a significant contribution to this area by focusing on such households in Telangana.

3. Data and Methodology

Sampling design

According to the data on per capita income across states in India in 2019, the top 3 states in terms of per capita income are Haryana, Karnataka and Telangana, among the major states. The current study considers the state of Telangana. The districts have been selected on the basis of per capita income; the targeted population is urban low-income households. According to the Telangana Statistical Year Book, 2017 by the Directorate of Economics and Statistics, Telangana (DES), the two districts with the highest per capita income are Hyderabad (about Rs 3.0 lakh) and Rangareddy (about Rs 2.9 lakh). The two districts with the lowest per capita income are Jagtial (around Rs 0.8 lakh) and Kamareddy (around Rs 0.8 lakh). Our study focuses on these four districts.

The unit of the survey is household. The total number of urban households in these 4 districts is around 12.5 lakh, with the average household size varying between 4 and 5 (DES, 2017). The study covers 1000 households; 500 households are surveyed in the two 'high per capita' income districts and 500 in the two 'low per capita' income districts. 500 households are surveyed across the 2 districts proportionately to the number of urban households in each district. The division of the total 1000 households surveyed across the 4 districts is given in Table A1. As the division of the households in terms of their income is not available for the population, we have used the total household numbers to decide our sample. The survey is across low-income households, through random sampling.

The research problem involved identifying the LIHs. In general terms, a low-income household is one whose income is low relative to other households of the same size. Such a household is commonly classified as 'low income' and it is eligible for a certain type of government assistance. In India, the Ministry of Housing and Urban Poverty Alleviation has categorized Indian households in the context of housing policies by their income (Palayi and Priyaranjan, 2018). The four categories are: Economically Weaker Section (EWS), Lower Income Groups (LIG), Middle Income Groups (MIG) and Higher Income Groups (HIG). In 2017, LIG households was defined as households having an annual income between Rs 3,00,000 and Rs 6,00,000; EWS was up to Rs 3,00,000.

According to the RBI[1], for lending purposes by non-banking financial companies (NBFC) and microfinance institution (MFIs) to the bottom of the economic pyramid, the household income limits for borrowers has been increased to | 1,25,000 for rural areas and to | 2,00,000 for urban/semi urban areas. Income class poverty lines are used by the World Bank to compare countries at similar stages of development. For lower-middle income countries like India, it is $3.2 per person a day (Seitz, 2019). According to the World Bank (Atlas Method), in 2020, low-income countries are those whose per capita GNI is $1035 or less (approx Rs 76,756 in 2020) and lower-middle income countries are those whose per capita GNI is between $1036 and $4045 (approx Rs 76,830-Rs 2,99,977 in 2020) (Serajuddin and Hamadeh, 2020). According to World Bank data[2], India, with a

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[1]RBI/2019-20/95 DOR.NBFC (PD) CC. No.103/22.10.038/2019-20 (Nov, 2019) https://www.rbi.org.in/scripts/NotificationUser.aspx?Id=11727&Mode=0

[2]https://data.worldbank.org/indicator/NY.GNP.PCAP.CD?view=chart

per capita GNI of \$2130 (approx Rs 1,57,961 in 2020) falls under the category of lower-middle income countries[3]. The average household size in India is 4.6. In our sample of the districts chosen, the average household size is 4.5 (IIPS and ICF, 2017; Statistical Yearbook, 2017).

Based on these data, it is clear that there is no unanimous cut-off for identifying LIHs in India. Taking into consideration the various definitions employed by different agencies in India and internationally, we have taken a monthly income of Rs. 25,000, i.e., Rs. 3,00,000 per annum, for identifying LIHs in the state of Telangana.

Methodology

First, we discuss the survey results on the savings preferences of the households. In order to understand the associates of saving for LIHS, we use three different models. The details of the three models are given later. We will start with a discussion on the explanatory variables used in the models, followed by a discussion on the outcome variables and the analysis technique used for each model. The selection of explanatory variables is based on the existing literature on the issue (as discussed in Section 2). The selected variables have been divided into the following categories.

Financial indices: We have created three indices that are related to financial awareness, financial inclusion and financial knowledge. We have created a financial awareness index using the data collected for seven questions related to financial awareness. These are related to the household's awareness of the facility of savings accounts in a bank or a post office, awareness of ATM card/credit card, mobile wallet and online banking, awareness of insurance and pension fund, and finally awareness of loan availing facility from banks. Each affirmative answer to these questions gets a score of one, whereas a negative answer is scored as zero. The minimum score of zero indicates 'no financial awareness' and the maximum score of seven translates to the 'highest level of financial awareness'.

Similarly, we have created a financial inclusion index using the data collected for twelve questions related to financial inclusion. These questions are related to whether the people of the household have a savings account in a bank or post office; deposit cash in their account; withdraw cash from their account; have ATM card/credit card, mobile wallet and online banking; use ATM card for withdrawing cash and making payments for goods and services; use any mobile wallet for transaction; use internet/online banking for payment of goods, transfer of money or any other purpose; have purchased any insurance; and are covered under pension schemes. Every affirmative answer to these questions gets a score of one, whereas a negative answer gets a score of zero. The minimum score of zero indicates 'no financial inclusion' and the maximum score of twelve translates to the 'highest level of financial inclusion'.

We have also created a financial knowledge index based on five questions. These questions involve calculation on basic financial concepts of simple and compound interests. Here too, each correct answer is given a score of one, whereas a wrong answer or unawareness is scored as zero. The minimum score of zero indicates 'no financial knowledge' and

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[3]Using average exchange rate in 2020 of USD to INR= 74.16 (https://www.exchangerates.org.uk/USD-INR-spot-exchange-rates-history-2020.html#:~:text=This%20is%20the%20US%20Dollar,rate%20in%202020%3A%2074.1647%20INR.)

the maximum score of five translates to the 'highest level of financial knowledge'. The questions used to frame these indices are given in Appendix Tables A2, A3 and A4.

Apart from these indices, we have also used variables related to household characteristics as well characteristics of the household and its head. The household characteristics include monthly income with the categories Rs 10000 or lower, Rs 10000 – Rs 15000, Rs 15000 – Rs 20000, and Rs 20000 and higher; number of family members; and type of ration card (APL – above poverty line or BPL – below poverty line). The household head's characteristics are gender (female or male), age (20 to 40 years, 40 to 60 years, or more than 60 years), education (no education, up to class V, up to class XII or higher education) and a dummy variable indicating whether the household head receives their salary or wage in the form of cash only (yes or no, where no implies some or full salary in electronic mode).

Outcome variable: In Model 1, the outcome variable is a binary variable, which takes the value of 1 if the household regularly saves money; it takes the value of 0 otherwise. In Model 2, the outcome variable is the monthly saving by households, while in Model 3, the outcome variable is the percentage of monthly income saved by the households. These models employ different econometrics techniques.

In Model 1, we have tried to identify the factors that affect the odds of regularly saving money and have used logistic regression with whether a household regularly saves money as a binary dependent variable, which takes the value of 1 if the household regularly saves money. The logit model is given by the formula:

$$O_i = \ln(P_i/1 - P_i) = \beta_0 + \beta_1 Z_i$$

where,

O is the log of odds ratio,

P denotes probability of the event happening,

and Z_i is the independent variable included in the study.

In our case,

Pi = probability of a regular saving.

Therefore, Pi / 1-Pi denotes the odd ratio of regular saving.

Zi is the independent variable that consists of variables associated with financial indices, such as financial awareness index, financial inclusion index and financial knowledge index, and household and household head characteristics.

In Model 2, we have tried to identify the factors that affect monthly savings of the households and have used multiple regression as well as tobit regression with household monthly savings as a dependent variable. Tobit regression is used as we have a total of 875 observations in our model, among which 115 households don't have any savings i.e. their total monthly savings is zero. Thus, the dependent variable, household's monthly saving, will be 0 for households that are not saving any money. Hence, the dependent variable is left censored (Tobin, 1958); to estimate such models, we use the tobit model (Greene, 2000; Wooldridge, 2013). The tobit model controls the bias that can arise if we

use the regression model on a dependent variable, which is either left or right censored; hence it is also called the 'censored regression model'.

The regression model used is given below:

$$Y = \beta_0 + \beta_i X_i$$

where,

Y is the monthly savings of the households and X^i is the explanatory/independent variable included in the model.

This model has been estimated by using both multiple regression model as well as tobit regression to control the bias arising from the censoring in the dependent variable.

We have first estimated the model (for all three models) by using only the financial indices as explanatory/independent variables. Then we have control over the household and household head characteristics, by including the other explanatory/independent variables discussed earlier in our model.

4.   Results and Discussions

First, we discuss the socioeconomic profile of the households, followed by the findings from the econometrics modelling. In our sample, 46.8% of households earn Rs 10,000 to 15,000 per month, 27.5% earn between Rs 15,000 and Rs 20,000 per month, and 20.4% manage to earn up to Rs 10,000 per month as income. However, this income keeps fluctuating for most of the households. Among the LIHs, the largest number of families belong to the OBC group (67.1%) followed by the SC group and the general group with 17.5% and 10.5% respectively; only 4.9% of the population belong to ST category (Table 1).

TABLE 1: Socioeconomic Details (percentage of households)

Social group	*General*	*OBC*	*SC*	*ST*
	10.5	67.1	17.5	4.9
Family type	*Nuclear family* – 95.8		*Joint family* – 4.2	
Number of family members	*< 2 members*	*3 members*	*4 members*	*> 4 members*
	13.5	24.6	41.6	20.3
Ration card	94.7			
Type of ration card	*BPL card* – 12.3		*White card* – 87.7	
Average monthly household income (Rs)	*< 10,000*	*10,000-15,000*	*15,000-20,000*	*20,000-25,000*
	20.4	46.8	27.5	5.3
Average monthly household expenditure (Rs)	*<10,000*	*10,000-15,000*	*15,000-20,000*	*20,000-25,000*
	21.9	50.2	23.7	4.2
Income remains stable/- keeps fluctuating	*Stable* – 10.5		*Fluctuate* – 89.5	

The survey data shows that LIHs also had the propensity to save, as 94.3% families saved money and 86.8% have saved on a regular basis, usually monthly. But the monthly savings amount keeps fluctuating; 95.5% households experienced the same. For all these households, fluctuations were negative and their savings decreased. The most common reason for decline in savings is unexpected family expenditure (90%), followed by reduction in income (25%) and giving money to friends or relatives (9.9%). Among all the available saving instruments, saving accounts are the most popular as approximately 97.9% households have parked funds in these accounts. Apart from saving accounts, households have also invested in chit funds (30.7%), gold ornaments (67.7%) and real estate (land, house and shop) (Table 2). Around 32% of households have also saved their money with their relatives or friends. In case of fixed deposits (FDs), the overall investment is quite low (only 5.1%). Among those who have not invested, around 77.8% of them are aware of it. Shares and equities are the least preferred investment option; only 0.20% households have these. Recurring deposits and pension schemes are also unpopular (0.80% each). Overall, the investment of households is limited to a few instruments such as saving accounts, chit funds, gold and real estate. Among the instruments with low investment, awareness of the instruments varies from high awareness of instruments such as fixed deposits and recurring deposits to low awareness of instrument such as share, equities, mutual funds and pension schemes.

TABLE 2: Savings Portfolio and Awareness (percentage of households)

Savings instruments	Currently or ever invested money	Awareness if no investments	Savings instruments	Currently or ever invested money	Awareness if no investments
Fixed deposit	5.1	77.8	*Pension scheme*	0.8	25.7
Recurring deposit	0.8	58.2	*Health insurance*	16.8	82.7
Saving account	97.9	1.7	*Land*	15.7	80.7
Shares/Equities	0.2	38.4	*House*	45.1	43.3
Mutual funds	0.5	37.8	*Shop*	3.5	91.6
Chit funds	30	43.6	*Cash*	88.9	10.6
Gold savings (harvest scheme)	0.7	33.3	*Friends/Relatives*	38.8	59.5
Gold ornaments	79.1	22.0			

When it comes to decisions related to savings and investments, numerous factors play a role. Safety plays the most significant role followed by returns and convenience. Safety and convenience are the main reasons for opting for a savings accounts. In the case of chit funds, apart from safety and convenience, good returns are also an important factor. Gold savings (harvest schemes) are considered the safest and the most convenient instrument for investment. Households invest in gold ornaments because of their good returns and convenience. Non-availability of money is the most common reason for not investing in any scheme. Other than this, low returns; unfriendly environment, particularly for bank-based instruments; a lot of paperwork; lack of awareness; and distance are other attributes that influence the investment decision of households.

Apart from saving accounts, two sources that were widely used by the households were chit funds and real estate/properties. Chit funds are quite popular among households. Three-fourth of households investing in chit funds got the idea to join the funds from relatives or friends; 88% households are regular participants in chit funds. Households prefer the auction type of chit funds and participate in chit funds owned by individuals personally known to them, like relatives and friends. Also, most households invest in the auction type of chit funds, compared to the lottery-based chit funds. The difference between the two lies in the way in which the collected money is distributed among the members. In lottery-based funds, the decision is made by a lottery, while money is given to the lowest bidder in the auction type of fund. In case of real estate, 90% households had taken a decision to invest in property on the basis of their own research, while 68% households had followed the advice of their relatives or friends for investing. To invest in property, 90.7% households had used their own saved money, 41% had borrowed from relatives and friends, and only 3.2% had taken a loan from banks. Financial goals are also important while making savings and investment decisions. Around 45.0%, 9.0% and 2.9% households are saving for short-, medium- and long-term goals, respectively. Children's wedding and education are major goals for savings in the short and medium term. For the long term, households either don't know the purpose of savings or they are saving to invest in real estate later. Among the instruments used, savings account, real estate, cash and gold are considered the safest options by LIHs, while saving accounts, real estate and

gold investments are considered the most convenient. Real estate and gold investment are considered to give the highest return.

In Table 3, we observe that all financial indices have significant and positive effects in all three models. For the regular saving model (Model 1), all the three indices increase the odds of saving by the households as the scores of the financial indices increase. Similarly, for the monthly saving model (Model 2), the average monthly saving increases with an increase in the scores of the three financial indices, with the effect relatively higher in the case of the tobit model, as it controls the negative bias of the multiple regression model. In the third model as well, the percentage of monthly income saved by the households increases with the increase in the scores of the three financial indices. Overall, we observe that financial awareness, financial inclusion and financial knowledge play a very significant role in increasing the savings of LIHs.

In Table 4, we observe the significant and positive effect of the different financial indices on household savings. In Model 1, we observe that all three financial indices increase the odds of saving, even though the financial awareness index is insignificant. Increasing income also increases the odds of saving by households, while increase in the number of family members decreases the odds of saving. Also, households with male heads have higher odds of saving compared to households with female heads. We also observe that the households with older heads have lower odds of saving compared to the households with younger heads. Further, households with heads with education up to class V or up to class XII have relatively lower odds of saving compared to households with uneducated household heads.

	Savings	Monthly savings		Monthly savings as a percentage of Income	
	Model-I	Model-II		Model-III	
Variables	Odds ratio	Regression coefficients	Tobit coefficients	Regression coefficients	Tobit coefficients
Financial awareness index	1.274*	35.92***	41.76***	0.206***	0.240***
	(0.161)	(11.82)	(13.46)	(0.0754)	(0.0860)
Financial inclusion index	1.295***	29.54***	34.51***	0.135***	0.163***
	(0.0908)	(5.967)	(6.793)	(0.0381)	(0.0434)
Financial knowledge index	1.259**	33.75***	38.53***	0.307***	0.337***
	(0.126)	(8.501)	(9.625)	(0.0542)	(0.0616)
Constant	0.211**	-48.27	-142.7**	0.284	-0.268
	(0.133)	(58.34)	(66.98)	(0.372)	(0.428)
Observations	988	988	988	988	988

Note: Standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1

TABLE 4: Household Savings Models - Controlling for

Variables		Savings	Monthly savings		Monthly savings as a percentage of Income	
		Model-I	Model-II	Model-III	Model-IV	Model-V
		Odds ratio	Regression coefficients	Tobit coefficients	Regression coefficients	Tobit coefficients
Financial awareness index		1.131	19.79*	22.63*	0.147*	0.167*
		(0.154)	(11.45)	(12.97)	(0.0808)	(0.0917)
Financial inclusion index		1.381***	25.21***	31.07***	0.180***	0.217***
		(0.115)	(6.070)	(6.879)	(0.0428)	(0.0486)
Financial knowledge index		1.214*	29.94***	33.55***	0.247***	0.271***
		(0.136)	(8.231)	(9.255)	(0.0581)	(0.0655)
Monthly income (In Rs) [Base -10,000 or lower]	10,000 -15,000	1.636*	132.7***	147.6***	0.273*	0.344**
		(0.428)	(21.84)	(24.87)	(0.154)	(0.175)
	15,000 - 20,000	1.972**	284.9***	304.9***	0.432**	0.525***
		(0.623)	(25.01)	(28.35)	(0.176)	(0.200)
	20,000 or higher	5.345**	447.8***	482.1***	0.543*	0.724**
		(3.627)	(43.26)	(48.70)	(0.305)	(0.345)
Number of family members		0.646***	-14.60*	-22.09**	-0.160***	-0.209***
		(0.0727)	(8.603)	(9.719)	(0.0607)	(0.0688)
Type of ration card [Base - BPL]	APL	1.415	56.33**	64.24**	0.334*	0.387*
		(0.410)	(25.44)	(28.91)	(0.179)	(0.204)
Household head gender [Base - female]	Male	2.416*	45.99	58.34	0.297	0.370
		(1.163)	(38.30)	(43.28)	(0.270)	(0.306)
Age of household head [Base - 20 to 40 years]	40 to 60 years	0.692*	-19.81	-26.79	-0.203	-0.249*
		(0.154)	(17.64)	(19.94)	(0.124)	(0.141)
	More than 60 years	0.161***	-129.8**	-171.8**	-1.051**	-1.339***

		(0.105)	(58.59)	(67.71)	(0.413)	(0.479)
Education of household head [Base - no education]	Up to Class V	0.474**	-18.39	-28.62	-0.235	-0.304
		(0.174)	(26.87)	(30.32)	(0.190)	(0.215)
	Up to Class XII	0.318***	-64.26***	-82.35***	-0.505***	-0.624***
		(0.103)	(22.41)	(25.31)	(0.158)	(0.179)
	Higher education	0.508	-19.95	-32.17	-0.250	-0.331
		(0.252)	(32.30)	(36.26)	(0.228)	(0.257)
Household head's salary/ Wage received only in cash [Base - no]	Yes	0.748	-20.94	-23.60	-0.0784	-0.100
		(0.376)	(32.21)	(36.12)	(0.227)	(0.256)
Constant		1.067	-62.88	-130.9	0.692	0.278
		(1.162)	(83.94)	(95.28)	(0.592)	(0.673)
Observations		875	875	875	875	875
Note: Standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1						

In Model 2, we see results similar to the results of Model 1, with all three financial indices having significant and positive effects on a household's monthly savings. Apart from the financial indices, income and number of family members too have a similar effect, as in the case of Model 1, with income having a positive effect and the number of family members having a negative effect on savings. Households with APL cards have, on an average, higher monthly savings compared to households with BPL ration cards, as BPL ration cards are for the relatively poorer households. Again, average household savings decreases with an increase in the age of the household head. Average saving is also significantly lower for households with heads with education up to class XII compared to households with uneducated heads. The results of Model 3 were also similar to the results of Model 2, with the percentage of monthly income saved by the households increasing with the increase in the scores of financial indices.

5.   Conclusion

The paper provides insights into the saving habits of low-income households. One of the striking findings is that a large proportion of LIHs save on a regular basis, though downward fluctuations in saving amount are common, owing to shocks like unexpected expenditure, reduction in income or lending money to friends and relatives. This shows that even LIHs have a propensity to save. However, shocks affect their savings.

The second finding is that households prefer instruments such as chit funds, gold and real estate for investing, owing to their convenience, safety and returns and they avoid bank-based formal products such as fixed deposits. This shows the orientation to product features while making investments.

The two findings have important implications. The study shows that even LIHs save regularly. Hence, they should be offered better saving products. The products should be tailormade to account for fluctuations in the amounts LIHs are able to save. Furthermore, the products need to be designed keeping in mind the preferred features of safety, low risk and convenience. Here, it is important to highlight that households avoid saving in fixed deposits because of the amount of paper work involved and unfriendly staff. The products should be easy to invest in and support should be given to the households to complete the formalities.

The popularity of chit funds among LIHs and the preference for chit funds owned by known people are also evident from the survey. This stresses the need for careful regulation of chit funds and a strong market intelligence system to root out informal and unregulated chit funds.

The module on financial planning shows that households usually plan for short- and medium-term goals, including children's education and wedding and investing in real estate. This finding highlights the need for designing short- and mid-term saving plans and instruments that are targeted at LIHs.

The econometrics modelling highlights the importance of financial awareness, inclusion and knowledge in the savings of LIHs. Households with younger heads and higher income show higher odds and magnitude of saving. Thus, a multi-faceted approach is required to further the cause of financial awareness, inclusion and knowledge.

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Appendix

TABLE A1: Sampling Framework

District	Number of urban households	Average household Size	Sample
Hyderabad	849051	5	362
Rangareddy	323505	4	138
Kamareddy	27106	5	170
Jagtial	52734	4	330
Total	1252396		1000

TABLE A2: Financial Awareness Index

S. No.	Indicator	Percentage
1	Are you aware of the facility of savings accounts in bank/post office?	99.9
2	Are you aware of ATM/Credit?	99.9
3	Are you aware of mobile wallets?	33.8
4	Are you aware of online banking?	3.7
5	Are you aware of insurance?	96.0
6	Are you aware of pension fund?	58.7
7	Are you aware that you can take loan from banks?	91.3

TABLE A3: Financial Inclusion Index

S. No.	Indicator	Percentage
1	Does anyone in your household have a savings account in a bank/a post office?	99.8
2	Do you deposit cash in your account?	98.6
3	Do you withdraw cash from your account?	98.4
4	Do any of your household members have an ATM card/credit card?	97.7
5	Do any of your household members have mobile wallet?	15.1
6	Do any of your household members have online banking?	1.2
7	Does your family use ATM card for withdrawing cash?	95.9
8	Does your family use ATM card for making payments for goods and services?	50.3
9	Do you or your family use any mobile wallet (Paytm, PhonePe, etc.) for transaction?	32.7
10	Do you or your family use internet/online banking for payments of good, transfer of money or any other purpose?	18.8
11	Have you, or any family member, purchased insurance?	70.8
12	Is anyone in your household covered under pension schemes?	4.5

TABLE A4: Financial Knowledge Index

S. No.	Indicator	Percentage (correct answers)
1	You lend Rs 25 to a friend one evening and he gives back Rs 25 to you the next day. How much interest has he paid on this loan?	99.4
2	Let us suppose you put Rs 100 into a savings account with a guaranteed interest rate of 4% per year. You don't make any further payments into this account and you don't withdraw any money. How much money would be in the account at the end of the first year, once the interest payment is made?	83.3
3	For the account in the previous question, how much money would be in the account at the end of 5 years?	35.0
4	Abhishek deposits Rs 1000 in a bank for 2 years, which is compounded annually at an interest of 10% p.a. What is the amount he will get after 2 years?	19.7
5	Srujana takes a loan of Rs 5000. She has to pay back an amount of Rs 5500 after a year. At what interest rate has she obtained the loan?	29.1