



Determinants of demand for microcredit among urban poor households in Sri Lanka

S.P.Premaratna, W. Rathnayaka, P. A. C. Yohan Wijerathne, P.A.S Dayananda

Corresponding author. S.P.Premaratna (0773439323) spp@econ.cmb.ac.lk

ABSTRACT

This paper examines the significant factors influencing the demand for micro credit among urban poor households in Sri Lanka. Colombo, Gampaha, Kalutara, Kandy and Nuwara ELLIYA districts were selected. Employing the multistage sampling method, 1200 respondents were randomly selected from the urban areas of the five districts. Data on household characteristics, social capital and microcredit variables were collected with a structured questionnaire. The data were analysed using descriptive and Probit models. The results of Probit models show that the major determinants of the demand for credit among urban households are level of education, working in the private sector, entrepreneurial households, and male-headed households. Our analysis suggests that policymakers interested in improving the living conditions of urban poor households may be advised to consider promoting collateral free credit schemes, social capital, creating targets financial products, strengthen business units or cells.

Key words: *Microfinance, Demand for microcredit, urban microfinance, Sri Lanka*

Introduction

Unlike rural households, urban poor households do not have enough lands to grow their vegetables and other foods. Therefore, credit to urban poor households helps in a variety of ways (Ahmed *et al.* 2005; Banerjee *et al.* 2007; Collins *et al.* 2009; Rutherford, 2003). Credit access can significantly increase the ability of households with no or few savings to meet their financial needs for their economic activities and investments. Access to credit also allows urban poor households to smooth their consumption in the case of adverse events. Moreover, access to credit

could increase urban poor micro and small businesses' willingness to adopt new technologies. Though many studies are focusing rural credit market and determinants of demand for rural credit (Akudugu, 2012; Bendig *et al.* 2009; Cui *et al.* 2017; Kofarmata *et al.* 2016), a few or no study is available on urban poor and the urban informal credit market. However, unlike rural credit market, the urban credit market is not homogenous and the urban low-income households and urban poor have access to formal source of credit as well as informal sources because both types of financial institutions are widely available in urban areas. The diversity in urban areas has not been studied in Sri Lankan context. Why do some urban poor go for the formal sector while some are reliant on the semi-formal and informal sectors? The paper aims to examine the determinants of demand for microcredit among urban poor households in Sri Lanka. The understanding of the determinants of demand for microcredit is very significant for policy makers and other stakeholders who are working to promote financial inclusion.

The three major sources of credit available to low-income urban households and small-scale enterprises are: formal, semi-formal and informal institutions. The formal source includes: Commercial Banks, formal Micro-finance Banks, Merchant Banks, and Government Owned Finance Institutions. The semi-formal source consists of NGO-MFIs, some cooperative societies and other unregistered microfinance institutions. The informal source comprises: moneylenders, friends, relations, clubs and saving societies like "Sheetu or rotating savings and credit association (ROSCA). Commercial banks and other formal institutions fail to cater for the credit needs of poor and low-income populations as a result of their lending terms and conditions and due to lack of collateral facilities with low-income groups. Since formal financial institutions ask for collaterals and the poor are not bankable and cannot afford the required collateral, the poor are considered uncreditworthy (Adera, 1995). In spite of the efforts designed to overcome the 'financial exclusion', among the poor and small enterprises in developing countries, majority still have limited access to bank services to support their private initiative (Braverman & Guasch, 1986).

Microfinance in Sri Lanka

The formal financial system of Sri Lanka is quite strong with 26 commercial banks, 47 Licensed Finance Companies (LFCs), 9 Specialized Leasing Companies (SLCs), many primary dealers, pension/ provident funds, Micro Credit Companies and credit co-operative societies (SANASA).

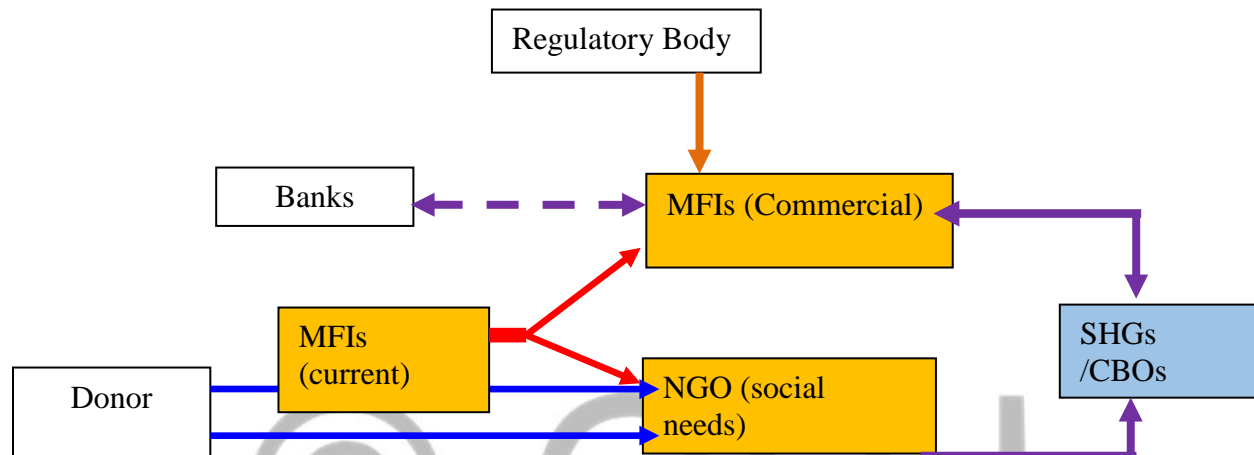
Commercial banks dominate the financial system and account for nearly 70% of the total asset value. A significant proportion of the population owns basic financial products such as savings accounts and credit. Meanwhile, Sri Lanka has a strong microfinance sector. At present, the sector comprises a range of different financial institutions such as co-operative societies, Non-microfinance companies, Non-Governmental Organizations (NGOs), development banks, and special state programmes like the Divineguma community-based banks. As per estimates, nearly 14,000 financial institutions in the country directly or indirectly provide microcredit products. However, a majority of these financial institutions are either Non-Government Organizations (NGOs), not-for-profits or follow a local cooperative structure. For-profit formal sector microfinance institutions are few, and the market is dominated by the five to seven players that serve the majority of the low-income customer segments. As estimated by Kongovi and Sinha (2017) 2.6 million Low-income households represent the target microfinance client segment for MFIs in Sri Lanka. While market penetration data for the existing MFIs and Non-Banking Finance Companies (NBFCs) in Sri Lanka is not readily available, the total number of customers served by the 5 largest MFIs and NBFCs in Sri Lanka is estimated to be around 1.4 million clients while industry association, Lanka Microfinance Practitioners Association (LMFPA) estimates the total number of clients served by 24 smaller MFIs in the country to be nearly 0.3 million (Kongovi & Sinha, 2017). In addition, hundreds of credit cooperative societies and small financial type NGOs are also active in the Sri Lankan market.

The sector is regulated and supervised by the Central Bank of Sri Lanka and NGO secretariat for Financial Institution and financial NGOs respectively. However, its financial contribution to the financial system of the island is marginal and even can be ignored without any harm to the financial system of the country. It must also be noted that the country holds poverty at the manageable level as a result of the strong microfinance intervention. According to CGAP (2009, P. 24) “the microfinance services help people fight poverty on their own terms, in a sustainable way”. Microfinance is a powerful instrument for ‘holding’ poverty at a low note.

The recent development of the microfinance sector in the country is the microfinance regulation. Sri Lankan Parliament passed the Microfinance Act, No. 6 of 2016, and it came into effect on 15th July 2016. The Microfinance Act provides for the licensing, regulation and supervision of institutions which carry on microfinance business. The Act also provides for the registration of Microfinance Non-Governmental organisations (MNGOs) registered under the Voluntary Social

Services Organizations Act, No. 31 of 1980 (VSSO Act), by the Registrar of Voluntary Social Service Organizations. With this regulatory development, it can be observed that conventional MFIs are practising ‘dual arm models’ as follows.

Figure 1. Dual arm model of microfinance sector in Sri Lanka



Source: developed by the Author

The conventional microfinance model in the country consists of one MFI, in which both micro-credit activities and other ‘plus’ activities are done together. The dual arm model has two arms (1) commercialised MFI, and (2) NGO type social arm. While the NGO type social arm takes responsible for mobilization of poor and low income and socially and economically excluded people, the commercial arm does micro credit and saving businesses with them particularly. Since microfinance clients are poor not only in terms of income, but in terms of mobilization, education, collateral availability, financial literacy, MFIs have to develop their clients before selling them financial products. Interviews with some stakeholders revealed that only few MFIs are expected to apply for a license. They are the strongest and well established institutions and players with larger outreach. A large number of microfinance providers still operate outside of

the regulation and supervision stipulated by the Microfinance Act (LMPA 2018)¹. They cannot mobilise savings, but continue with the other microfinance services.

The current main challenge of the microfinance sector in Sri Lanka is multiple and over borrowing (Ravichandran, 2016; Tilakaratna & Hulme, 2015). Many recent studies revealed that on average microfinance clients borrow money from at least 5 institutions. Currently, Sri Lanka is having a crisis of over-indebtedness. This has led to the creation of social, economic and environmental issues recently (Tilakaratna & Hulme, 2013). The Social Issues are such as suicides, attempted suicides, family disruptions, house-wives having illegal sexual connections with field staff, disruptions to children's education. The Main economic issues include selling of the house and property, mortgaging the same, pawning of gold and jewellery, obtaining other loans to settle loans, not engage in cultivation for want of money, selling crop under-valued, avoidance of social obligations.

There are several reasons for multiple borrowings (Ravichandran, 2016; Tilakaratna & Hulme, 2013). Some of the reasons can be seen at the macro level such as high cost of living, high production cost, and poor enabling business environment. Some of the reasons can be identified at meso level while some are at the micro level. At the meso level, MFIs institutions play a 'cheap' competitive game in which there is no a proper code and conduct. Further, there is no mechanism to screen the credit history of the clients. The asymmetric nature of the information is critical hamper the sector at the meso level. Meanwhile, microfinance clients at the micro level are struggling for their livelihood survival. The government ad hoc and poverty-oriented policies such as loan write off and government direct business intervention badly hampers the development of the sector.

Trends and Nature of Urban Poor in Sri Lanka

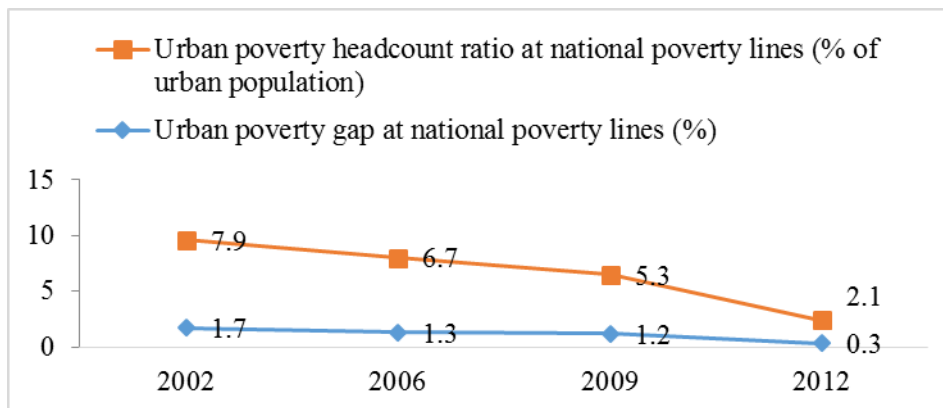
No clear definition of urban areas can be found in Sri Lanka (Amarawickrama *et al.* 2015; Das, undated; Semasinghe, 2015). The urban status is recognized purely for local administrative purposes by the minister in charge of local government. The urban administrative areas are identified by two categories, municipal council areas and urban council areas (Das, undated;

¹ According to LMPA (2018), by December 2017 a total of 9 companies applied for license under the Microfinance Act 2016. Out of these 09 companies, 06 companies are presently under the evaluation process (LMPA, 2018).

Semasinghe, 2015). Presently, there are about 23 municipal council areas and 41 urban council areas in Sri Lanka.

In the Sri Lankan context, the urban administrative areas are identified by two classifications as municipal council areas and urban council areas. It consists with 10 Cities which have a population over 100,000 of which 06 are located in Western Province and Colombo metropolitan region, 34 medium size towns with 20,000 – 100,000 Population and 94 small towns with less than 20,000 Population (Chularathna, 2014). According to the 2001 census, 21.5 % of the country's population lives in the urban sector. In 2016, the poverty headcount index in urban areas was 1.9%. Therefore Sri Lanka could not have many urban poor because of living environments and conditions due to the various approaches of welfare and equity between rural and urban areas in the provision of basic public services and living standards.

Figure 02: Urban poverty gap at national poverty lines (%) and urban poverty headcount ratio at national poverty lines (% of urban population) in Sri Lanka



Source: World Development Indicators Database (Last Update 2018)

According to the above data, urban poverty from a national point of view provides a very favourable image in Sri Lanka. The share of Sri Lanka's urban population living below the national poverty line reduced from 7.9% in 2002 to 5.3% in 2009 and it was only 2.1% in 2012. Then the urban sector has low rates of poverty and of the population falling below the poverty line. Further, Urban poverty at the national poverty line has decreased gradually from 2002 to 2012 in Sri Lanka.

Hence there is a significantly low value than the national rate of .6.3% (DCS, 2016). Meanwhile, the urban poor have received slight recognition as a unique group that meets dynamics and dimensions, significantly different from the rural sector as well.

Table 1: Percentage of households and share of income to total household income by national household income decile and urban sector - 2016

Decile group	Income Group RS.	Percentage of households (%)	Share of Income (100%)
1	Less than or equal 15,321	4.5	0.5
2	15,322 - 23,518	5.6	1.2
3	23,519 - 30,003	7.5	2.3
4	30,004 - 36,445	7.9	3.0

Source: DCS, (2016)

Table 1 indicates that the distributions of shares of income out of total household income among deciles for urban sector along with the national level distribution. According to the table, the 1st decile groups of the urban sector held 4.5% and 25.5% percent of the urban sector households are among the poorest 40 percent households of the country in 2016 and they have contributed to 7% percent of the total household income in the urban sector.

Moreover the average per capita dietary energy consumption for urban was 2,095 kilocalories per day in 2016. The corresponding figure for the poor was 1,222 kilocalories. According to DCS (2016), the average monthly expenditure of an urban household on food is 35.4% of total expenditure. The national average is 42.3%. When considering the amount of calories consumed, the urban poor are consuming less than the minimum daily dietary energy requirement (DCS, 2016).

In the urban sector, about 45 per cent of the income-earning household members engage in unskilled employment activities (waged labours, helpers etc.) About 9 per cent of families do not have any source of regular income. As such, lack of a regular source of income is a problem for about 54 per cent of urban low-income families; and 16 per cent of the urban poor depend on poverty-relief assistance (SEVANATHA, 2003). The majority of economically active urban poor

dwellers are unskilled workers or hawkers. Youth unemployment rates are around 60 % in urban areas. Overall 70% of shanties and slum dwellers are below the poverty line and all slum dwellers are subject to serious discrimination (UN-HABITAT, 2003).

The urban poor of Sri Lanka mainly lies within informal sector activities and jobs and many workers served as blue-collar workers they engaged with many such as the Port, the industries, the railway, the city markets, the municipality and hundreds of other formal and informal establishments (Senanayake *et al.* 2016). Lots of casual employees in urban areas are involved in part-time works, mainly casual jobs like street sweeping, loading and offloading cleaning and other minor works. On the other hand inadequate security provision for urban poor has generated many barriers for these people to develop their livelihoods assets.

Financial Inclusion of the Urban Poor

Unlike rural poor, urban poor generally are not homogenous. They come from various parts of the country and social settings. They are excluded from financial services due to lack of identity proof, lack of cohesion among the inhabitants of urban slums, irregular incomes and continuous migration among the workers to and from rural and other areas. They do not have even a permanent address proof as needed for requisite documentation. Despite all of the issues, several MFIs² work with the urban poor in Sri Lanka. Some MFIs develop urban self-help groups and provide microfinance services. However, not many SHGs are functioning in urban microfinance primarily because there is a lack of homogeneity among the urban slum dwellers. They also have different saving and consumption patterns (Premaratna *et al.* 2012).

Common key problems that urban poor keeps away from the financial inclusions include (1) non-availability/ lack of national policy or effort to focus urban poor for the financial inclusion; (2) no solid Collateral to surrender as dwelling in unauthorized slums and shanties; (3) no income proof - all earnings purely on cash basis and no banking records to proof the income level; (4) limitations in financial literacy and cash management; and (5) vulnerable to series of addictions (alcohol, drugs etc) (Bhatia & Chatterjee, 2010; Varghese & VIswanathan, 2018).

² Lanka Financial Services for Underserved Settlements (LFSUS) is one of them. LFSUS is a company limited by guarantee and is established to mobilize resources for financing. It was primarily set up through a MOU signed between the Ministry of Urban Development and United Nations Human Settlement Program (UN-HABITAT). Ceylinco Grameen Co. Ltd is another one which is running microfinance operations from April 2000 focusing on the urban slum areas of Colombo. The company has disbursed over SLR 60 million in loans by 2012.

Unauthorised dwellings in slum shanties prohibit them from having access not only to the formal financial institutions but also to basic needs such as water and electricity facilities. Predominantly the informal financial sector active in urban poor communities and these financial facilities at higher interested rates ranging 10 % per month to 10 % per day. Several pocket microcredit programmes are functioning among the urban poor at very high interest rates and daily or weekly recovery mechanisms.

Determinants of Demand for Microcredit in Urban Underserved Settlements

Demand theory was one of the fundamental principles of microeconomics. Analysing demand for credit³ is different from analysing demand for usual goods. The analysis of demand for credit was started from the Life Cycle Model⁴ (Modigliani, 1986). Low-income families cannot maintain consumption at an acceptable level. With the change in the economic environment and uncertainties of the future, a households' inter-temporal consumption patten varies. The life-cycle hypothesis argued that consumers should inter-temporally reallocate their incomes (resources) over their lifetime to maximise lifetime utility (Morduch, 1995) given the budget constraint. Usually poor households can smooth their consumption⁵ by using saving from past income or investment. However, they are impossible to use their future income in the present since they do not have a regular and smooth source of income. According to the life cycle model, credit helps individuals to make an inter-temporal choice and becomes additional spending power in the present in exchange for repayment⁶ in the future. The life-cycle model further highlights that households have income over their lifetime. Therefore, households have to face the problem of how to maximise their utility by choosing the optimum consumption and saving.

³ Credit is an important commodity for improving the welfare of the poor in their micro-economic activities especially in developing countries.

⁴ The model has a long history in the economics profession with roots in the infinite horizon models of Friedman (1957) and Ramsey (1926). It also has roots from the finite horizon models that were developed by Fisher (1930) and modified by Modigliani and Brumberg (1954). The modern version of the life-cycle model provides a compressive guide to analyze of many life-cycle choices such as consumption, saving, education, human capital, marriage, fertility and labor supply.

⁵ Consumption smoothing can be analyzed from different horizons of time. The shortest time span consists in daily cash-flow management, the second in dealing with seasonal changes and the third one with life-cycle related events (Collins et al. 2009)

⁶ Repayment includes loan as well as interest payments.

It is assumed that a household lives for three periods ($t = 1,2,3$). In the first two periods he works and receives earnings w while in the last period he lives from his accumulated previous savings. In order to derive the optimal savings decisions s_1 and s_2 in both periods, the household maximises the utility function

$$U(C_1, C_2, C_3) = U(C_1) + \beta U(C_2) + \beta^2 U(C_3) \text{ ----- (1)}$$

Where $\beta = (1/ 1+\delta)$ is a time discount factor (with δ as the rate of time preference) and $u(c) = (c^{1-\gamma})/(1-\gamma)$ explains the preference function with $\gamma \neq 1$ as relative risk aversion. Assuming that households have no assets initially, their periodic budget constraints in the three periods are as follows.

$$w = S_1 + C_1, (1-r)S_2 + w = S + C, \text{ and } (1-r)S_2 + w = C_3 \text{----- (2)}$$

Where r represents the period interest rate. After substituting the budget constraints into the utility function the maximization problem can be expressed as

$$\max U(S_1, S_2) = U(w - S_1) + \beta U((1+r)S_1 + w - S_2) + \beta^2 U((1+r)S_2) \text{ ---- (3)}$$

According to Chen and Chivakul (2008), in this model, current consumption depends on the households' lifetime characteristics and not on the current income.

Researchers (Modigliani 1986) also employ *permanent income hypothesis* to analysis demand for credit. According to the permanent income hypothesis, individuals' current consumption depends on expected consumption in the future period which the later depends on the characteristics of individuals.

Demand for credit is also described from the theory of investment since credit is considered as an investment. According to the theory of investment, demand for credit depends on the cost of the capital and the expected rate of return (Modigliani and Miller, 1958).

However, the factors that determent of demand for microcredit particularly urban microcredit cannot be analyzed using these standard theories alone. It is a different sort of market. Researchers (Akudugu, 2012; Cui, 2017; Kofarmata *et al* 2016; Messah & Wangai, 2011; Mpuga 2008; Tu *et al.* 2015) have investigated various factors that affect demand for micro credit though most of them focused on the rural credit market. Some of the determinants include individual characteristics of borrowers (age of household-head, sick days, the head of the

household and community responsibilities), social and economic factors (household's earning capacity, household-head's occupation, agricultural land and education) and social capital (Tang *et al.*, 2010). Ajagbe (2012)⁷ recently found that the household head's age, social networks, the value of household assets, level of education and the nature of the credit market are the significant determinants of credit demand among small scale entrepreneurs in Nigeria. Zeller (1994) in the case of Madagascar found that the probability of applying for informal credit increases with years of education, age and number of sick days of household's head. Messah and Wangai (2011) analysing Kenyan SMEs found that the number of dependents in the household, education level of an entrepreneur, and household's income are significant factors that affect small-scale entrepreneurs to borrow credit from formal financial institutions.

Mpuga (2008) found that that the young people tend to borrow more for various activities while the old tend to be less⁸. Those at the medium age have positive and significant demand while the old are less inclined to demand for credit. MFIs also target young groups rather than old age people. However, some studies (Tang *et al.* 2010) found that old persons are more likely to borrow than younger persons because older persons have an effective social network or social capital and, thus, have more access to the credit market.

Bendig *et al.* (2009)⁹ identified that household size was expected to negatively affect the demand for credit because the larger households with many dependents are likely to consume a large share of their income and have less collateral. The result, however, revealed the positive influence of household size on demanding microcredit. According to Bendig *et al* (2009), larger households are more exposed to shock from higher number of household members.

Usually, the probability of demanding loans in formal financial institutions negatively correlated with being female-headed households (Bendig *et al.*, 2009; Nwaru, 2011). However, in the case of microfinance, women tend to involve micro credit than men do (Akudugu 2012, Premaratne,

⁷ Ajagbe (2012) analyzed determinants of access and demand for credit by small scale entrepreneurs from Oyo State in Nigeria

⁸ The young and energetic individuals with ambitions to earn higher incomes and engaged in business activities are expected to be more active in terms of saving so as to accumulate enough capital. The older are likely to rely more on their past savings and accumulated wealth for consumption (Mpuga 2008).

⁹ They conducted a comprehensive survey in Ghana to identify the possible drives that affect the different types of households' demand for financial services and employed the multivariate probit regression method for the analysis.

2012). Conceptually, there are three reasons for this trend: (1) MFIs and many community development funding agencies believe that giving support to women can improve family welfare rather than giving hands to men; (2) MFIs know that women repayment rate is higher than men; and (3) since men particularly poor families are busy with their jobs, women have some free time to engage in microfinance activities. However, some argue that women social capital is not strong and effective. Hence they have little access to micro credit. In addition, women do not have assets for collateral. Moreover, the social pressure over women keeps them away from credit markets as well as other market-oriented activities including entrepreneurship.

Social capital plays a significant role in the microfinance industry. This is not an exception for underserved urban areas. Lawal *et al.* (2009) found that a direct relationship exists between social capital and the demand for credit. According to Collins *et al.* (2009), loans might come from the social and business network and also from formal and informal lenders, like moneylenders. Within the social network, mutual lending and borrowing are also very common. Therefore, the social network variable is a very important element to determine the demand for micro credit.

Level of education is also one of the important variables that affect households demand for credit (Tang et al 2010). For example, Oladeebo and Oladeebo (2008) identified education as the key determinant of demand for microfinance. Tang et al (2010) also found that an additional year of education by head-household would increase the probability of borrowing by another 2.5 percent. However, the impact of education was not the same rather it varied considerably by kind of financial institutions (formal or informal). Chen and Chiivakul, (2008) argue that, education, at the primary and secondary level may affect positively, but at university level education has a negative but insignificant effect. This could imply that highly educated individuals already enjoy high income and wealth and have little need to borrow. Further Bendig *et al.*(2009) demonstrated that better-educated households are likely to use credit from formal financial services.

Literature (Kausar, 2013; Mpuga, 2004; Tang *et al.* 2010) reveals that transport costs directly affect the demand for micro credit. Researchers employ in their studies distance from the nearest bank to capture transport costs. This is, in fact, reasonable and true in the case of rural areas, but in underserved urban areas this may not be an issue since bank branches are located around.

Households may desire a higher debt while they are in a high current income level (Chen and Chiiyakul, 2008). On the other hand, when income is very low, the marginal utility of consumption is very high, which leads to strong demand for credit. In addition, individuals more likely to borrow once they acquire some assets which serve as collateral. At the middle level of wealth, however, an increase in endowment can increase the consumption needs and hence the demand for loan increases.

The asset of the household is also an important element that households take in to consideration when borrowing decision is made. In the case of farmers, Duflo *et al.* (2008) found that the amount of livestock owned has a negative influence on demanding credit as the households need no more capital. According to Mpuga (2004) and Mpuga (2008), it is not the number of the assets rather the value of assets (e.g., building, land) owned by the household and other dwellings that strongly influence demand for credit. Households with assets tend to borrow from formal sources since they can be used as collaterals. Low-income households without assets relay on the informal sector. Urban poor with no such assets is unable to borrow from formal sources of finance.

The level of risks is another factor that affects the demand for credit. If the level of the background of economic risk is stronger, the households might be less inclined to ask for a loan.

Overall, Livingston and Ord (1994) argued that the amount an individual wishes to buy of a commodity depends on several factors, as the standard microeconomics indicates. Firstly is his/her preference, which may be influenced by factors such as age, gender, education or religion. Secondly, the amount an individual buys may depend on the price of the commodity. In the credit market, this consideration is on implicit and explicit costs of credit, which are added costs to business operators and have to be considered when making a decision to borrow or not to borrow and from which source. Thirdly, individuals' demand for a good depends on the availability of other goods. In the case of the credit market, this applies more to close substitutes like credit from formal banks, semi-formal and informal sources. Lastly, the size of a household's income affects the amount it buys of a commodity. If the income increases, they will be able to buy more. This argument holds only for necessity goods such as credit borrowing to finance business operations. Otherwise it will not apply to inferior goods. Nevertheless, in case

of demand for credit, how would be this applied? It depends on whether an individual borrows for consumption, emergency, or investment.

Considering all of the factors, the following conceptual model is proposed to examine determinants of demand for credit in underserved urban settlements

$$DfC = F(H, Y, V, S)$$

Where DfC represents the demand for loans. H is a vector representing individual and household characteristics such as gender, level of education, age, and dependency ratio. Y is household income. V represents the credit variables for example: interest rate charge on loan, credit distance and asset endowment and S is a set of social capital variables.

Demand for credit is a binary variable where demand and access to credit take a value 1, otherwise 0. Therefore, the dependent variable is dummy (1, 0) whether or not a respondent demand for credit within the last 3 years.

Econometric Model

We first treat low-income urban households' choice of whether to borrow any credit or not as well as their decision on which credit markets – formal, semi-formal and informal, to borrow credit from as three independent binary decision. Since the study identifies that households borrow money from informal sector with interest and without interest, in particular, the study employs four separate Probit models to estimate the probability of a low-income urban household borrowing from formal credit markets, borrowing from semi-formal credit markets, and borrowing from informal credit markets (with interest and without interest), respectively. The Probit method is a non-linear probability model. The model has as a probability function the standard normal cumulative distribution function and gives the probability that a certain event will occur. In the model that was employed in this study, the dependent variable is a dummy corresponding to access to credit, which takes the value equal to one when the household has access to it and zero in the other case.

$$P(y = 1 | x) = G(x | \beta) = p(x) \tag{1}$$

x = matrix of the complete group of independent variables and β = matrix of the group of β s.

In equation (I), $G(x)$ is a cumulative distribution function (CDF) which assumes restricted values between zero and one. In the Probit model used in this study, G is a function of standard normal CDF, as follows:

$$G(z) = \Phi(z) = \int_{-\infty}^z \phi(v)dv \quad (2)$$

In which $\phi(z)$ is the standard normal density:

$$\phi(z) = (2\pi)^{-1/2} e^{(-z^2/2)} \quad (3)$$

The Probit model is derived from an underlying non-observed variable model, represented by y^* :

$$\begin{aligned} y^* &= x\beta + e, \\ y &= I[y^* > 0] \end{aligned} \quad (4)$$

Function (4) $I(y^* > 0)$ defines a binary outcome, since it assumes value 1 if the event in brackets is true, and 0, in case it is not. Therefore:

$$y = 1, \text{ if } y^* > 0 \quad (5)$$

$$y = 0, \text{ if } y^* \leq 0 \quad (6)$$

It also assumes that the error term is independent from x in this model, and consequently, the error is symmetrically distributed around mean zero, and $1-G(-z) = G(z)$ to every real z . Following these assumptions, the response probability for y is:

$$P(y = 1 | x) = P(y^* > 0 | x) = P[e > -(x\beta) | x] = 1 - G[-(x\beta)] = G(x\beta) \quad (7)$$

In order to estimate the effect of the explicative variables x_j on $G(x\beta)$, i.e., the probability of success, the calculation of the partial derivative of $P(y = 1 | x)$ will be done:

$$\frac{\partial p(y = 1 | x)}{\partial x_j} = g(x\beta)\beta_j, \text{ in which } g(z) \equiv \frac{dG}{dz}(z) \quad (8)$$

G = CDF of a continuous random variable

g = probability density function

As both functions $G[\cdot]$ and $g(z)$ are strictly increasing, the partial effect of the independent variable x_j on $p(x)$ depends on x due to $g(x\beta)$, and, consequently, the partial effect will have the same sign as β_j , as is clear from the partial derivative above. This process also shows that the effect of two continuous variables is independent of x ; the ratio of partial effects of x_j and x_h is given by β_j/β_h . In case of examining the marginal effects, the partial derivative can be measured and it shows whether the effect is positive or negative, but to find the magnitude of the effect it is necessary to estimate how the whole the cumulative distribution function changes when the explanatory variable changes. Simply, marginal effect (dP/DX) indicates the effect of one unit change in each exogenous variable on the probability of the household demand for credits.

The equation estimated in this study will be:

$$DfC = \beta_0 + \beta Y + \sum_{i=1} \delta_i H_i + \sum_{i=1} \gamma_i V_i + \sum_{i=1} \varphi_i S_i + e \quad (9)$$

Sampling and Data

The study was conducted in urban areas of Sri Lanka. Colombo, Gampaha, Kalutara, Kandy and Nuwara ELLIYA districts were selected since these districts have urban households. A sample survey method was employed to collect data from 1200 poor urban households in these selected districts. The sampled households at each municipal council area and urban council area of the selected districts were chosen at random. List of the Samurdhi beneficiaries was taken as the sample frame.

In collecting the primary data from interviewing respondents in face-to-face, the study used a structured questionnaire including both closed and open-ended questions. The closed-ended questions were used to collect the respondents' background information covering household demographic and socioeconomic variables, demand and access related questions. In addition, a wide variety of factors relating to the respondent's and household conditions were added to the questionnaire. The open-ended questions were included to collect mainly qualitative information regarding some factors that affect credit demand and access, utilisation of loans, issues and constraints, the loan process in all the sectors, the perception of borrowers about financial

institutions and informal sources. The questionnaire was pre- tested by a pilot survey to evaluate for consistency, clarity, to avoid duplication and to estimate the time required during data collection.

Results and Discussion

Table 2 presents the descriptive statistics of the sample respondents. It shows that only 15 % have demanded credits from the formal sector during the last three years, while 31.33 % have demanded from the semi-formal sector. About 29 % have obtained loans (with interest) from informal sector and 24 % have taken informal sector loans without interest.

It also reveals that out of 1200 sample respondents, a majority (26.33 %) of sample respondents belong to the age group of 41-50. 141 (11.75%) sample respondents are found in the age group of below 30. 161 (13.43 %) are found in the age group of above 61 and the average (mean) age of the respondents is 45 years. The results reveal that the average income of the households included in the sample is Rs 30,719 per month. About 32 % (625) of households earn between Rs 20,000 and Rs 50,000 monthly income (table 1). 278 (23.2 %) sample respondents are in the income level of Rs 10,000 – 20,000 while 254 (21.1%) earn more than Rs 50,000 per month (table 1).

The results of the descriptive statistics show that majority of the respondents (55.8 %) have low a level of education (below grade 5). Only 19.2 % of the respondents have passed GCE O/L (table 1). The survey further reveals that the average household size of the respondents are 4.5 members. It is observed that 946 (78.8%) of the households are male-headed. The results of the study also reveal that 49.8 of the respondents are working in the private sector, mainly casual workers and only 9.3 % work in the public sector. 282 (23.5 %) run their own-account businesses.

Regression results of the analysis are presented in table 3. The results confirm the findings of the similar studies in other countries that the household demand for credit is affected by the household investment opportunities in income-generating activities. Urban households with entrepreneurial activities tend to borrow money from formal, semi-formal as well as informal sectors (with interest rates). The same variable in the three models is statistically significant, but the entrepreneurial household variable in the informal model (without interest rate) is not statistically significant (table 3). Households with investment owing investment assets show less

probability to borrow from the informal sector (ME = -0.0547), but borrow from the semi-formal sector (ME = 0.0819) (table 3). Following income growth, the probability of the demand for microloans in informal and the semi-formal sectors increases up to a point and then declines. The higher income urban households are expected to have more investment opportunities and repayment capacities. It is also observed that up to a certain point, household demand for credit tends to fall, following the income growth, since the households in the highest income categories tend to have more of their savings and earnings for investment, or otherwise they might have been less interested in the micro-loans because of their higher lending rates. They might have collateral facilities as well. Though the relationship between the entrepreneurial households and household demand for micro-credits is positive, the effect of wage income from the private and public sector on the demand for micro-loan is insignificant in formal sector and informal sector (table 3).

Of the three human capital variables, school education of household heads, male borrowers (or partner of household heads), and skills and working experiences of household heads, only the level of education and male-headed households are significant (table 3). As found in the results of the Probit models (table 3), less educated urban low –income people tend to borrow from the formal and semi-formal sector. The variable is statistically significant in both models. However, the study found that when people are educated less likely to go for micro credit. One of the most obvious reasons found is that educated people find jobs and they earn regular income. The findings are consistent with the results of others. As the effect of the social capital on credit demand, as represented by the official status of household members, is insignificant in case of borrowing from the formal sources, but significant in all the other sources (table 3).

The results above contradict some of the essential assumptions for the Grameen since Grameen model mainly targets low income or poor communities. However, some of the microfinance institutions and microfinance lenders purposely target better off, rather than the poor ones, in the urban areas of Sri Lanka. As clearly pointed out by one officer of an MFI operating in urban areas, *'we are also doing a survival game with the current economic environment and political situation. It is very difficult to do our work. The sector is a serious crisis now'*.

Conclusion and Recommendation

This paper estimated the determinants of credit access and demand by urban low-income peoples in Sri Lanka. First, the results of the regression analysis show that education, working in the private sector, entrepreneurial households, and male-headed household are positives and statistically significant with the probability to access credit from formal sources by urban households. Meanwhile low-income urban households and age of household's head are negative and statistically significant. Further, we find that less education is significant in the formal and semi-formal sectors.

The following recommendations are made: (i) To strengthen the extension program dealing with efficient use of credit demand for young urban entrepreneurial households; (ii) Government should encourage formal and semi-formal institutions to lend urban entrepreneurial households; (iii) Encouraging microfinance institutions to employ the dual arm model rather than single model, and (iv) government should keep away from direct microfinance businesses and let financial institutions, particularly microfinance institutions run their business activities.

Further, formal banks can establish separate cells to encourage and to promote financial inclusion among financially excluded groups. Since people are very busy and fear of losing their sources of incomes, particularly urban people, formal financial institutions can introduce smart cards in urban areas and open no-frills accounts for them with the help of Municipal Councils and Urban Councils and any other authorises. One such an example is the smart card system that was introduced by Union Bank of India for urban hawkers.

References

- Adera A (1995), Instituting effective linkages between the formal and the informal financial sectors in Africa: A Proposal, *Savings and Development*, 19 (1) 5-27
- Ahmed, Shahnaz, Mbaisi, Jane, Moko, Daniel & Ngonzi, Acent (2005): 'Health is Wealth: How Low-Income People Finance Health Care', *Journal of International Development*, 17 (2), 383-396.
- Akudugu M.A. (2012) Estimation of the Determinants of Credit Demand by Farmers and Supply by Rural Banks in Ghana's Upper East Region. *Asian Journal of Agriculture and Rural Development*. 2(2):189-200.

- Ajagbe F.A. (2012) Analysis of Access to and Demand for Credit by Small Scale Entrepreneurs. Evidence from Oyo State, Nigeria. *Journal of Emerging Trends in Economics and Management Sciences (JETEMS)*. 3 (3):180-183.
- Amarawickrama, S, Singhapathirana, P, & Rajapaksha, N, (2015), Defining urban sprawl in the Sri Lankan context: with special reference to the Colombo Metropolitan Region, *Journal of Asian and African Studies*, 50 (5): 590-614.
- Banerjee, Abhijit V. & Duflo, Esther (2007): 'The Economic Lives of the Poor', *The Journal of Economic Perspectives*, 21 (1), 141-168.
- Bendig, Mirko, Giesbert, L. & Steiner. S. (2009). Transformation in the Process of Globalisation Savings, Credit and Insurance: Household Demand for Formal Financial Services in Rural Ghana Mirko Bendig , Lena Giesbert , Susan Steiner. *GIGA Working Paper Series, No. 94*, January 2009, Hamburg: German Institute of Global and Area Studies.
- Bhatia. N & Chatterjee, A (2010). Financial Inclusion in the slums of Mumbai, *Economic & Political Weekly*, 45 (42): 23-26.
- Braverman, A. & Guasch, J.L (1986)"Rural credit markets and Institutions in developing countries: Lessons for policy analysis from practice and modern theory," *World Development*, (November 1986).
- CGAP (Consultative Group to Assist the Poor) (2009), *Microfinance Industry Report*, CGAP, Colombo, Sri Lanka.
- Chen, Ke Chen & Chiivakul, M. (2008). *What Drives Household Borrowing and Credit Constraints? Evidence from Bosnia and Herzegovina*. New York.
- Chularathna, H. (2014). *Improving shelter and livelihood of Urban Poor in Sri Lanka with Colombo Case Study*. New Delhi.
- Collins, Daryl (2005): 'Financial instruments of the poor: Initial findings from the Financial Diaries study', *Development Southern Africa*, 22 (5): 123-156.
- Collins, Daryl; Morduch, Jonathan; Rutherford, Stuart & Ruthven, Orlanda (2009): *Portfolios of the Poor: How the World's Poor Live on \$2 a Day*, Princeton: Princeton University Press.

- Cui, Y, Sun.G, Siddik M.N.A, & Liu X, (2017), Analysis on determinants of rural household credit in China, *Journal of Interdisciplinary Mathematics*, 20 (5): 1179-1201
- Das, R, (undated), Urbanization in Sri Lanka: A case of Colombo, Thesis submitted to the Centre for Urban Economic Studies (Certificate of Urban Management and Planning), University of Calcutta, (Last accessed 15/December/ 2018.
<https://www.academia.edu/4042362/Urbanization- Case Analysis of Colombo>
- DCS, (2016) *Household Income and Expenditure Survey*. (2016). Battaramulla: Department of Census and Statistics
- Duflo, Esther Jameel, Abdul Crepon, B Pariente, W & Devoto, F. (2008). *Poverty, Access to Credit and the Determinants of Participation in a New Micro-credit Program in Rural Areas of Morocco*. Access.
- Fischer, I., (1930). *The Theory of Interest*. New York: MacMillan.
- Friedman, M., (1957), *A Theory of the Consumption Function*, Princeton UP for NBER
- Kausar A. (2013). Factors affect microcredit's demand in Pakistan, *International Journal of Academic Research in Accounting, Finance and Management Sciences*, 3 (4): 11-17
- Kofarmata Y.I, Applanaidu S.D, & Hassan S. (2016), Examination of the determinants of credit constraints in the rural agricultural credit market of Nigeria, *Research Journal of Applied Sciences*, 11 (5) 235-239.
- Kongovi V & Sinha S (2017), Microfinance sector in Sri Lanka: Opportunities and growth strategies,
https://www.microfinancegateway.org/sites/default/files/publication_files/intellecap_thought_note_sl_mfi_.pdf Last accessed 27 April 2019.
- Kulasabanathan, R., & Geetha, M. (2011). *Appropriateness of the Sri Lanka poverty line for measuring urban poverty: The case of Colombo*. London, United Kingdom: Human Settlements Group. doi:http://pubs.iied.org/pdfs/10606IIED.pdf

- Lawal J.O, Omonona B.T, Ajani O.I, & Oni A.O. (2009) Effects of Social Capital on credit Access among Cocoa Farming Households in Osun State, Nigeria. *Agriculture Journal*. 4(1):184–191.
- Livingston, A & Ord, D. (1994), *Economics for Eastern African* (Nairobi: East African Educational publishers).
- LMPA, (2018), *Annual Report 2017/28*, Lanka Microfinance Practitioners Association, Colombo.
- Messah, O.B., & Wangai, P.N., (2011). Factors that Influence the Demand for Credit among Small Scale Investors: A case Study of Meru Central District, Kenya. *Research Journal of Finance and Accounting*, 2(1): 74-101.
- Modigliani, F. (1986), “Life cycle, individual thrift, and the wealth of nations” (Nobel Lecture delivered in Stockholm, Sweden, December 9, 1985), *The American Economic Review*, 76 (3):297-313.
- Modigliani, F. & Brumberg, R (1954), “Utility analysis and the consumption function: an interpretation of cross-section data”, in Kurihara, K., (ed.) *Post-Keynesian Economics*, Rutgers UP, New Brunswick, NJ, 388-436
- Modigliani, F. (1986). Life cycle, individual thrift, and the wealth of nations. *Science (New York, N.Y.)*, 234(4777), 704-12
- Modigliani, Franco & Miller, M. H. (1958). The American economic. *The American Economic Review*, 48(3), 261-297.
- Morduch, J. (1995) ‘Income Smoothing and Consumption Smoothing’, *Journal of Economic Perspectives*, 9 (3) 103–14.
- Mpuga, P. (2004). Demand for Credit in Rural Uganda: Who Cares for the Peasants? By. *Human Development*. 12 (3) 25-47
- Mpuga, P. (2008). Constraints in Access to and Demand for Rural Credit: Evidence from Uganda. *Most*, 1-28.
- Nwaru J. C. (2011). Determinants of informal credit demand and supply among food crop farmers in Akwa Ibom State, Nigeria. *Journal of Rural and Community Development*. 6(1): 129-139.

- Oladeebo J.O, & Oladeebo O.E. (2008) Determinants of Loan Repayment among Smallholder Farmers in Ogbomosho Agricultural Zone of Oyo State, Nigeria. *Journal of Social Science*. 17(1): 59-62.
- Premaratne, S.P, Senanayake, S.M.P, & Warnasuriya, M, (2012) Empowerment of women through Self Help Groups (SHGs): A study of SHG Microfinance Project in Sri Lanka”, *UEH Journal of Economic Development*, University of Economics, Vietnam, 12(2):17 – 36.
- Ramsey, F., (1926), A Mathematical Theory of Saving”, *Economic Journal* 38 (2):543-559
- Ravichandran, D. 2016. Multiple Borrowing and Loan Repayment: A Study of Microfinance Clients in the Trincomalee District. *3rd International Conference on Social Sciences* (3rd ICSS), 30th September - 01st October 2016, Research Centre for Social Sciences, Faculty of Social Sciences, University of Kelaniya, Sri Lanka. p 129.
- Rutherford, Stuart (2003): ‘Money Talks Conversations with Poor Households in Bangladesh about Managing Money’, *Journal of Microfinance*, 5(2): 43-75.
- Semasinghe W.M, (2015), Multidimensionality of urban poverty: An inquiry into the crucial factors affecting wee-being of the urban poor in Sri Lanka, *International Journal of Economics, Commence and Management*, 3 (11): 363-374.
- Senanayake, S.M.P, Wimalaratana, & Premaratna S.P., (2016). The Role of Informal Sector in the Sri Lankan Economy, *Sri Lanka Economic Journal*, Vol. 13 (2): 73-111
- SEVANATHA (2003). *Urban slums report: the case of Colombo, Sri Lanka*, Urban Resource Center, Colombo, Sri Lanka.
- Tang, S. Guan, Z. and Jin, S. (2010). Formal and Informal Credit Markets and Rural Credit Demand in China. Paper presented at Agricultural & Applied Economics Association 2010 AAEA, CAES, & WAEA Joint Annual Meeting, Denver, Colorado, July 25-27, 2010
- Tilakaratna, G., & Hulme.D (2015). Microfinance and Multiple Borrowing in Sri Lanka: Another Microcredit Bubble in South Asia?, *South Asia Economic Journal* 16 (1) 46-63
- Tilakaratna, G., & Hulme D. (2013). Microfinance and Multiple Borrowing in Sri Lanka: Another Micro-credit Bubble in South Asia? Paper presented at the *Third European Research Conference on Microfinance*, held in Kristiansand, Norway, 10–12 June 2013.

Tu, T.T.T, Viet. N.Q, & Loi H.H (2015) Determinant of Access to Rural Credit and Its Effect on Living Standard: Case Study about Poor Households in Northwest, Vietnam, *International Journal of Financial Research*, 6 (2): 20-38

UN-HABITAT (2003), *The challenge of slums: Global Report on Human Settlements, 2003*, United Nations Human Settlements Programme, UN-HABITAT.

Varghese G. & Viswanathan L. (2018). Financial inclusion: opportunities, issues, and challenges, *Theoretical Economics Letters*, 8 (2): 1935-1942.

World Bank. (2018). World Development Indicators | DataBank. [online] Available at: <http://databank.worldbank.org/data/reports.aspx?sourceWorld-Development-Indicators> [last accessed 28 Nov. 2018].

Zeller M. (1994) *Determinants of Credit Rationing: A study of Informal lenders and Formal Credit Groups in Madagascar*. Food Consumption and Nutrition Division, International Food Policy Research Institute, Washington, D.C. U.S.A.



Table 2- Descriptive Statistics of the variables included in the models

Variables	Frequency	%	
Demand for credit	Formal sector	180	15.00
	Semi-formal sector	376	31.33
	Informal (with interest)	335	27.92
	Informal (without interest)	292	24.33
Household's head level of education-	Below grade 5	670	55.8
	Grade 6 to 10	298	24.8
	pass GCE O/L and above	232	19.2
	Total	1200	100
Age of the Household's head (years)	Less than 30	141	11.75
	31- 40	295	24.58
	41-50	316	26.33
	51- 60	287	23.92
	More than 60	161	13.42
	Average	45 years (mean) 43 (mode)	
Private sector Employee	598	49.8	
Entrepreneurial households	282	23.5	
Households owing investment assets	182	15.5	
Social Networks (membership of community organization, other than funeral aid societies)	507	42.3	
Major risks (risk takers) Questions used to measure risk attitude (willingness to pay for a lottery, risk aversion scales) and develop a risk index. If the index value is more than 50%, the person is considered as risk taker.	424	35.3	
Male-headed households	946	78.8	
Public and semi government sector Employee	112	9.3	
Family size (mean and mode)	4.55 (mean) 5 (mode)		
Income: 1= less than Rs 10,000, 0= otherwise	43	3.6	
Income: 1= Rs 10,000 – 20,000, 0= otherwise	278	23.2	
Income: 1= RS 20,000 – 50,000, 0= otherwise	625	32.1	
More than Rs 50,000 per month	254	21.1	
Household income (average)	Rs 30,719		

Table 3: Probit Models: Demand for Credit

Variables	Model 1 All sectors		Model 2 Formal sector		Model 3 Semi-formal Sector		Model 4 Informal Sector (with r)		Model 5 Informal sector (with out r)	
	β	ME	B	ME	β	ME	β	ME	β	ME
Household's head level of education- Grade 6 to 10†	0.11300 (0.1281)	0.0449	0.4282*** (0.2351)	0.0402	0.3368*** (0.2045)	0.0477	0.0849 (0.1577)	0.0201	-0.2322 (0.1713)	-0.0331
Household's head level of education- pass GCE O/L and above†	-0.01442 (0.0866)	-0.0057	-0.0023 (0.1325)	-0.0003	0.0643 (0.1158)	0.0108	-0.0204 (0.1029)	-0.0049	-0.0231 (0.1277)	-0.0029
Private sector Employee†	0.25609** (0.11858)	0.1011	0.3397** (0.1218)	0.0481	-0.1382*** (0.1032)	-0.0219	0.1693*** (0.1128)	0.0394	0.6613* (0.2217)	0.0626
Entrepreneurial households†	0.02936 (0.1135)	0.0117	0.0427** (0.0215)	0.0051	0.2431*** (0.1471)	0.0442	0.0972** (0.0446)	0.0232	-0.0583 (0.1935)	-0.0071
Households owing investment assets†	0.13675 (0.12419)	0.0545	0.0059 (0.1912)	0.0007	0.4063* (0.1475)	0.0819	-0.2455*** (0.1534)	-0.0547	-0.0466 (0.2007)	-0.0057
Social Networks†	0.30172* (0.0850)	0.1198	0.0388 (0.0213)	0.0047	1.1224* (0.1251)	0.2051	-0.0165** (0.0099)	-0.0040	0.4227* (0.1284)	0.0521
Major risks (risk takers) †	0.1748*** (0.0943)	0.0694	0.1543 (0.1543)	0.0195	-0.0797 (0.1374)	-0.0136	0.2321** (0.1090)	0.0543	0.1165 (0.1269)	0.0141
Male-headed households†	-0.08709 (0.09845)	-0.0347	0.2659** (0.1691)	0.0291	-0.1234*** (0.1003)	-0.0214	0.0608 (0.1189)	0.0147	-0.2955 (0.2397)	-0.0415

Public and semi government sector Employee†	-0.2357 (0.16098)	-0.0927	-0.2497 (0.2788)	-0.0256	-	-0.0559	0.0063 (0.1859)	0.0015	0.0680** (0.0257)	0.0081
Age of the Head of household	-0.0071** (0.0033)	-0.0028	-0.0023** (0.0012)	-0.0003	-	-0.0003	-	-0.0012	-	-0.0011
Family size	-0.0266 (0.02207)	-0.0106	-0.0136 (0.0364)	-0.0016	-0.0414 (0.0313)	-0.0069	0.0146*** (0.0125)	0.0036	-0.0369 (0.0348)	-0.0046
Income: 1= less than 10,000, 0= otherwise†	-0.8394* (0.2705)	-0.2973	-	-0.0212	-	-0.0679	0.5856*** (0.3378)	0.1069	-	-0.0036
Income: 1= 10,000 – 20,000, 0= otherwise†	-0.5809* (0.1759)	-0.2248	-	-0.0103	-0.4979 (0.2251)	-0.0719	0.3308*** (0.1925)	0.0749	0.0086 (0.2779)	0.0011
Income: 1= 20,000 – 50,000, 0= otherwise†	-0.4541* (0.1614)	-0.1796	-0.0559 (0.2404)	-0.0068	-0.2010 (0.1983)	-0.0346	-0.3599 (0.1732)	-0.0749	-0.0512 (0.2613)	-0.0065
Intercept	0.3464 (0.3267)		-1.7210 (0.5143)		-1.7504** (0.4575)		-		-	

* significance at 1%, ** significance at 5%, *** significance at 10%. Standard errors are given in the parentheses
(†) dy/dx is for discrete change of dummy variable from 0 to 1. ME for marginal effect