THE IMPACT OF MICROFINANCE: *EVIDENCE FROM ERITREA*

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Nemariam Yohanes Mengistu

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Prof. Dr. Arjun S. Bedi (Supervisor)
Dr. Matthias Rieger (Reader)

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Inquiries:

Postal address:	Institute of Social Studies P.O.Box 29776 2502LT The Hague
Location:	Kortenaerkade 12 2518 AX The Hague The Netherlands
Telephone:	31704260460
Fax:	31704260799

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List of Acronyms

AIMS	Assessing the Impact of Microenterprise Services
ASA	Association for Social Advancement (Bangladesh)
ATT	Average Treatment Effect on the Treated
BoE	Bank of Eritrea
BRAC	Bangladesh Rural Advancement Committee
DCDF	Eritrean Community Development Fund
ECDF	Eritrean Community Development Fund
EDIB	Eritrean Development and Investment Bank
ERN	Eritrean Nakfa (Eritrean Currency)
GoE	Government of the State of Eritrea
HCBE	Housing and Commerce Bank of Eritrea
MDG	Millennium Development Goals
MFIs	Microfinance Institutions
MND	Ministry of National Development
NGO	Non-Governmental Organizations
NICE	National Insurance Corporation of Eritrea
NSO	National Statistics Office
OLS	Ordinary Least Square
RCT	Randomized Control Trial
SMCP	Saving and Microcredit Programme
UN	United Nations
UNISCO	United Nations Educational, Scientific and Cultural Organization
USAID	United State Agency for International Development
VSLA	Village Saving and Loan Association

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Abstract

Since 1996, a saving and Microcredit Program (SMCP), has been operational in Eritrea. Until now no comprehensive impact assessment has been conducted on the program. The objectives of this study are to: (a) ascertain the determinants of household decision to participate early in the program; (b) identify the factors that influence loan size; (c) determine the impact of SMCP as well as the effect of duration of exposure, loan cycle and loan size on the welfare of the participating households in terms of income, expenditure, household asset acquisition, housing improvement and monthly enterprise sales. The study relies on a cross-sectional household survey that was conducted in 2016.

The findings indicate that age, perception of SMCP timeline on loan disbursement and formal education positively and significantly affect early participation in SMCP. Regionally, Anseba region is less likely to influence early participation in SMCP. Tesseney region, Bilen ethnicity, individual loan, duration of exposure and formal education appeared to have positive and significant influence on the loan size of SMCP clients. Furthermore the study confirmed SMCP has a positive and significant impact on household asset acquisition and housing improvement of its borrowers.

The paper also analysed the effect of duration of exposure in the program, loan cycle and loan size on the outcome variables. The results show that duration of exposure, specific year of exposure and specific loan cycle have significant effect on household asset and housing improvement. Moreover dummy loan cycle and loan size have positive and significant effect on income. While duration of exposure and loan size have positive and significant effect on monthly total enterprise sales. However only duration of exposure has significant effect on monthly household expenditure.

Relevance to Development Studies

Microfinance has gained considerable attention in development studies as a development intervention to help reduce poverty. As a result many governments and donor agencies have been working on the development of microfinance that provides small and collateral free financial access to the poor. Studies of the impact of microfinance and its effect over duration of exposure, and the effect of the specific loan cycle and loan size on various welfare outcomes provides information to redesign microfinance programmes and/or support their spread as a tool to reduce poverty. Analyses of the type presented in this paper is clearly relevant for determining the effectiveness and sustainability of microfinance and hence clearly relevant for development studies.

Keywords

Household, Microfinance, MFIs, SMCP and outcome variables

CHAPTER 1: INTRODUCTION

1.1 Introduction

During the last two decades, microfinance has been seen as solution to eradicate poverty and ease the hardship of livelihood of many poor people around the globe. Accordingly, this financial innovation holds centre stage in policy making in many developing countries. At the end of 2013, over 210 million people in the world were receiving microcredit (State of Microcredit Summit Campaign 2015). The main focus of microfinance is providing financial services, including loans, savings and insurance to low-income people who lack the required collateral to access conventional lenders. Microfinance enables the poor to obtain small loans at the beginning but progressively bigger loans over time. Although over time, these loans are expected to improve the livelihood of borrowers through income generating activities the empirical evidence is debatable and inconclusive (Duflo et al. 2011). It is, therefore, useful to understand the behaviour of the clients, what determines participation, and to what extent livelihood is impacted by program participation. In the case of Eritrea, it has been more than twenty years since a national level microfinance program has been in operation, but questions still remain if and to what extent these programs have been successful in achieving their intended goals?

The objective of this study is to analyse factors that influence participation in Eritrea's Saving and Micro-credit Program (SMCP), loan size and the impact of SMCP as well as the effect of duration of exposure, loan cycle and loan size on the welfare of the participating households in terms of income, expenditure, household asset acquisition, housing improvement and monthly enterprise sales. Given the nature of the data which is restricted to SMCP borrowers, this thesis makes a distinction between those who have been members of SMCP for a maximum of two years (late participants or the control group) and with those who have been clients of SMCP for three or more years (early participants/treatment group). Specifically, the study focuses on what motivates early participation and thereafter compares outcomes between early and late participants. OLS regression, logit and ordered logit models are applied to investigate the research questions. The impact evaluation is based on cross-sectional data collected in 2016.

Generally the findings indicate that age, perception of SMCP timeline loan disbursement and formal education positively and significantly affect SMCP early participation. Anseba region, individual loan, duration of exposure and formal education appeared to have positive and significant influence on the loan size borrowed by SMCP clients. The study further confirmed that the microfinance program of SMCP has a positive impact on household asset acquisition and housing improvement of its borrowers. As well duration of exposure has positive and significant effect on monthly household expenditure, monthly total enterprise sales, household asset acquisition and housing improvement.

1.2 Country Background

Eritrea, was liberated from Ethiopia in 1991 after 30 years' war. Following a national referendum, it became officially independent in 1993.

Eritrea is located in the Horn of Africa (See map 1), bordered on the North and West by Sudan, South East by Djibouti, East by the Red Sea and to the South by Ethiopia. It has six administrative regions; Maekel, Debub, Anseba, Gash Barka, Northern Red Sea and Southern Red Sea with an estimated population of 3.7 million[1]. Eritrea has nine different ethnic groups speaking nine different languages and professing two major religions, namely Christianity and Islam.

The livelihood of the majority of the population (65-70%) depends on rain-fed crop production, cattle-raising and artisanal fishing using traditional production systems. After independence, Eritrea started nation building process. Its economy, physical infrastructure, and social and administrative institutions had been destroyed during the thirty-year war of independence. Immediately following independence, Government priority was reconstruction and rehabilitation of the economy and delivery basic social services. Rural development was particularly important as most of the people live in rural areas. The effort resulted in several achievements between 1993 and 1997, during which Eritrea registered remarkable annual economic growth. GDP growth reaching 7.9% in 1997 and inflation was below 10% (Addison 2003). Basic social services like education, healthcare and transportation also improved significantly.

Map 1.1 Eritrea map with all its administrative regions[2]

[1] National Statistics of Office Eritrea 2016

[2] https://www.bing.com/images/search?q=eritrean+map&qpvt=eritrean+map&FORM=IGRE accessed on 30 October, 2017

However, in 1998 a border war broke out with Ethiopia and disrupted socio-economic progress. The war resulted in the destruction of the economic and social infrastructure of the country including bridges, schools, health facilities, businesses and farms. Even though the war ended in year 2000 with an international border commission asserting Eritrea's sovereignty over the disputed region, Ethiopia is yet to honour the final and binding judgement of the commission. The resulting no-war-no peace situation presently prevailing further hampered socio-economic development of the country with the exception of mining sector that started production in 2010.

Eritrea is located in an area where arid and semi-arid climatic conditions prevail. Therefore, the country is vulnerable to adverse effects of climate variability and, recurring droughts and environmental degradation hamper agricultural development efforts. Despite these challenges, Eritrea has achieved most of its millennium development goals (MDGs). It achieved the three health MDGs[3] before the official end date of 2015. They are MDG-4 reduce child mortality, MDG-5 improve maternal health and MDG-6 combat HIV/AIDS, malaria and other diseases. Significant progress in education as well. According UNESCO (2017) literacy rate made a substantial improvement reaching 92% in 2013.

The financial sector which is one of the key engines of growth has not been spared from the vagaries of war. It remains small, with low capacity, located mainly in the major cities of the country though the majority of people live in rural areas. Rural areas have very limited access to financial services not only because banks are not, conveniently available, but also due to their inability to provide collateral and other requirements asked by the banks. Hence, it became necessary for the government to start promoting other initiatives to ease access and use of financial services. In 1996, a microfinance programme the saving and Micro-credit programme (SMCP) was established to provide limited financial services to those who cannot access the formal banking system.

It was assumed from the outset that participating households in credit programs have an expectation of enhancing their livelihood by increasing their income and smoothing consumption through a variety of ways including: income generating sources, self-employment, and an increase of savings and minimization risk of vulnerability. But key questions remain on whether or not microfinance has promoted socio-economic development, improved the livelihood of beneficiaries and to what extent. Furthermore, are the gains from microfinance schemes sustainable? Answering these questions with credible evidence remains elusive. This study has been designed to answer some of the questions using Eritrea as a case study.

[3] Eritrea MDG Health Report 2014

1.3 Statement of the Problem and Justification of the study

Since the 1990s, microfinance has gained considerable attention globally as a strategy to reduce poverty by promoting micro and small enterprises development (Berhane and Gardebroek 2011). As a result, many microfinance schemes have been established in the world to provide financial access to the poor living both in urban and rural areas of the world. Some studies show that microfinance improves the economic conditions of the borrowers. Chawdhury (2009) in his assessment microfinance as a critical tool for poverty reduction remarked that, the expansion of microfinance can contribute to supplementing social safety nets during challenging times, and may also contribute to the empowerment of women and create employment opportunities for the poor.

On the other hand, despite its popularity, microfinance's achievements to the intended goals are contested and partial (Hulme 2000). Sinclair (2012:2) also argues that there is little credible evidence that microfinance is a practical tool for poverty reduction. While, there are studies which demonstrate that microfinance can have both positive and negative effects on the livelihood of poor, the bulk of the quantitative evidence on the nature and magnitude of effects are unsubstantial and inconclusive (Duvendack et al. 2011:14). Moreover, there is a knowledge gap between what we know about MFIs from their sponsored research and publicity and the actual effects (Karim 2011). Karim (2011) concludes that overall, there is no empirical evidence which supports the idea that any society has been successful in alleviating poverty with the particular help of microfinance. In other case Bateman and Chang (2009:4) argued that the microfinance model can have short run positive outcomes but the long run aggregate outcome is debatable and it may even be a barrier to sustainable locally driven economic and social development.

Impact assessment is a tool to evaluate the performance of microfinance programmes on the socio-economic conditions of the people. A Saving and Micro-credit Programme (SMCP) activities have been running in Eritrea since 1996. The main objective of the microfinance programme is poverty alleviation through promoting micro and small enterprises development. As in any programme and project, assessing and evaluating impact on society is crucial for sustainability and effectiveness of the programme. There are claims that, microfinance does not help the poor, and instead it enhances leakages where meagre resources are wasted towards meeting un-intended objectives and sometimes encourages corruption. In this regard, assessing the micro finance activities timely and making the findings to policy makers can help to improve the service and achieve the desired objectives of the programme in a better way.

Other studies have been conducted on microfinance in Eritrea. They are different in terms of scope, type of study and methodology. A case study on socio-economic determinants of Eritrea's SMCP loan repayment performance in sub-zone of Eritrea, found out that age, and type of business have negative relationship while gender and credit experience have positive relationship with probability of loan repayment (Asgedom and Muturi 2014). Mehreteab and Lensink (2003) conducted a study on risk behaviour and group formation in microcredit groups in Eritrea through homogenous matching

hypothesis[4] and they found that there is a non-linear relationship between the income of a borrower and risk taking, groups are formed heterogeneously, even with controls for matching frictions and payment problems, borrowers with payment problems in the past take more risks.

Manalo (2003) studied how microfinance institutions respond in conflict environments, taking Eritrea as one of the cases, how and in particular, SMCP responded and operated during the Ethio-Eritrea border conflict in 1998-2000. He explained that during that time SMCP managed to provide financial service to a large number of clients in an environment marked by conflicts. In another case, Hermes et al. (2005) investigated the impact of peer monitoring and social ties with group lending programmes on moral hazard behaviour of participants. Rena et al. (2007) analysed the impact of agriculture and microfinance on poverty reduction by collecting secondary data and by interview with beneficiary and SMCP head office. Rena et al. (2007) concluded that, microfinance has strong capacity to drive economic growth and poverty reduction in Eritrea.

All the studies about microfinance in Eritrea, in terms of comprehensiveness and methodology either do not intend or do not show full picture of the impact of Saving and Micro-credit programme (SMCP) on the livelihood of the participating households. Same true with borrowing effects over years of membership in SMCP, loan cycle and loan size on the welfare of the clients.

More recently, Habte (2016) conducted a PhD thesis titled The Impact of Microfinance on Rural Households' Livelihood in Eritrea. He concludes that SMCP credit activities have a significant impact on the livelihood of participating households in rural areas of Eritrea particularly on household asset, microenterprise profit, household consumption expenditure, nutrition and saving. Even though the methodology he applied was sound, his studies focused only on rural areas, and he used data collected from 4 out of 6 regions of Eritrea.

Since the initial supply of funds to start the SMCP (2006) no additional fund have been injected either from the Government of the State of Eritrea or NGOs. The microfinance institution has been constantly requesting for additional funds from the government for loans to be disbursed. But there is an argument that, there must be an impact and performance evaluation of the microfinance activities in the country. As part of these requests, in 2011, an initiative had been taken to conduct an impact evaluation of SMCP activities on the livelihoods of the borrowers by National Statistics Office of Eritrea. But due to logistical reasons after pre-test interview had been conducted it was not completed. In 2016, College of Business and Economics at Halhale collected data from SMCP clients only. My study, on the other hand, is sponsored by the Government of State Eritrea and I am encouraged to conduct the impact evaluation study with data that has been provided to me. The data for clients of SMCP represents the whole country.

[4] The homogeneous matching hypothesis states that joint liability in group lending induces borrowers with homogenous risk profiles to form groups.

Overall, there is need for the study of impact evaluation of microcredit in Eritrea. It is hoped that this research paper will add value to the existing body of work on microcredit activities in Eritrea by investigating what influence participation in the program and, the impact of SMCP on the welfare of participants. Specifically, the study will examine the effect of years of membership, loan cycle and loan size on welfare of households.

1.4 Research Objectives and Research Questions

Research objectives: the main objective is to investigate the impact of early participation (as defined above) in SMCP on the welfare of households in Eritrea.

Specific research questions

a) What factors and characteristics determine early participation in the SMCP?

b) What factors and characteristics of household influence the size of the loan?

c) What is the impact of SMCP as well as the effect of duration of exposure, loan cycle and loan size on the welfare of the participating households in terms of income, expenditure, household asset acquisition, housing improvement and monthly enterprise sales?

1.5 Limitations of the Study

There are limitations which need to be highlighted. Since the study is based on cross-sectional data, and is limited to SMCP borrowers, there is no clear control group and this limits the credibility of the estimate and it is not possible to control for selection effects. Also, factors that determine continued participation in SMCP may be correlated with outcomes of interest. To elaborate, households who were once members of SMCP but dropped-out due to different reasons are not part of the study. Therefore, depending on the reason why the clients exited from SMCP, the current findings may overestimate or underestimate the impact of the program.

1.6 Organization of the Study

The research paper has the following structure: after the introduction in chapter 1, chapter 2 presents an overview of the financial sector in Eritrea, followed by a literature review and conceptual framework in chapter 3. Chapter 4 provides methodology and the study design followed by results and discussion in Chapter 5. Chapter 6 highlights conclusions.

CHAPTER 2: OVERVIEW OF MICROFINANCE IN ERITREA

2.1 Introduction

This chapter highlights the microfinance sector in Eritrea. Section 2.2 provides discussion of the financial sector followed by an overview of the SMCP in section 2.3.

2.2 Financial Sector in Eritrea

The formal financial sector, especially the banking business in Eritrea, emerged with Italian colonial rule in 1920s. However during the British military administration (1941-1952), the sector was not further developed. During Ethiopian colonial rule (1961-1991) branches of financial institutions of Ethiopia were working in Eritrea. After Eritrea got its independence the newly established central bank- the Bank of Eritrea (BoE) which was created by proclamation No.32/1993 replaced the former branch office of the Central Bank of Ethiopia. Following that proclamation, Eritrea introduced its own currency, the Nakfa in 1997. The introduction of new currency has been enable the Bank of Eritrea to manipulate money and credit without the influence of the Central Bank of Ethiopia (Mengesha and Holemes 2013). In addition, the enactment of the BoE's proclamation No.93/1997 (GoE 1997) and Financial Institutions Proclamation No.94/1997 (GoE 1997) changed and strengthened the role of the bank.

Currently, the financial sector comprises the central bank-Bank of Eritrea; and two commercial banks that is, the Commercial Bank of Eritrea (CBE) and the Housing and Commerce Bank of Eritrea (HCBE). Also, it has one development bank, the Eritrean Development and Investment Bank (EDIB), and one insurance company, the National Insurance Corporation of Eritrea (NICE). CBE is state owned and the largest commercial bank in Eritrea and its main function includes handling demand deposits, saving and time deposit accounts, and credit service. HCBE has other functions and objectives over and above the service given by CBE. It provides long-term loans for construction or for acquiring residential housing, building, infrastructure, as well as providing short-term loans for maintenance and repairs of dwellings. The current interest rate for loans of CBE and HCBE range from 8.5 to 12% depending on the purpose of the loan requested.

EDIB was established in 1996 with the objective of promoting and accelerating the country's economic development by providing development finance for feasible development projects in all the productive sectors. It has a fixed interest rate for all development loans which is 9.5%[5].

[5] According African economic outlook 2017 inflation was 8.9%

2.2.1 Saving and Micro-Credit Programme (SMCP)

Currently the only microfinance institution operating in Eritrea is SMCP. As indicated in the above SMCP has been functioning since July 1996. It was created under Eritrean Community Development Fund (ECDF) to provide financial services to the poor. In the first five years, it has been working under the auspices of the Ministry of Local Government and since the year 2002, it has been operating as a semi-autonomous organization under the umbrella of Ministry of National Development (MND). SMCP started with funds contributed by the Government of Eritrea, World Bank and various other individual donor countries. SMCP works in all regions and for administrative purpose SMCP divides region Gash Barka in to Tesseney and Barentu.

SMCP main objective is to promote the private sector in Eritrea by encouraging the development and expansion of micro and small enterprises by assisting individuals to increase their income generating ability, helping them contribute their part in the food security strategy and overall economic development of Eritrea[6]. SMCP give loan for clients who satisfy certain criteria[7]. Thus, by opening opportunity for accessing loans to a large portion of population, SMCP aims to contribute to local and rural development in Eritrea.

Figure 2.1 SMCP loan officer on his way to disburse loans to clients

Source: SMCP data base

[6] SMCP Brochure 2015

[7] 18 and above years of age, household with low living standard, no access to formal financial institutions and free from indebtedness to other institutions.

Table 2.1 provides SMCP loan size by type of client and loan cycle. SMCP has two mode of loan provision known as Solidarity Group (SGs) in Village Banks (VBs) and Individual Loans. Group borrowers have to organize themselves into groups of three to seven members in order to access loans from the program. Individuals who are members of such groups can obtain short-term progressive loans per cycle that range from ERN 6,000 to ERN 20,000. Group loan cycle runs from one to five loan cycles with an initial start of ERN 6,000 and ends in the fifth loan cycle with a loan size ERN 20,000. Individuals who graduate from group based lending may access an individual loan. Per cycle individual borrowers have access to loans that range from ERN 30,000 in the first cycle to ERN 150,000 in loan cycle eight.

SMCP has been running six loan product which target the specific purpose of clients' activities. These are Micro-Business Loan (MBL), Small scale agricultural loan (SSAL), Oxen loan (OL), Small business loan (SBL), Irrigated agricultural loan (IAL) and Employee loan (EL). The loan repayment term depends on the loan product and ranges from 6 to 24 months.

Figure 2.2 Women clients of SMCP weaving on their work place

Source: SMCP data base

Table 2.1 SMCP loan size by type of client and loan cycle

Individual loan		Group loan	
Loan Cycle	Maximum Loan size/cycle Nakfa	Loan Cycle	Maximum loan size/cycle in Nakfa
1	30,000.00	1	6,000.00
2	40,000.00	2	9,000.00
3	50,000.00	3	12,000.00
4	60,000.00	4	15,000.00
5	80,000.00	5	20,000.00
6	100,000.00		
7	120,000.00		
8	150,000.00		

Source: SMCP data base
Note: 1USD = 15Nakfa [8]

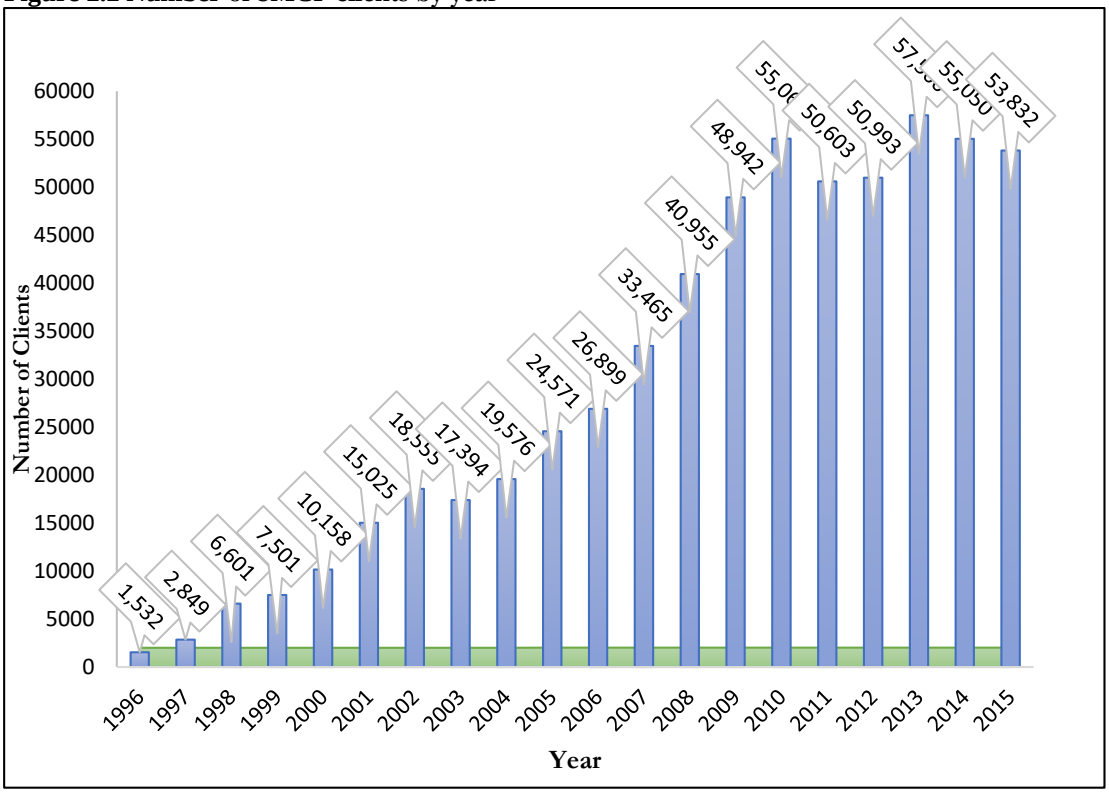
Figure 2.3 provides number of SMCP clients by year. As of 2015, SMCP had 53,832 active clients of which women clients comprised 52%. Figure 2.4 provides loan disbursement with loan repayment from 1996-2015. For the last 20 years the repayment rate on average was around 80% per year. Loans disbursed in the year 2016 (ERN 174.4 million) was less than in 2015 (ERN 276.4 million). The sharp decline was due to a change of the Eritrean currency in 2016. The purpose of the change of the currency was to control widespread counterfeiting of money for criminal purposes; hoarding and stashing of vast sums of money outside the banking system for political and economic reasons and laundering and other illegal activities that can directly affect the economy and politics of the country. Mainly for these reasons, the Bank of Eritrea decided to encourage the use of checks and to minimize the use of cash among the population.

Clients of SMCP are required to make an initial deposit in their SMCP bank accounts of 10% of the approved loan as mandatory saving. SMCP charges 16% interest for both individual and group loan. In regard to the payment of interest on the loan, SMCP applies Declining Balance Method[9]. As a result of this method of calculating interest rate, the real interest rate does not exceed 10% for clients who re-pay regularly. Morduch (2008) based on reports of a survey of 350 leading microfinance institutions, suggests that microfinance institutions charged an interest rate which ranges from 20-40% per year.

[8] It is fixed exchange rate

[9] In microfinance there are two common method of calculating: declining balance and flat rate methods. Declining balance method: borrowers are only paying interest on the actual money on their hand. For example, if a person borrows ERN 12,000 in 01/01/2017 with loan term is 12 months, and repayment schedule is on 01/02/2017. Interest Amount=(P*31*R)/365 where P is outstanding loan(principal) R is SMCP interest rate. The amount of applicable interest will 163. If the client comes to pay ERN 1,000 out of this 163 is interest payment. So the outstanding balance become (ERN 12,000-837) ERN 11,163. In the next month repayment schedule interest is calculated from ERN 11,163. But in flat rate method, interest is charged on the full original loan amount throughout the loan term.

Figure 2.2 Number of SMCP clients by year



Source of Data: SMCP data base

Table 2.2 reports SMCP client exits from 2007 to 2015. The SMCP data base shows that within nine years (2007-2015) out of a total 101,012 SMCP participants, 50,799 left SMCP. That means clients exit per year was 5.59%. The group loan client exits are more than twice the individual loan type clients. Out of total exit, 68.6% exit in the first cycle. In other studies for example Tedeschi (2008) during their analysis of the biases arise from cross-sectional approach found 56% dropouts rate over two year period for Mibanco MFI in Peru. Similarly, the annual dropout rate for BRAC from 1996-1999 varied between 15% and 18% but in the year 2000, it reached 20% (Meyer 2002) and for Zambia it is among 32% - 54% (Musona and Coetzee 2001). SMCP dropout rates are small compared with the above dropout rates of other MFIs.

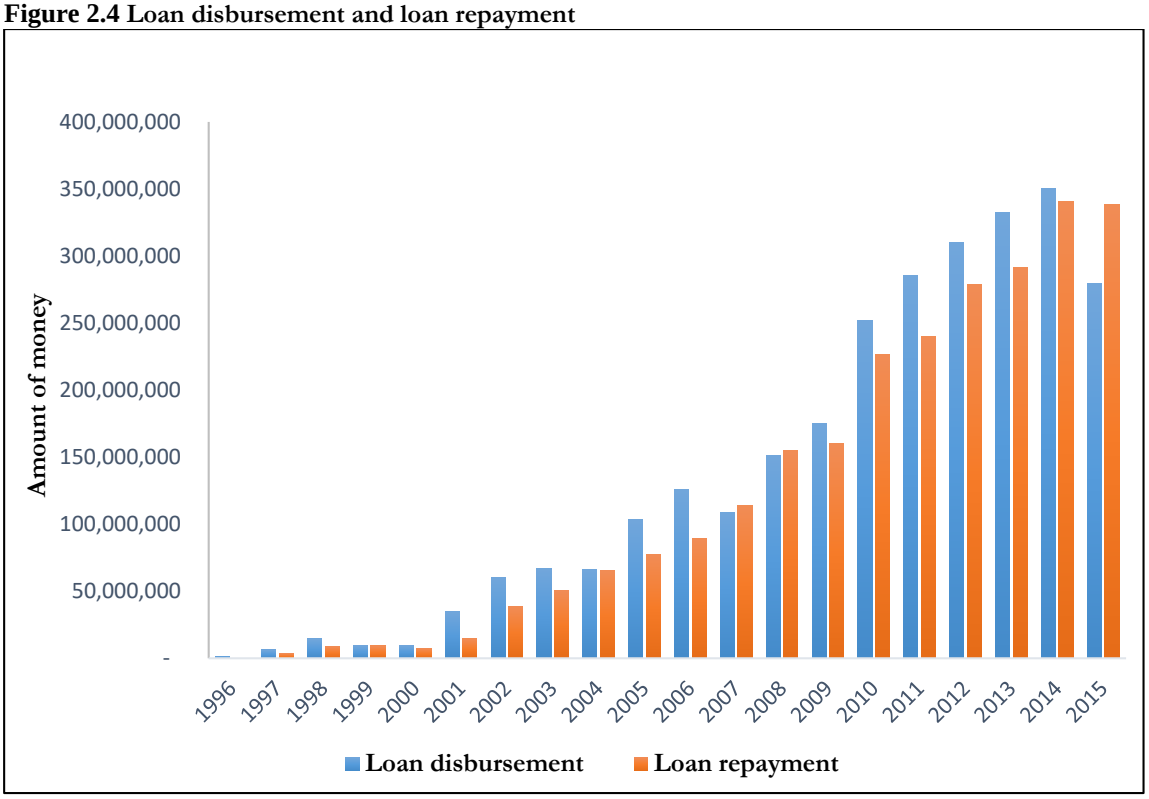
Table 2.2 CP **clients exit by type of clients and loan cycle from 2007-2015**

Type of Client	Loan Cycle 1	Loan Cycle 2	Loan Cycle 3	Loan Cycle 4	Loan Cycle 5	Loan Cycle 6	Loan Cycle 7	Total
Individual	12,914	651	177	177	109	44	-	14,072
Group	21,961	4,047	5,907	2,432	1,331	561	488	36,727
Total	34,875	4,698	6,084	2,609	1,440	605	488	50,799
Percent	34.53	4.65	6.02	2.58	1.43	0.60	0.48	50.29
Per Year	**3.84**	**0.52**	**0.67**	**0.29**	**0.16**	**0.07**	**0.05**	**5.59**

Source of Data: SMCP data base

Clients who leave the microcredit programme are of two types: the first type are those who have exhausted the product and service of MFIs and who "graduate" that is, they have generated the capacity to access commercial banking services. The second type are those for whom participation did not bring great benefit that is, "dropouts" who were dissatisfied by the product and services delivered by MFIs or those who were unable to pay the required interest loan for the service given by MFIs (Goldberg and Karlan 2006). In the SMCP case, the data are not disaggregated by graduates and dropouts.

Figure 2.4 Loan disbursement and loan repayment



Source of Data: SMCP data base

CHAPTER 3: CONCEPTUAL FRAMEWORK AND LITERATURE REVIEW

3.1 Introduction

The main purpose of this chapter is to provide theoretical insights, review of empirical studies on determinants of MFIs participation, and MFIs impacts which form the base of the investigation.

3.2 Definition of Microfinance and Micro-credit

According to Khan and Rahaman (2007:5) the definition of microfinance and micro-credit are:

> Microfinance is an economic development approach that involves providing financial services, through institutions, to low-income clients, where the market fails to provide appropriate services. The services provided by Microfinance Institutions (MFIs) include credit, saving and insurance services. Many microfinance institutions also provide social intermediation services such as training and education, organizational support, health and skills in line with their development objectives
>
> Microcredit a component of microfinance and is the extension of small loans to entrepreneurs, who are too poor to qualify for traditional bank loans. Especially in developing countries, micro-credit enables very poor people to engage in self-employment projects that generate income, thus allowing them to improve the standard of living for themselves and their families.

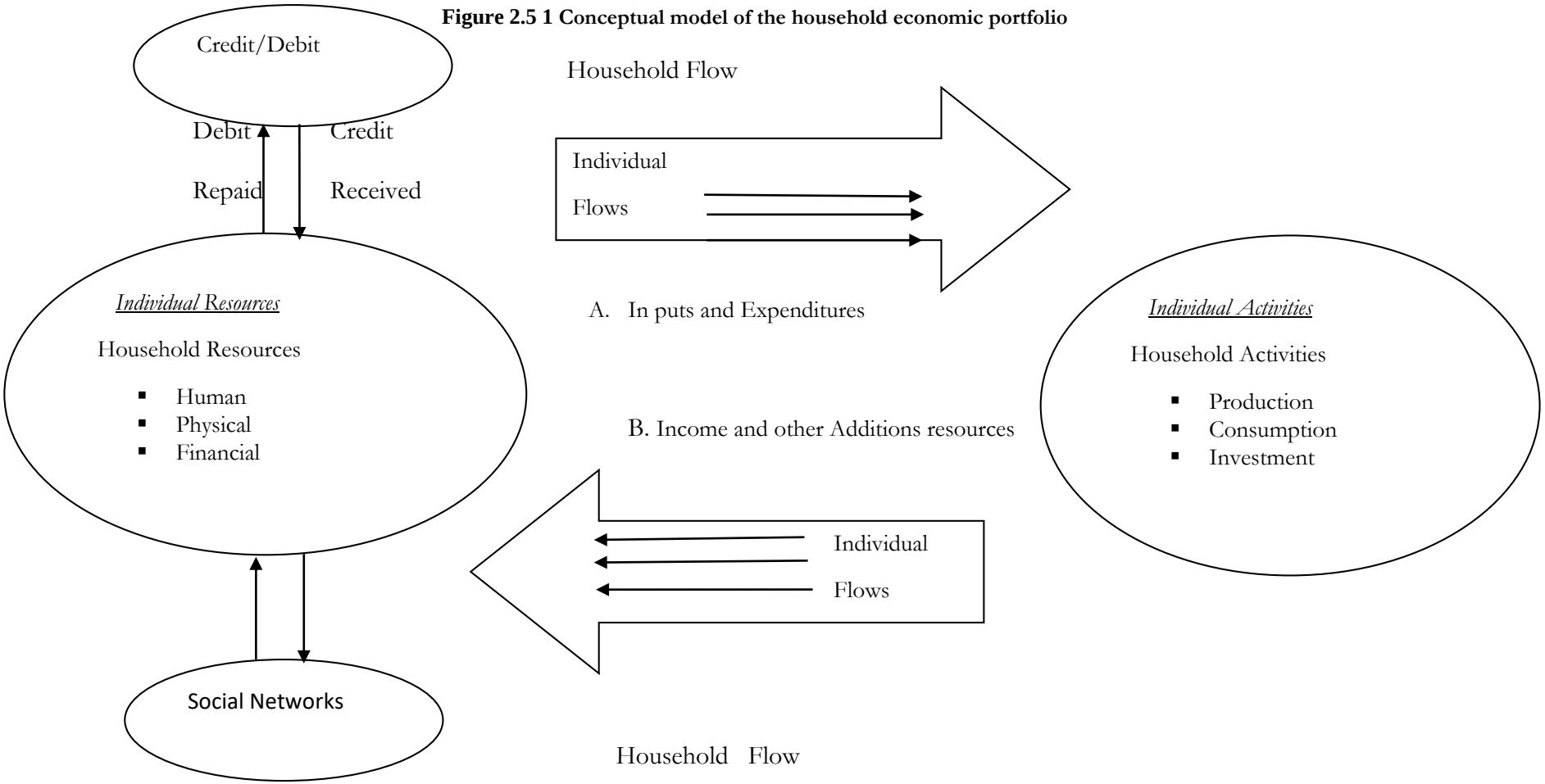
3.3 Conceptual Framework

Chen and Dunn (1996:23) proposed a conceptual model of a household as a portfolio of economic activities and the flow between the activities is based on key concepts of from the anthropological, economic and feminist literature. They defined the household economic portfolio as mainly composed of the set of household resources, activities and the circular flow of interaction between their resources and activities as illustrated in Figure 3.1 below (1996:24). The household resources include human, physical and financial resources. This resource could be owned or borrowed through social relationship and social networks. So, microfinance could be one source of these financial resources. In that case, when a household receives credit it becomes an addition of financial resource to the household that can support to finance its activities. When the household generates resources from the activities supported by the credit, some portion of it will flow out of the household economy to the lender in the form of loan service as well as debt repayment. However receiving credit has two implications: if credit has been used in productive activities it is expected to increase the resources of household, thus increasing the repayment capacity of the household and if credit is used for consumption activities things

will be the other way round. So, to identify whether credit has contribute to the welfare of the household, the household economic portfolio model can be a base to link policy intervention and the impact in a cause and effect relationship (Cohen 2001:13).

Household is a unit composed of group of people, in most cases family who live together and from the economic point of view also, a unit where decisions that can affect economic welfare are made such as the allocations of resources for consumption, production and asset accumulation (Cohen 2001:1). However, the first framework for impact assessment considering household as unit of analysis was developed by Sebstad et al. (1995). Within these conceptual framework impacts could logically be expected at the household, enterprise, and individual levels. However, the unit of analysis of this study is mainly at household level and the impact assessment is investigated on welfare indicators like; income, expenditure, household asset and housing improvement. At the enterprise level, the impact could be on outcome resource base, production process, management, market and financial performance and at the individual level domains control over resources, decision making influence and community participation. But for this study monthly total enterprise will be analysed.

Figure 2.5 1 Conceptual model of the household economic portfolio



3.4 Literature Review

The review of the literature organized into two parts. First the paper review the existing studies related to microfinance participation. Next, impacts of microfinance literature will be discussed.

Participation to microfinance

There are substantial studies about MFIs outreach success. In the march toward outreach, there is exclusion of poor and timing problem of participation. There are questions, first despite being eligible for micro-credit why some individual do not participate and the second why some individuals participate early and while others late? The reason for first question, Maazullah (2016:27) explained could be categorized as supply and demand side barriers. Supply barriers implies that when MFIs intentionally exclude eligible individuals whom they think high-risk clients. NGO-MFIs in Bangladesh have an inclination not to provide loans to the extreme poor (Ashraf 2014). While when an individual decides not to participate, that is self-exclusion considered a demand barrier.

On the supply side, barriers include inadequacy of service delivered by MFIs, MFIs favour to lend to less poor clients, generally membership requirements like forced saving, registration fees and undertake educational and planning activities (Evans et al. 1999). Evans et al. (1999) also conceptualize and list the demand side barriers to participation: insufficient resources to fulfil the required criteria of registration fees and other, ill-health or vulnerability that limit the capacity to utilize credit, female head of household, lack of education and individual and household preferences which may not in position to participate. Out of the conceptualized factors they found that low female education, small household size and landlessness hindered participation in MFIs in Bangladesh.

In addition to the above reasons, Maazullah (2016:27) gave another perspective for non-participation to microfinance programs which tried to link with social networking and psychology. Maazullah (2016:27) explained that the source of difference between participants and eligible but non-participant could be: first individuals are exposed to learning from their peers and communities in general which he considers social networks and second the difference may arise due to "personality traits which captures the way individuals think, feel and act" (as cited in Borghans et al. 2008). Based on this theoretical background Maazullah (2016:52) found that the increase of consciousness, non-business needs, and business with survivalist motives and with at least one chronic patient in the household are drivers of microfinance participation.

From the demand side barrier, Ashraf (2014) in his study to understand the reason for low participation in MFIs among rural poor in Bangladesh found that fear of getting in to risk of loan's negative effect, individual preference of taking loan, and friends negative advice are significant influence for barriers of participation to MFIs. In other case, a study conducted by Webb et al. (2002) to explore the factors that determine the extent of participation among eligible beneficiary to Income Generation for Vulnerable Group Development (IGVGD) that includes micro-credit confirmed that limited goals, beliefs in

the value of attending group meeting, little confidence in the technical training, limited range of choices services and debt aversion of participants are factors that curtail participation. Moreover due to inadequate liquidity within households and unwillingness to bear the risk of indebtedness, rural household may refuse to borrow from MFIs once they are offered the opportunity (Sarpong and Asuming-Brempong 2006).

Similarly the reason why some individuals participate earlier than others can be categorized also in to supply and demand barriers. MFIs focus on providing credit to the poor who have no access to commercial banks and this generally described as an outreach (Hermes et al. 2011). Due to insufficient capital for loan disbursement MFIs cannot reach all eligible poor people at one time. Those who got first opportunity participate early and those who got that opportunity late participate late. Another reason could be institutional dynamics. MFIs may change credit requirement when they face competition from other financial sector reduce their interest rate and attract new clients. Government investment in basic infrastructure like roads, water, electricity and other social services may derive new demand from those clients who are less interested earlier. In general delay in opportunity causes late participation in MFIs. This can be considered supply side barriers which can lead to irregular participation.

In other case also lack of awareness how to use loan and repay back especially poor people in remote area. But as news coming from those who have accessed the microcredit program earlier and becomes successful, potential borrowers start to approach the program. This kind of perception also influences the timing of decision of the household to participate in micro-credit program during the first opportunity they offered. In addition to that, early participation to micro-credit program may arise from awareness which gained through community network or peer information. Okten and Osili (2004) in their study in Indonesia suggest that family and community networks have a larger impact on credit awareness of new credit institutions. Peer effect which is strong within church influences credit access in Guatemala (Wydick et al. 2011).

Most of the studies tried to found out the determinant factors that influence the decision of a household to participate in microcredit programme. Why some individuals participate early and others participate late is less studied even though it has serious consequence in estimating the exact impact of credit on the welfare of the household (Tedeschi and Karlan 2006). As Tedeschi and Karlan (2006) explained in the time between early participants late participants of program, MFIs may change their way of doing business that could cause the groups to differ one another, such as change the interest rate charged, for example lowering interest rate might attract different profile of clients. This changes would cause the comparison of these two groups to be biased. This study is intended to investigate the socio-economic and household characteristics that may affect toward early participation in SMCP.

Impact of Microfinance

As the intensity of access to financial services increases, it enables borrowers to smooth consumption, start or expand businesses, cope with risk, and increase or diversify household income and thereby reduce poverty and improve development outcomes (Buchet et al. 2011). MFIs provide financial services to those who lack collateral and other requirements necessary to access formal financial institutions for credit. However, once, access to microfinance is available, the question of outcome arises immediately (Stewart et al. 2010:11). Stewart et al. (2010:11) further explained that microfinance has to maintain balance between financial self-sufficiency and sustainability of MFIs, the depth of outreach and finally the wellbeing of service recipients. The later implies that MFIs judged whether it reduces poverty and improves the livelihood of the poor as it promises (Stewart et al. 2010:11). As a result MFIs, impact assessment is important to enable them and make sure that they are true to their overall mission. So, what are the unit of measurements of poverty reduction?

In many cases income levels of individual and households is taken as indicators of impact of microfinance. Stewart et al. (2010:11) argue that the impact of microfinance on the poor should have considered different outcome variables rather than income only, such as consumption, health and education outcomes, nutrition improvements, employment levels, empowerment indicators, reduced vulnerability to shocks and strengthened social networks. Duvendack et al. (2011:24) suggested that primary outcomes should include income, health and education whereas secondary outcomes include microenterprise profits and/or revenues, expenditure (food and/or non-food), labour supply, employment, assets, housing improvements, education, health and health behaviour, nutrition, women's empowerment. In this case borrowing is expected to increase the above outcomes directly or indirectly. The existing studies shows mixed evidence and it ranges from substantial positive impact to no impact at all.

In recent time Cintina and Love (2017:11) re-evaluated the effectiveness of microfinance using PSM[10] by setting up two comparison group (comparing MFI borrowers to those without any other loan and to those with other type of loans) and found that positive and significant effect on housing improvement an in purchasing durable goods in both cases while the difference in temptation goods and festivals slightly lower when we compare MFI borrowers with other type of loans. Haque et al. (2017) using data collected from borrowers who completed at least three loan cycle, discovered that microfinance program ASA[11] has positive and significant impact on household income, expenditure and saving. Similarly, Attanasio et al. (2015) suggested that access to group loan has positive impact on poverty reduction. Moreover Imai and Azam (2012) using panel data from Bangladesh reported that MFI loans have positive and significant effect on both household income and food consumption. In addition to that among the most cited studies Pitt and Khandker (1998)

[10] Propensity Score Matching (PSM) method applied to data collected in Randomized Control Trial(RCT) by Banerjee et al (2015b)

[11] ASA is third largest MFIs in Bangladesh and the author uses the length of ASA membership to capture the impact.

found that microfinance has positive impact in poverty reduction and Khandker (2005) also continue to confirm the same result in Bangladesh especially for women participants.

However, there are studies that also question the reliability of microfinance as a poverty reduction tool. For instance, Zinman et al. (2014)[12] find no evidence found for the effect of MFI on income and consumption from a study conducted in Bangladesh. Similarly, even though credit reasonably helps for business creation and expansion, no evidence has been found that links credit to increasing consumption and large sustained consumption or income gains as a result of being a member to a microfinance from one to three years (Banerjee 2013:508). Duvendack and Palmer-Jones (2012) by re-investigating the study of Pitt and Khandker (1998) recommend to policy makers not to rely much on that study due to weak research design, complex statistical analysis and poor data documentation.

From similar studies also Beatriz and Morduch (2015:199) confirmed that despite the popularity of microfinance as a way to raise incomes of the very poor, from the study conducted in SEWA Bank in India, Zambuko Trust in Zimbabwe, and Mibanco in Peru sponsored by the USAID, the average borrowers in India and Peru had net income gains. In addition to that Coleman (2006) in a study where he included in the survey participants of from 'treatment' villages that had received already program support, participants from control villages that had not yet received program support, and nonparticipants from both types of villages. He found that positive impact of the village bank on several measures of household welfare but the impact is significantly larger on the less poor than the poorest of the poor.

Brannen (2010) applied both qualitative and quantitative measurements. In an effort to estimate the impact of the Village Saving and Loan Association (VSLA) program in Tanzania through a sample survey of 170 households, including veteran members (average five years of membership), previous members and incoming members(had not begun saving or borrowing) used as a control group. As his result shows, VSLA program has positive and significant impact on number of income generating activities, expenditure on household asset, meal quality, home ownership and housing improvement. But he could not find evidence of microfinance impact on education expenditure, meal quantity and health expenditure and he further demonstrates that there are benefits of program participation other than investments in productive capital. This is consumption smoothing for basic needs with no change in household income. Hiatt and Woodworth (2006) in their analysis of impact assessment of three village banking NGOs in Central America on alleviating poverty using three groups of clients: New clients, current clients and Ex-clients concludes that current clients who have participated in their village bank for more than a year were observed to earn more money daily as the result less poor than those who had recently joined the microfinance program and those who stay in the microfinance program also improve better than those who leave.

In the case of Eritrea in addition to papers mentioned in the problem statement, Rena (2009) by conducting an in-depth interview with SMCP participants concluded that the success of women entrepreneurs is due to support from the microfinance program. In

[12] They used clustered randomized trial over 16,000 household surveys in Mexico.

addition to that Habte (2016) suggested that SMCP has positive impact on household asset, microenterprise profit, household consumption expenditure, nutrition and saving. In this research paper, the impact of SMCP on monthly household income, monthly household expenditure, monthly enterprise sales, household assets and housing improvement will be analysed. Furthermore, the effect of duration of exposure, loan cycle and loan size on those outcome variables will be analysed. Because as King and Berhrman (2009) explained, the existing impact studies of MFIs focus on evaluating before and after effects, regardless of the timing of participation and dynamics between participation and outcome measurement periods. They further claimed that no attention has been given for how long should treatment groups be exposed to a program before they start to benefit from it. In their explanation prolonging duration of exposure to microfinance is similar in effect to increasing intensity, and thus should lead to a larger impact.

CHAPTER 4: METHODOLOGY AND STUDY DESIGN

4.1 Introduction

This chapter provides the analytical framework and methodological tools employed in the study. The analytical framework, the study design of the paper, data and model specification are presented in section 4.2, 4.3, 4.4 and 4.5 of the chapter respectively.

4.2 Analytical Framework

In this impact evaluation the unit of analysis is the household. Measuring the impact of microcredit intervention requires comparing outcomes when a household participate in the microcredit programme with the same outcomes when a household does not participate (Li et al. 2011). For example, let say Y_{i1} is the value of an outcome when household i participates in the microcredit program and Y_{i0} is the value of an outcome if the same household does not participate in the microcredit program. So, the impact of microcredit on household i is:

$$Y = E(Y_{i1} \mid T_i = 1) - E(Y_{i0} \mid T_i = 1) \quad \ldots\ldots 1$$

However, $E(Y_{i0} \mid T_i = 1)$ is unobserved. This is because the outcomes of program participants had they not participated cannot be observed at the same time. In these cases, the counterfactual data is missing and as a result one cannot be readily computed (Khandker et al. 2010). In principle, in order to obtain treatment effects we need to replace the missing data with estimate of the effect of the program on participants had they not participated. Therefore, to accommodate the concern of missing data for the true counterfactual is find group of program non-participants as a control group and the observed outcome of this control group are supposed to serve as 'counterfactuals' to the outcomes of the treated group (Li et al. 2001). It is assumed that the participants of the program and non-participant has similar characteristics and has the same outcome in the absence of the program.

$$Y^* = E(Y_{i1} \mid T_i = 1) - E(Y_{j0} \mid T_j = 0) \qquad (i \neq j \in N) \quad \ldots\ldots 2$$

Where Y^* is the estimation of Y, i and j two different households in a sample where household i participated in microcredit program and household j does not. Y_{i1} and Y_{j0} are outcomes of the participants in the program and those who does not, respectively (Li et al, 2011).

In this case the problem of bias arises if there is a difference in the mean of outcomes of treatment and control group in the absence of the program intervention (Ravallion 2001).

$$B = E(Y_{i0} \mid T_i = 1) - E(Y_{i0} \mid T_i = 0) \quad \ldots\ldots 3$$

Where B is a bias. So, at least theoretically to get rid of the bias the program has to be randomly assigned to treatment and control group (Duflo et al. 2007). Moreover, there is still bias due to sampling error and non-random program placement. However, the sampling error can be overcome by having large enough samples.

4.3 The Study Design

Impact assessment become increasingly important aspect of development activities as governments, international agencies and aid donors demand assurance that their funds have been well spent. There are several methodological options for conducting impact assessments. One can analyse the impact through experimentation, the humanities tradition which can analyse mainly by focusing on key informants, recording by notes or image, and participatory learning and action (PLA) (Hulme 2000). Hulme (2000) suggests that a mix of these different methods are an optimal impact assessment mechanism.

The scientific method itself has two methodological approaches: experimental approach and quasi-experiment. The experimental approach requires random assignment of participants of the study in to treatment and control group and Randomised Control Trial (RCT) are an example of this approach. This kind of methodological approach can overcome the problem of selection bias. The second methodological approach is quasi-experiment is an empirical method used to estimate the causal impact of a program on its target population and requires to compare the outcome of an intervention of with a simulation of what would have been, had there been no intervention (Khan et al. 2014). Another approach of quasi-experimental method is the control group method. This requires a before and after comparison of a population which receives microcredit and a population which has similar household characteristics but did not receive microcredit (Hulme 2000).

The quasi-experimental approach is not problem free. It has certain problems need to be addressed before proceeding to analysis. These are selection bias which arises from both self-selecting in to the program as well as non-random program placement (Tedeschi et al. 2013). The main source of the selection bias in impact assessment is self-selection in to the microfinance program. The bias may occur if treatment group systematically possess unobserved attributes in which the comparison group may lack it- such as entrepreneurial drive or ability which makes it difficult to identify the impact of the program. For example borrowers with entrepreneurial ability as credit forwarded to them it expected to increase their outcome variables sharply. As the result the impact of the program will be biased upward. In other case the bias may go the opposite direction if the clients of the program are poorer than the comparison group, it underestimates the impact.

The second source of selection bias is non-random placement program intervention. It is caused when the program intervention implemented in a pre-existing infrastructure like roads or nearest to the market or when it occurred in an area has good social services than the comparison group has. This inherited advantage of the treatment group in the absence of the program can overestimate the program impact.

There are certain options that selection bias can be addressed. One of these option is to collect data before program intervention and then participants of the program are randomly assigned to a treatment and a control group. This process can avoid selection bias and can give a robust program impact. In most cases this study does not happen because of high cost and time-consuming process, instead such kind of selection bias problem addressed by selecting the control group carefully (Brannen 2010:47). To use clients who have accepted

in the program but not yet received loan as a control group can avoid the potential systematic difference of the treatment and control group in the absence of the program (2010:48).

In recent time, a new tool for impact of microfinance has been developed by Assessing the Impact of Microenterprise Service (AIMS) at USAID and since it is cheap and easy to implement, it has gained popularity. This cross-sectional impact methodology compares the new program entrants to those who have two or more years of exposure in the program and the difference in their outcomes are called the "impact" of the microfinance program (Karlan 2001). Karlan (2001) explained this approach has two advantages, one of these is that since both the control and treatment group are individuals who joined microfinance institutions at one point or another, it is assumed that they share the same entrepreneurial spirit that derives them towards microfinance. The second advantage is that there is no need to conduct a costly survey to identify non-members to form a control group which is difficult and time consuming.

Using new entrants to the program as a control group requires two major assumptions, which may not be always hold. First, the study approach assumes either no drop-out has occurred or if any, it occurs randomly. The second assumption is that microfinance institution do not change their selection criteria or selection process through time (Tedschi and Karlan 2006). The reason clients exit from MFIs could be dissatisfaction of members with the financial service of the microfinance institution or the reason could be graduation (Wright 2001). If this is the case, a third assumption may be added, the causes of the dropout, either dissatisfaction or graduation from the microfinance institution that may lead to biases that are equal and cancel each other. Failing this assumption could cause two major problems: incomplete bias and attrition bias (Karlan 2001). The dropouts may affect the impact evaluation in two ways. Consider that there are two types of program participants: those who benefited by investing the loan in their business and generate additional income stay in the program and those who are made worse off by failing to invest the loan and then dropout of the program. So, by including those who remain in the program and ignoring the dropouts will lead to an overestimate of the impact of the program.

The study uses new entrants (membership in SMCP maximum for two years) and half of them who do not receive their first loan as control group and compares them with the veterans (three and above years membership in SMCP) treatment group on certain outcome variables. Karlan and Tedeschi (2006:11) suggests that "If for MFIs with lower dropouts rates the bias is found to be insubstantial, such MFIs can decide whether it is worthwhile to include dropouts in their analysis". They further explained that MFIs with low dropouts rate, and the dropouts are part of the study, the bias is found to be negative which implies either the dropouts are 'graduates' or that better of clients tend to dropout. If the estimates are downward biased (effects are underestimated) it means that the dropouts are graduates. Brannen (2010:96) from his analysis of impact evaluation using new entrants as control group confirmed that the current members have benefited more from program participation than the dropouts even though dropouts do not appear to have been negatively impacted. In this study to minimize the selection bias, the study controls for difference in demographic

characteristics: age, gender, marital status, education, household size, number of members who economically active.

4.4 Data

The study employed quantitative data to investigate factors that influence household early participation to SMCP and loan size, to evaluate the impact of SMCP by comparing those who are clients of SMCP maximum for two years (control group) and those who are clients of SMCP three and above years (treatment group) and to analyse the effect of duration of exposure, loan cycle and loan size on the outcome variables.

4.4.1 Survey Design and Sample Selection

The study used cross-sectional data obtained from field survey carried out on SMCP clients by College of Business and Economics Halhale in 2016. The questionnaire was designed to ask detailed question on the socio-demographic, SMCP's service methodology, awareness, accessibility and loan cycle, household characteristics, enterprise level and individual level. The samples are collected from the branches of SMCP using two-stage stratified cluster sampling.

The college used two-stage stratified cluster sampling to select 693 individual respondents out of the 52,300 clients of SMCP. SMCP has been undertaking its activities in 20 branches. In the first stage: Branch-Primary Sampling Units (PSUs) were selected using probability proportional to size sampling based on homogeneity and achieving cost efficiency as well as operational convenience in collecting data to get reliable estimates. Through the above sampling selection methodology 11 branches were selected out of 20 branches in the first stage. In the second stage: Clients/household selected using random sampling methodology.

4.5 Model Specification and Estimation Strategy

To address the main research question, mainly three econometric models are employed. Namely, Ordinary Least Square (OLS), Logit model and ordered logit model.

Logit Model: there are instances where the dependent variable (Y) has qualitative response but the explanatory variables could be quantitative or qualitative response. The dependent variable response can be dichotomous (yes/no) response variable. In such cases, the objective of the estimation is to find the probability where an event can happen (Gujarati, 2004:581). For that purpose, there are three models that can deal for binary response variables: - Linear Probability Model, Logit Model and Probit Model. In most cases logit model is preferred due to its mathematical simplicity (Gujarati, 2004:614). So, this study applied logit model to determine factors that influence early participation in SMCP, the impact of SMCP on household asset and housing improvement as well as the effect duration of exposure in the program, loan cycle and loan size on the above outcome variables. Because these outcome variables are dichotomous involving two mutually excluding alternatives.

OLS: is used to investigate the loan size that a borrower receive, the impact of SMCP on household monthly income and enterprise sales which their value are continuous.

Ordered logit: also used to investigate the impact of SMCP on household monthly expenditure which has polychotomous response.

Independent Variables

The independent variables are regions, ethnicity, gender, age, marital status, level of education, household size, number of children up to 5 years in household, number of children from 6 to 17 years and adults 18 years or older in the household, number of household members who economically active, number of participated children in education, number of dropouts children from school, number of children in kindergarten, elementary, junior, secondary school and in college/University.

Note: the independent variables represented by Z_i is the same in all the following models. However, client's perception on SMCP service like timeline of SMCP, group loan, interest rate and mandatory saving are additionally included as factors that can influence participation. Furthermore, type of client, household assets and SMCP membership also included in the independent variables that influence the loan size.

4.5.1 Factors Influence Participation in SMCP

Factors that influence household early participation to SMCP can be different observable household and demographic characteristics.

Dependent variable

SMCP participation has binary response (early participation and late participation). This gives dependent variable Y that takes 1 if household participated for three and above (early participation) and 0 if household participated maximum for two years (late participation).

For identifying factors that influence participation to SMCP, the logistic regression model is used as:

$$Y_i = F(Z_i) \quad \ldots\ldots 4$$

Where Y_i dummy variable, 1 for early participation in SMCP, 0 late participation. Z_i is covariate that expected to influence participation in SMCP and loan size. Vector of household covariate $\mathbf{Z_i}$ includes: gender, is representing, 1 for female and 0 otherwise. Age indicates the current age of respondent. Similarly, household size is a continuous variable corresponds to total number of people in the household. Region is categorical variable divided in to six binary variables: Northern Red Sea, Barentu, Tesseney, Debub and Maekel. Marital status is non-continuous variable divided into four binary variables: Married, Widowed, Divorced/Separate and single/never married which contains each category zero and one. Current education level of respondent is broken in to three binary variables: Illiterate, informal and formal. Ethnicity is divided in to nine binary variables: Tigrigna, Afar, Bilen and

Tigre, Kunama, Nara, Hidarb, Saho and Rashida which contains zero and one. Number of children in household and number of children who participate in school are continuous variable representing a respondent's current number of children and current number of children who participate in school.

4.5.2 Factors Influence Loan Size

The loan size where a client borrows may depend on different observable household and demographic characteristics.

Dependent variable: is the loan size borrowed by SMCP clients. For identifying factors that influence loan size, the OLS regression equation is set as follows:

$Y_i = F(Z_i)$……..…..……..…..…….5

Where Y_i a continuous variable which indicates loan size borrowed by clients of SMCP. Z_i is covariates that expected to influence loan size.

4.5.3 Impact of SMCP

Dependent variable

The dependent variables are monthly household income and monthly total enterprise sales which are continuous variables, while household assets and housing improvement are outcome variables which have binary responses. Therefore, to estimate the impact of SMCP on these outcome variables, the function is set below:

$Y_i = \beta_0 + \beta_1 T_i + \delta X_i + \varepsilon_i$ ……..6

Y_i represent household income and enterprise sales in the case continuous variable while in the case binary response Y_i is dummy variable, 1 for a borrower who purchase household asset, 0 otherwise. Similarly, 1 for improving houses, 0 otherwise. ε_i is the disturbance term which indicates the value of Y_i deviation from its mean.

T_i indicates SMCP program participation where T=1 when household i in treatment group and T=0 when a household i in control group. β_1 capturers SMCP impact which is the average difference between SMCP treatment and control groups. In other case, β_1 can be amount of borrowing. So, the study can estimate how additional borrowing can affect the income and enterprise sales. The coefficient 'δ' captures the effect of covariates on the outcome variables.

The impact on monthly household expenditure

In this study, monthly household expenditure is characterized as polychotomous of four categories ERN 500-1000, ERN 1,001-2,000, ERN 2,001- 3,000 and above ERN 3,000. These categories have ordered responses that takes values (1, 2, 3 and 4) which represent for

each category. So, the study applied ordered logit to analyse the impact of SMCP on expenditure.

Ordered logit model: is a regression model used to estimate for an ordered multi-response of an outcome variable. Suppose that monthly household expenditure (Y_i) has 4 ordinal ranked outcomes, with Y_i=1 the "lowest expenditure" and Y_i=4 the "highest expenditure". Further suppose that Y^*_i (which is unobservable, we only know when it crosses thresholds)

$Y^*_i = \beta_i X'_i + \varepsilon_i$ Y_i=j if $a_{j-1} < Y^*_i \leq a_j$ ……..7

Where j=(1,2,3 and 4 represent category of expenditures)

The probability that observation i will select alternative j is;

$P_{ij}=P(Y_i=j)=p(a_{j-1} < Y^*_i \leq a_j)=F(a_j - \beta_i X'_i) - F(a_{j-1} - \beta_i X'_i)$……*8*

F is the logistic cdf $F(z)=e^z/(1+e^z)$……..9

The ordered logit model with j alternatives will have one set of coefficients with (j-1) intercepts and will have j sets of marginal effects.

The marginal effects for the ordered logit is an increase in a X_k on the probability of selecting alternative j is:

$\partial p_{ij}/\partial x_{ki}=\{F'(a_{j-1} - \beta_i X'_i) - F'(aj - \beta_i X'_i)\}$……..*10*

The interpretation of the marginal effects are each unit of increase in the explanatory variable increase/decrease (depending the sign of the coefficient) the probability of selecting alternative j by the marginal effect expressed as percent.

4.5.4 The Effect of Duration of Exposure, Loan Cycle and Loan Size on Outcome Variables

Most of the existing studies of the impact evaluation focuses only before and after effects of program, regardless of the timing of participation and the dynamics of between participation and outcome measurement (Berhane & Gardebroek 2009). It is assumed that, benefits of credit are different across target households depending on the time of exposure and intensity of the program. Because through the program life, it is not expected clients to join the program at the same time and access the same loan size. As the result the impact of microfinance credit varies across the participated households. One of the objectives of this study is to evaluate whether duration of exposure, loan cycle and the loan size has effect on the welfare indicators of the household.

The effect of duration exposure in SMCP: this study analysed the effect of duration of exposure in SMCP on the outcome variables. In this case, outcome variables are function of SMCP membership in years and covariates and generally has the following functional form:

$Y_i = F(X_i, Z_i)$……..*11*

Where X_i is SMCP membership in years of household i where X_i is 1-18 years and Z_i is Kx1 vector of household characteristics. So, the linear regression for estimation the parameters are as follows;

$Y_i=\beta_0+ \boldsymbol{\beta}X_i+ \delta_i\boldsymbol{Z}+ \varepsilon_i$ ……..……..…….……..12

Where β_0 is predicted value of Y_i when X_1-X_9=0 and Z_i =0. $\boldsymbol{\beta}$ estimates the borrowers' duration of exposure in years in SMCP and δ is 1xK vector and captures the effect of vector of household characteristics. The error ε_i where $i=1, 2,……, N$ with $E(\varepsilon_i)=0$ and $Var(\varepsilon_i)= \sigma^2$ (Wooldridge, 2010:10).

The effect dummy year: in addition, to account the effect of each year, membership in years is divided in to nine dummy years (1-8 dummy years + 9-18 one dummy year). So the study models the effect of dummy years and vector of household characteristics to the outcome variables. Therefore, the outcome variables are function of dummy years and vector of household characteristics and denoted as follows:

$Y_i= F(X_1, X_2,…….. X_9, Z_i)$……..…..13

Where X_1-X_9 are SMCP dummy years.

$Y_i=\beta_0+ \boldsymbol{\beta}X_i+ \delta_i\boldsymbol{Z}+ \varepsilon_i$ ……..……..……..…..…...14

In this case, $\boldsymbol{\beta}$ measures the effect of dummy years.

The effect of loan cycle: similarly, the study also models the effect of loan cycles and vector of household characteristics to the outcome variables. Therefore, the outcome variables are function of loan cycles and vector of household characteristics and denoted as:

$Y_i= F(X_1, X_2,…….. X_9, Z_i)$……..…..15

Where X_1-X_9 are SMCP loan cycles.

$Y_i=\beta_0+ \boldsymbol{\beta}X_i+ \delta\boldsymbol{Z}i+ \varepsilon_i$ ……..……..……16

Where measures the effect of dummy loan cycle.

The effect of loan size: the paper analysed loan size effect borrowed by SMCP clients over the outcome variables. Outcome variables are functions of SMCP loan size and covariates has generally the following functional form:

$Y_i= F(X_i, Z_i)$……..…..……..…..…….17

Where X_i is loan size borrowed by household i. So, the linear regression for estimation of the parameters are as follows;

$Y_i=\beta_0+ \boldsymbol{\beta}X_i+ \delta_i\boldsymbol{Z}+ \varepsilon_i$ ……..……..……..…….18

Note: in a continuous variable, the interpretation of and δ represent the change of value in Y_i due to a unit change in X_i and $\boldsymbol{Zi}$'s given all the other explanatory variables assumed to be constant. But in a binary or categorical response of independent variables, the interpretations are different. It is the change of value in Y_i represented by the estimated difference in intercept within sub-groups relative to their reference or base group (Wooldridge, 2010:236).

In all models of this study, to avoid multicollinearity[13], it includes one less dummy variable than there are categories. The coefficient of the included dummy variables measure in relative to the reference excluded dummy variable. Therefore, from the region dummy variable Northern Red Sea, tigrigna from ethnic dummy, married from marital status dummy, illiterate from education dummy, one year membership from dummy years of membership and cycle one from the dummy cycle variables are excluded from the analysis. To account the heteroscedasticity[14] because of the cross-sectional nature of data in the OLS regression robust standard error also introduced.

[13] According Gujarati (2003:342) multicollinearity is a linear relationship among two or more explanatory variables. Therefore, in this study test has been done using variance inflating factor (VIF) to show whether multicollinearity inflates variance of estimator.

[14] Heteroscedasticity is the violation of the OLS assumption of homoscedasticity which states that the variance of the regression errors is constant (Hayes and Li Cai 2007). In this study to test the concern of heteroscedasticity as the result of the nature of the data being cross-sectional, in this study Breusch-Pagan/Cook-Weisberg test has been employed.

CHAPTER 5: RESULTS AND DISCUSSION

5.1 Introduction

This chapter provides the results with the view of answering the research questions. Section 5.2 gives the descriptive statistics. The analyses of factors that influence household early participation in SMCP and loan size are presented in section 5.3. The impact evaluation of SMCP is presented in section 5.4. Finally, the effect of duration of exposure in SMCP, loan cycle and loan size are given in section 5.5.

5.2. Descriptive Statistics

Table 5.1 provides data description for the main variables (details are provided in Table 5.1A Appendix B). The survey covers 693 household samples from SMCP borrowers. As indicated in the Table, the overall average household size of the entire sample is about 4.84. The average total group loan is ERN 27,604 equals one-fifth of individual loans. Similarly, the average age and SMCP membership in years of the respondents are 49 and around 5 years respectively. Monthly household income and total enterprise sales have fewer observations because income for some households is not available and some households also do not have enterprise sales to report. (Details are presented in Appendices A, B and C).

Table 5.1 Description of main variables

Variables	Description of Variables	Observation	Mean/Proportion
Treatment	Treatment group=1 and Control group=0	693	0.83
type_client	Group loan=0 and Individual loan=1	693	0.61
hh_size	Household size	693	4.84
Groupypeloan	Size of group loan	305	ERN 27,604.26
individualtype~n	Size of Individual loan	410	ERN 151,740.20
bothypead~d	Total loan size	693	ERN 101,923.20
zoba1	Northern Red Sea	693	0.06
zoba2	Anseba	693	0.10
zoba3	Barentu	693	0.26
zoba4	Tesseney	693	0.26
zoba5	Debub	693	0.25
zoba6	Maekel	693	0.07
tot_children	Total Number of Children	693	4.87
q01	Gender (Female=1 and Male=0)	693	0.57
q02	Age of Respondent	675	49.10
q031	Married=1 and 0 otherwise	693	0.76
q032	Separated/Divorced=1 and 0 otherwise	693	0.11
q033	Widowed=1 and 0 otherwise	693	0.11
q034	Single/Never married=1 and 0 otherwise	693	0.02
q041	Illiterate=1 and 0 otherwise	693	0.32
q041	Informal education=1 and 0 otherwise	693	0.06
q041	Formal education=1 and 0 otherwise	693	0.61
q06	No of hh members who economically active	688	0.76
q08_1o	Membership in years (1-18 years)	546	5.36
q08_2b	Loan cycle (loan cycle1-8)	679	3.30
q23a	No. of children participated in school	688	2
q11	Source of loan other than SMCP(no)	681	0.92
q15	Timeline of SMCP (fast)	691	0.84
q16	Perception on group loan(helpful)	684	0.26
q19	Perception on interest rate(reasonable)	692	0.82
q20	Perception on saving(fair)	677	0.91
income	Monthly hh income	407	ERN 6,601.25
hhasset	Household asset (Yes=1 No=1)	693	0.44
houdingimprove~t	Housing improvement (Yes=1 or No=0)	683	0.36
q331	Expenditure ERN 500-1,000	689	0.28
q332	Expenditure ERN 1,001-2,000	689	0.27
q333	Expenditure ERN 2,001-3,000	689	0.30
q334	Expenditure ERN above 3,000	689	0.15
Msales	Monthly total enterprise sale	391	RRN 13,356.85

Table 5.2 presents household characteristics for the treatment and control group. Since most of the characteristics are time invariant, participation in SMCP is not expected to be affected by treatment and control groups differently. This is consistent with Brannen's (2010:75) findings, suggesting the main characteristics for treatment and control groups have to remain the same unless something is wrong. For variables that are continuous, t-tests are applied to assess whether the means of control group and treatment group are statistically different from each other. For the binary variables proportion test is used to compare their proportion.

Households in the treatment group are significantly older, more educated and larger size than in the control group. The respondents in both treatment and control groups are comparable across gender, marital status, literacy, number of children in different ages, and number of children in school. However, the proportion of singles/never married respondents is higher in the control group than in the treatment group, and the difference significant at 5% level. Generally, the treatment and control group have similar characteristics. This indicates that the risk of a positive, or upward bias on the estimation of SMCP impact due to differences in observed characteristic cannot expected to be pronounced.

Table 5.2 Characteristics of control group and treatment group

	Control Group		Treatment Group		Mean/ Proportion Difference	Pr(|T| > |t|) & Pr(|Z| <|z|)	Test Statistics
Variables	**Observation**	**Mean**	**Observation**	**Mean**			
Female	112	0.60	581	0.56	0.037	0.4630	0.7340
Age	108	46.75	567	49.68	-2.9343	0.0365	-2.0955**
Married	112	0.74	581	0.76	-0.0214	0.6277	-0.4850
Separated/Divorced	112	0.08	581	0.12	-0.0418	0.2045	-1.2689
Widowed	112	0.12	581	0.10	0.0234	0.4592	0.7402
Single	112	0.04	581	0.01	0.0309	0.0274	2.2051**
Illiterate	112	0.38	581	0.31	0.0707	0.1436	1.4626
Informal	112	0.07	581	0.06	0.0129	0.6001	0.5242
Educated	112	0.54	581	0.62	-0.0835	0.0963	-1.6652*
Household size	112	4.41	581	4.92	-0.5097	0.0712	-1.5520*
No. of children up 5 years in hh	111	0.82	581	0.89	-0.0700	0.5830	-0.5492
No. of children 6-17 years in hh	111	2.11	580	2.23	-0.1104	0.5620	-.5802
No. adult 18 years or older in hh	109	1.47	579	1.80	-0.3317	0.1239	-1.5407
No. of adults economic active	109	0.70	579	0.77	-0.0753	0.4973	-0.6791
No. participated children in educ	109	2.02	576	2.11	-0.0864	0.6220	-0.4933
No. dropout children from edu	111	0.47	581	0.37	-0.0949	0.3881	0.8637
No. children in Kindergarten	108	0.7	572	0.14	-0.06753	0.1088	-1.6059
No. children in Elementary	108	1.04	572	1.10	-0.-0713	0.5688	-0.5700
No. children in Junior	108	0.84	572	0.78	0.0628	0.5791	0.5550
No. children in Secondary	108	0.44	572	0.52	-0.0928	0.3322	-0.9704
No. children in College	108	0.10	572	0.13	-0.0240	0.5938	-0.5336

5.3 Determinants of SMCP Early Participation and Loan Size

In this section, the study investigated factors that influence household early participation and loan size borrowed by clients. The logit, marginal effect and OLS regression[15] estimates, are provided in Table 5.3

A number of household characteristics are found to affect participation significantly. Anseba region, age, perception of SMCP timeline on loan disbursement and formal education of the respondent are found to have significant effect on SMCP early participation. As the age of borrower increases by one year, the probability of household early participation to SMCP program increases by 0.3%. Clients who think timeline of SMCP loan is fast are more likely to participate early than those who think otherwise. Their probability to early participation is 9.2% more likely than those who think that the timeline is slow. Additionally, clients who have formal education are more likely to participate than illiterate clients. However, the negative and significant coefficient of Anseba region implies that it is less likely to influence early participation to SMCP compared to the Northern Red Sea region which is the reference point. The probability of Anseba region to influence early participation to SMCP is 15.4% less likely than that of the Northern Red Sea. A study conducted by Ashraf and Ibrahim (2014) also found out that age, gender, education, yearly income are determining factors of participation to MFIs.

Analysing what influence the size of loan borrowed by the SMCP clients are provided in Table 5.3 column (3). Tesseney region, individual loan, duration of exposure and formal education are found to have positive and significant influence on loan size borrowed by SMCP clients. It reveals that borrowers in Tesseney region borrow ERN 43,540 higher than borrowers from Northern Red Sea region. The high demand for large credit (see loan disbursement in Table 2.2A Appendix A) in the Tesseney region explained partially by the fact that the Tesseney region offers significant opportunities for agricultural activities as well as intense trading activities with neighbouring Sudan. Furthermore, as the exposure of a borrower to SMCP increases by one year, the loan size increases by ERN 14,890. Similarly, clients from individual type of loan borrow ERN 102,200 higher than clients from group type of loan. In addition, clients who have formal education borrow ERN 22,120 higher than clients who have no education. This result is corroborated by a study conducted on Nicaragua by Mason (2014) Mason found that borrower assets, gender and duration of exposure in lending institution influence the size of loans borrowed.

[15] Test for multicollinearity and heteroscedasticity are provided in Table 5.3A Appendix D

Table 5.3 Factors that influence early participation in SMCP and loan size

	Determinants of SMCP participation		Determinants of SMCP loan size
	Logit Model	Marginal Effect	OLS regression Total loan size/100
Variables	**(1)**	**(2)**	**(3)**
Anseba	-1.323*	-0.154*	288.3
	(0.682)	(0.0787)	(225.4)
Barentu	0.0399	0.00463	165.1
	(0.646)	(0.0750)	(193.9)
Tesseney	-0.860	-0.0999	435.4**
	(0.650)	(0.0753)	(186.5)
Debub	-0.500	-0.0581	267.8
	(0.629)	(0.0730)	(192.4)
Maekel	-1.028	-0.119	-402.4
	(0.726)	(0.0841)	(390.2)
Afar			425.8
			(272.9)
Bilen			536.5
			(435.3)
Tigre			-51.34
			(151.9)
Kunama			318.1
			(199.3)
Nara			67.52
			(187.2)
Hidarb			-264.7
			(208.7)
Saho			-139.6
			(254.7)
Rashida			257.8
			(216.9)
SMCP membership in years			148.9***
			(18.52)
Individual type of loan			1,022***
			(85.73)
Female	0.0503	0.00584	-23.74
	(0.339)	(0.0394)	(123.6)
Age	0.0241*	0.00280*	-4.961
	(0.0138)	(0.00159)	(3.857)
Timeline of SMCP	0.788**	0.0915***	
	(0.306)	(0.0353)	
Perception on group loan	0.166	0.0193	
	(0.289)	(0.0335)	
Perception on interest rate	-0.228	-0.0265	
	(0.349)	(0.0405)	
Perception on saving	-0.537	-0.0623	
	(0.508)	(0.0590)	
Source of loan other than SMCP	-1.012	-0.117	
	(0.630)	(0.0730)	
Separated/Divorced	0.402	0.0467	92.97
	(0.443)	(0.0514)	(147.7)
Widowed	-0.374	-0.0434	-48.04
	(0.398)	(0.0461)	(127.4)
Single/Never married	-0.841	-0.0976	256.0
	(0.719)	(0.0832)	(175.8)
Informal Education	-0.156	-0.0181	92.44
	(0.493)	(0.0573)	(168.7)
Formal Education	0.502*	0.0583*	221.2**
	(0.298)	(0.0345)	(91.92)

Household size	-0.542	-0.0630	106.0
	(0.481)	(0.0557)	(84.08)
No of children up to 5 years	0.633	0.0734	-75.07
	(0.477)	(0.0552)	(91.56)
No of children 6-17 years	0.666	0.0773	-140.0
	(0.482)	(0.0557)	(100.6)
No adults 18 & above years	0.579	0.0672	-73.78
	(0.477)	(0.0552)	(85.17)
No of hh members economically active	0.0848	0.00984	38.80
	(0.134)	(0.0155)	(42.45)
No of participated children in Education	-0.129	-0.0150	23.60
	(0.137)	(0.0159)	(44.56)
No of dropouts children from school	-0.0485	-0.00563	6.505
	(0.141)	(0.0163)	(36.82)
No of children in kindergarten	0.533	0.0618	118.9
	(0.400)	(0.0464)	(116.2)
No of children in elementary	0.0407	0.00472	23.23
	(0.144)	(0.0168)	(39.11)
No of children in junior	-0.125	-0.0145	-6.506
	(0.130)	(0.0151)	(43.18)
No of children in secondary	0.0234	0.00272	-29.84
	(0.153)	(0.0178)	(43.33)
No of children in college/University	0.225	0.0261	125.3
	(0.318)	(0.0369)	(107.3)
Constant	1.639		-710.3**
	(1.315)		(352.6)
Observations	618	618	516
R-squared			0.468

Standard errors in parentheses Robust s.e in parenthesis

*** p<0.01, ** p<0.05, * p<0.1

5.4 Impact Evaluation

The impact of SMCP on monthly household income and, expenditure is provided in sub-sections 5.4.1 and 5.4.2 followed by monthly total enterprise sales, household assets and housing improvement in sub-sections 5.4.3, 5.4.4 and 5.4.5 respectively.

5.4.1 Monthly Household Income

OLS regression analysis is used to analyse the impact of SMCP on monthly household income and the result is reported in Table 5.4. The basic hypothesis is that participation in micro-credit schemes increases the income of households. However, although the result suggests that participation in SMCP appears to have positive association with monthly household income, it is not statistically significant. This supports, the results provided by Augsburg et al. (2012) using RCT in Bosnia and Herzegovina. Rooyen et al. (2012) assessed the impact of microfinance on poor people in Sub-Sahara African and found both positive and negative impact. On the other hand, Hiatt and Woodworth (2006) involving Central America reported that clients who had been with village banks for more than one year earned more income than those who joined microfinance recently.

The positive and significant regions of Anseba, Barentu and Debub suggests that SMCP impact is higher in these regions than in Northern Red Sea. Furthermore, as the number of children in college or university increase by one, the income of households increases by 24.8%. However, the impact of SMCP on income of females and single/never married persons, is lower as compared to males and married, respectively. It is further observed that as the number of household members who are economically active and number of children in junior school increases by one the income of household decreases by 10.3% and 13.5% respectively.

Table 5.4 Impact evaluation of SMCP on welfare indicators

	OLS Model		Marginal Effect (logit)	
	Monthly income (log)	Monthly total sales (log)	Household Asset	Housing improvement
Variables	(1)	(2)	(3)	(4)
Treatment effect	0.120	0.0915	0.170***	0.230***
	(0.170)	(0.193)	(0.0526)	(0.0576)
Anseba	0.650*	0.833***	0.0372	0.243**
	(0.337)	(0.289)	(0.0997)	(0.104)
Barentu	0.900***	0.423*	0.161*	0.313***
	(0.303)	(0.231)	(0.0859)	(0.0907)
Tesseney	-0.620*	0.296	0.115	0.265***
	(0.353)	(0.270)	(0.0875)	(0.0927)
Debub	0.724**	0.521**	0.125	0.121
	(0.298)	(0.221)	(0.0860)	(0.0938)
Maekel	0.106	0.299	-0.0207	-0.0892
	(0.334)	(0.228)	(0.109)	(0.128)
Female	-0.540***	-0.371*	0.0811	-0.0300
	(0.180)	(0.207)	(0.0511)	(0.0518)
Age	0.00352	-0.0120	-0.00122	-0.000761
	(0.00691)	(0.00817)	(0.00217)	(0.00218)
Separated/Divorced	-0.108	-0.435*	0.0673	-0.0313
	(0.233)	(0.231)	(0.0608)	(0.0599)
Widowed	-0.122	-0.153	0.0143	4.31e-06
	(0.231)	(0.224)	(0.0640)	(0.0658)
Single/Never married	-0.661*	-0.145	-0.0332	0.0544
	(0.396)	(0.372)	(0.139)	(0.143)
Informal Education	0.110	0.384	-0.0608	0.0134
	(0.222)	(0.323)	(0.0887)	(0.0849)
Formal Education	-0.0117	0.517***	0.261***	0.194***
	(0.151)	(0.169)	(0.0410)	(0.0438)
Household size	0.0802	-0.143	-0.00667	0.0392
	(0.0822)	(0.340)	(0.0388)	(0.0507)
No of children up to 5 years	-0.113	0.0723	-0.0187	-0.0776
	(0.0779)	(0.333)	(0.0401)	(0.0515)
No of children 6-17 years	0.0141	0.141	-0.0103	-0.0341
	(0.0758)	(0.334)	(0.0391)	(0.0519)
No adults 18 & above years	-0.0119	0.139	-0.00287	-0.0535
	(0.0893)	(0.334)	(0.0387)	(0.0502)
No of hh members economically active	-0.103*	-0.000388	0.0213	-0.00925
	(0.0608)	(0.0789)	(0.0189)	(0.0189)
No of participated children in Education	-0.0358	-0.0231	0.0108	-0.0125
	(0.0554)	(0.0879)	(0.0196)	(0.0197)
No of dropouts children from school	0.0164	0.0235	0.0300	-0.00638
	(0.0914)	(0.0988)	(0.0206)	(0.0210)
No of children in kindergarten	-0.108	0.0727	0.116**	-0.0386
	(0.152)	(0.152)	(0.0496)	(0.0499)
No of children in elementary	0.0663	-0.0335	-0.0357*	-0.0124
	(0.0569)	(0.0829)	(0.0206)	(0.0205)
No of children in junior	-0.135**	0.0406	0.00542	0.0144
	(0.0563)	(0.0863)	(0.0194)	(0.0191)
No of children in secondary	0.0201	-0.0119	0.0435**	0.0182
	(0.0700)	(0.0907)	(0.0219)	(0.0210)
No of children in college/University	0.248*	0.177	-0.00435	0.00409
	(0.137)	(0.155)	(0.0447)	(0.0452)
Constant	7.455***	8.688***		
	(0.545)	(0.619)		
Observations	367	362	652	643

R-squared	0.231	0.103
	Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1	Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

5.4.2 Monthly Household Expenditure

Monthly household expenditure is one of the outcome variables that measures household welfare for which microcredit is expected to have an impact.

Table 5.5 provides summary result of an ordered logit model. Evidence from the analysis shows that, participation in SMCP has no significant impact on monthly household expenditure. Even though the positive coefficient of treatment column (1) implies that household monthly expenditure is more likely to fall in the higher category, no strong evidence has been found. The positive coefficient of the treatment on ERN 2,001-3,000 and above ERN 3,000 category imply that the probability of monthly household expenditure of the treatment group to fall in these category of expenditure are 0.7% and 0.9% more likely. However, it is very small in terms of magnitude. The same result can be found from randomized microcredit program in Mexico (Duvendack et al. 2012).

From the explanatory variables, borrowers who have formal education are relatively more likely to fall in the higher category of expenditure than borrower with no education. The probability of a borrower who has formal education to fall in the category of expenditure ERN 500-1,000 is 10% less likely, the probability to fall in the category of expenditure ERN 1,001-2,000 is 2.1% less likely while the probability to fall in the category of expenditure ERN 2,001-3,000 and above ERN 3,000 are 5.5% and 6.6% more likely respectively. It may be due to the expectation that the higher the level of education the higher the ability of the borrower to invest a loan in productive activities leading to higher income and expenditure. To the contrary, separated or divorced borrowers are less likely to fall in the higher category of expenditure than the married borrowers. The probability of separated or divorced borrower to fall in the category of ERN 500-1,000 is 16% more likely, in the category of expenditure ERN 1,001-2,000 is 3.46% more likely while the probability to fall in the category of expenditure ERN 2,001-3,000 and above ERN 3,000 are 8.84% and 10.6% less likely respectively and all are significant at 1% level. Similarly, borrowers from Maekel region are less likely to fall in the higher category than borrowers in the Northern Red Sea region. (Details are provided in Table 5.4C Appendix D)

Table 5.5 The impact of SMCP on household expenditure (summary result)

	Order logit Model	Marginal Effect of ordered logit			
	Monthly household Expenditure	HH monthly Expenditure ERN 500-1000	HH Monthly Expenditure ERN 1001-2000	HH Monthly Expenditure ERN 2001-3000	Above ERN 3000
Variables	(1)	(2)	(3)	(4)	(5)
Treatment	0.0762	-0.0143	-0.00309	0.00789	0.00949
	(0.202)	(0.0379)	(0.00821)	(0.0209)	(0.0252)
Maekel	-0.740*	0.139*	0.0300*	-0.0766*	-0.0921*
	(0.410)	(0.0766)	(0.0174)	(0.0425)	(0.0513)
Separated/Divorced	-0.854***	0.160***	0.0346***	-0.0884***	-0.106***
	(0.243)	(0.0446)	(0.0119)	(0.0250)	(0.0312)
Formal Education	0.533***	-0.1000***	-0.0216***	0.0552***	0.0664***
	(0.178)	(0.0331)	(0.00806)	(0.0183)	(0.0226)
Observations	649	649	649	649	649

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

5.4.3 Monthly Total Enterprise Sales

The result of OLS regression for the impact of SMCP participation on monthly enterprise sales are presented in Table 5.4 column (2). Although the impact is not statistically significant, the positive coefficient of the treatment implies that program participation has positive relationship with monthly enterprise sales. Tarozzi et al. (2013) using randomized control trial found that microfinance has no impact on net sales which is the difference between yearly revenue and input purchased in Ethiopia.

Anseba, Barentu and Debub regions have positive and statistically significant result, indicating that the impact is relatively higher in those regions than in the Northern Red Sea region. In similar manner, the positive and significant effect of formal education in column (2) indicates that borrowers who have formal education are more successful in selling their products than illiterate borrowers. Among the other explanatory variables, female borrowers and separated or divorced borrowers sale less products than males and married clients.

5.4.4 Household Asset Level

In regard to the household asset level respondents were asked if they purchase any kind of consumer durable goods (with dummy response yes or no). There is an expectation that intervention of microfinance in the household lives improve the wellbeing of that household and increase their capacity to have more household assets (Zaidi 2017). In line with our expectation, the result reported in column (3) of Table 5.4. It confirms that households in the treatment group are more likely to acquire household assets than control groups. The positive and significant marginal effect on treatment shows that the probability to acquire household assets for the treatment group is 17 percentage points more likely than the control group. In a similar study, Zaidi (2017) by comparing old borrowers (two and above years) and new borrowers found positive net impact of microfinance on household asset. However Zaidi (2017) did not find significant impact of microfinance on households' income.

Barentu region in column (3) is significant implying that the probability of borrowers from this region to purchase household assets is 16% more likely than in Northern Red Sea region. Similarly, the more a client is educated the greater the likelihood to purchase household assets. Households in treatment group with greater number of children in kindergarten and secondary school are more likely to purchase household assets than in the control group. The coefficient on these variables in column (3) indicates that the probabilities to purchase household assets are 11.6 and 4.3 percentage points more likely than the control group. But households with greater number of children in elementary schools are less likely to purchase household asset and the probability is 3.57 percentage points less likely than the control group. This school age group in Eritrea considered under age who are dependent on their family and demand more basic needs and additional costs for school activities. As a result, households are likely to spend their income on basic goods rather than luxury household assets.

In addition to the above general analysis of household assets, the impact of SMCP participation on specific household asset acquisition while controlling other covariates is provided in Table 5.6. Households in the treatment group are more likely to purchase radios, videos and DVDs estimated together as one, jewellery, television, refrigerators, furniture, mobile phones and bicycles than households in a control group. The probability of households in the treatment group purchasing radios, videos and DVDs as one, television, furniture and mobile phones are 24.7, 22.3, 18.2 and 28 percentage points more likely than the control group, respectively. The probabilities of households in treatment group to purchase jewellery, refrigerators and bicycles are 12.1, 11.4 and 14.6 percentage points more likely than the control group (Details are provided in Table 5.4.5A and 5.4.5B appendix E). However, no significant effect has been reported on purchase of stoves and cars. This result may coincides with those of critics of Bateman (2012) state that for a long time the majority of loans from MFIs were used to facilitate consumption spending rather than establishing income generating enterprises.

Looking at the other covariates, female borrowers in the treatment group were more likely to purchase radios, videos, DVDs and television sets than male borrowers and the probability is 13.7% more likely than males. Furthermore, borrowers who have formal education are more likely to purchase all of the listed household assets except for cars than borrowers who have no education.

Table 5.6 The Impact of SMCP on household assets (summary result: controlling other household covariates)

Variables	Radio Video DVD (1)	Jewellery (2)	Television (3)	Stove (4)	Refrigerator (5)	Furniture (6)	Car (7)	mobile phone (8)	cycle (9)
Treatment Effect	0.247***	0.121*	0.223***	0.0596	0.114**	0.182***	0.0343	0.280***	0.146**
	(0.0716)	(0.0623)	(0.0646)	(0.0372)	(0.0552)	(0.0629)	(0.0383)	(0.0769)	(0.0607)
Female	0.0845*	0.0221	0.137***	-0.00359	0.0362	0.0453	-0.0348	0.0387	0.00932
	(0.0439)	(0.0317)	(0.0436)	(0.0275)	(0.0333)	(0.0374)	(0.0261)	(0.0459)	(0.0357)
Formal Education	0.167***	0.0723**	0.216***	0.0947**	0.116***	0.0979***	0.0647	0.154***	0.140***
	(0.0388)	(0.0295)	(0.0412)	(0.0383)	(0.0367)	(0.0359)	(0.0393)	(0.0395)	(0.0364)

5.4.5 Housing Improvement

The evidence in Table 5.4, in column (4) suggests that SMCP is more likely to have an impact on housing improvement. The probability of housing improvement in the treatment group is 23 percentage points more likely than households in the control group. This is similar to a study conducted in Ethiopia, by Berhane and Gardenbroek (2011). Using panel data, Berhane and Gardenbroek (2011) found that the probability of improving the houses of borrowers was increased by 45.7% compared to non-borrowers. In addition, the result also confirms the finding of Anyango et al. (2006) and Brannen (2010:84), who find that clients of microfinance live in better constructed homes than the control group. The housing improvement result for regions Anseba, Barentu and Tesseney depicted in column (4), indicate that borrowers in those regions are more likely to improve their houses compared to borrowers in Northern Red Sea region. The positive and significant coefficient on formal education (column 4) also implies that the more educated borrowers are, the more likely they would improve their houses than borrowers with no formal education. The probability is 19.4 percentage points more likely compared to educated borrowers in the comparison group.

5.5 The Effect of Duration of Exposure, Loan Cycle and Loan Size on the Outcome Variables

In this section, the effect of duration exposure, loan cycle and loan size on the outcome variables is analysed. Total loan size is given in hundredth. The results are summarized in Table 5.7 and 5.8. Details are also provided in Appendix E.

5.5.1 Duration of Exposure Effect

The OLS regression analysis revealed that SMCP membership in years has a positive and significant relationship with monthly total enterprise sales. However it has no significant effect on household monthly income, although it has a positive relationship. The positive coefficient in membership to monthly household income (column 1) implies that as the duration of the exposure increases by one year, household income increases by around 4%. According to an interview with SMCP officials[16], this does not necessarily mean that an increase in the duration of exposure always leads to an increases in the outcome variables. Client may take a loan and stay without repaying the principal and interest for longer than the required term of a maximum of two years. This contradicts findings by Khan and Rahman (2013:12) in Malaysia asserting that one year increase in duration increases total income per month. This study on the Eritrean experience reveals that on the average a one-year more exposure increases enterprise sales of the borrower by 5%. They are statistically significant at 5% level.

The marginal effect presented in Table 5.7, column (3-4), also confirms that, one more year increase in duration of exposure leads to 2.5% and 2.7% increases in the probability of household asset acquisition and housing improvement, respectively.

Similarly, the result from the ordered logit reported in Table 5.8 (column 1) suggests that for one more year exposure in SMCP, the monthly household expenditures is more likely to fall in the higher category of expenditures. The marginal effect displayed in column (2-5) of membership in years implies that the probability of monthly household expenditure is 0.93% less likely to fall in the category of ERN 500-1,000, 0.27% less likely to fall in the category of ERN 1,001-2,000, 0.52% more likely to fall in the category expenditure ERN 2,001-3,000 and 0.7% more likely to fall in the category of above ERN 3,000. However, as the duration of exposure increases by one more year the probability of a household to fall in the higher category is very small. This is consistent with findings of Haque et al. (2017), one more year duration of exposure in microfinance program leads to 1.3% increases in household expenditure.

5.5.2 Dummy Years Effect

The study further investigated if each year of duration has an effect on the outcome variables. In most cases, the OLS regression analysis (columns 1, 2) suggest that each dummy year of membership in SMCP appears to have a positive relationship with monthly household

[16] Interview with SMCP Statistician (24 July 2017)

income and monthly total enterprise sales. However, these are not statistically significant.

The results of the marginal effect provided in columns (3-4) in Table 5.8 show that each specific year is more likely to affect household asset acquisition and housing improvement positively and significantly. The coefficients of the marginal effect of each year of membership on household assets indicate that the probability of household asset acquisition for borrowers who have been in SMCP for two, three, four, five, six, seven, eight and nine years are 23.1, 23.8, 35.8, 26, 24, 24.4, 41.7 and 41.2 percentage points more likely than a borrower with only one year of membership, respectively. Similarly, the probabilities of improving housing by clients with membership of three, four, five, six, seven, eight and nine years are 28, 31.6, 31.2, 30.3, 46, 30 and 40.8 percentage points more likely than a client with one year membership, respectively.

In regard to the effect of each year of membership to monthly household expenditure shown in Table 5.8, the results appear mixed. Monthly household expenditure of a borrower who has been in SMCP for two years in column (1) is more likely to fall in the higher category of expenditure than one year membership. The probability to fall in the category of expenditure ERN 500-1,000 is 12.4% less likely, in the category of expenditure of ERN1,001-2,000 is also 12.4% less likely, in the category of expenditure 2,001-3,000 is 3.6% less likely while in the category of above ERN 3,000 is 6.86% more likely compared to one year membership. In addition, monthly household expenditure of a borrower who has been in SMCP for nine years is also more likely to fall in the higher category of expenditure than a household been in SMCP for one year. The probability of a household to make an expenditure between ERN 500 and 1,000 is 15.7% less likely, between ERN 1,001 and 2000 is 15.7% less likely, between ERN 2,001 and 3,000 is 4.54% less likely and in the category of expenditure above ERN 3,000 is 8.68% more likely.

Table 5.7 The effect of duration of exposure, loan cycle and loan size on outcome variables (Summary)[17]

	OLS Model		Marginal effect (Logit Model)	
Variables	Monthly income (log) (1)	Monthly total sales (log (2)	Household Asset (3)	Housing Improvement (4)
Membership in years	0.0389	0.0491**	0.0250***	0.0269***
	(0.0273)	(0.0226)	(0.00628)	(0.00666)
dummyyears2	0.486	0.154	0.231**	0.104
	(0.357)	(0.454)	(0.102)	(0.118)
dummyyears3	0.0768	0.355	0.238***	0.279***
	(0.363)	(0.470)	(0.0911)	(0.0997)
dummyyears4	0.0686	0.167	0.358***	0.316***
	(0.324)	(0.434)	(0.0890)	(0.0987)
dummyyears5	0.144	0.0631	0.260***	0.312***
	(0.353)	(0.515)	(0.0931)	(0.103)
dummyyears6	0.156	-0.403	0.239**	0.303***
	(0.341)	(0.477)	(0.0958)	(0.105)
dummyyears7	-0.0950	0.302	0.244**	0.460***
	(0.360)	(0.457)	(0.104)	(0.110)
dummyyears8	0.0786	0.751	0.417***	0.298***
	(0.359)	(0.539)	(0.106)	(0.115)
dummyyears9	0.182	0.657	0.412***	0.408***
	(0.370)	(0.436)	(0.0917)	(0.101)
Dummy loan cycle2	0.357*	0.189	0.190***	0.183***
	(0.192)	(0.231)	(0.0594)	(0.0638)
Dummy loan ycle3	0.571***	0.384	0.116*	0.183***
	(0.203)	(0.249)	(0.0618)	(0.0650)
Dummy loan cycle4	0.447**	0.343	0.207***	0.248***
	(0.204)	(0.276)	(0.0628)	(0.0661)
Dummy loan cycle5	0.539**	0.363	0.199***	0.248***
	(0.257)	(0.258)	(0.0665)	(0.0695)
Dummy loan cycle6	1.004***	0.570	0.129	0.0512
	(0.297)	(0.449)	(0.0981)	(0.110)
Dummy loan cycle7	1.376***	0.0975	0.103	0.153
	(0.328)	(0.358)	(0.109)	(0.112)
Dummy loan cycle8	1.140***	1.002**	0.366***	0.321***
	(0.362)	(0.471)	(0.101)	(0.0981)
Total loan size/100	1.521**	2.958***	6.24e-05***	0.000162**
	(0.627)	(1.054)	(1.63e-05)	(7.60e-05)
	Robust standard errors in parentheses		Standard errors in parentheses	
	*** p<0.01, ** p<0.05, * p<0.1		*** p<0.01, ** p<0.05, * p<0.1	

[17] The effect of duration of exposure, loan cycle and loan size are also estimated including loan size and membership in years square term as explanatory variable (Detail Appendix G)

5.5.3 Loan Cycle Effect

The paper also analysed the effect of loan cycle on the outcome variables. Results are provided in Tables 5.7 and 5.8.

The loan cycle dummies in column (1) show that a linear trend with increasingly positive magnitude and significant effect on income compare to loan cycle1. Monthly household income of a client in loans cycle2, cycle3, cycle4, cycle5, cycle6, cycle7 and cycle8 are 35.7, 57.1, 44.7, 53.9, 100, 137 and 114 percentage points higher than a client in cycle1. They are all statistically significant at 1% level, except cycle2 at 10%. In the case of dummies loan cycle effect on monthly total enterprise sales, even though appears to have positive effect it failed to have significant effect excepting loan cycle8 which is 100 percentage points higher than loan cycle1.

Generally, dummies loan cycle is more likely to affect household asset positively and significantly compared to loan cycle1, particularly loan cycle 2, cycle3, cycle4, cycle5 and cycle8. The probabilities of households to purchase household asset in those loan cycles are 19, 11.6, 20.7, 20 and 36.6 percentage points more likely than households in loan cycle1 respectively. They are all statistically significant at 1% level except loan cycle3 which is significant at 10%. A similar pattern is observed for the effect of dummies of loan cycle in the case of housing improvement, indicating that the probabilities of households improving houses in loan cycle2, cycle3, cycle4, cycle8 are 18.3, 18.3, 24.8, 24.8 and 32.1 percentage points more likely, respectively, than households, in loan cycle1.

The ordered logit model analysis provided in Table 5.5B shows that monthly household expenditures of borrowers in loan cycle6 and loan cycle8 are more likely to fall in the higher category of expenditure than borrowers in loan cycle1. The probability of borrowers of SMCP who have been in loan cycle6 and loan cycle8 are 12.7% and 19.3% less likely to fall in the category of expenditure ERN 500-1,000, 3% and 4.7% less likely in the category of expenditure ERN1, 001-2,000, 7% and 10.7% less likely in the category of expenditure ERN 2,001-3,000 and 8.7% and 13.3% more likely in the category of above ERN 3,000 which is the higher category respectively.

5.5.4 Loan Size Effect

Loan size is one of the indicators of credit program intensity where the outcome variables are expected to vary across the loan size borrowed by the clients of SMCP. So the paper analysed the loan size effect on the outcome variables and the results are provided in Table 5.7 and 5.8.

The OLS regression analysis reported in Table 5.7 column (1 and 2) suggests that loan size affects monthly household income positively and significantly. Accordingly, for each ERN 1,000 borrowed by a household, its income increases by ERN 152. Similarly, for each ERN 1,000 client borrows, monthly enterprise sales grow by ERN 296. Even though total loan size is more likely to affect household acquisition of assets and housing improvement

significantly, the magnitude of the probability is very small. By the same token, as loan size increases it is more likely for household expenditure to fall in the higher category expenditure. Though, the probability of the households to fall in a higher category is very small.

Table 5.8 The effect of duration exposure, loan cycle and loan size on expenditure (Summary)

	Order logit Model	Marginal Effect			
	Monthly household Expenditure	HH monthly Expenditure ERN 500-1000	HH Monthly Expenditure ERN 1001-2000	HH Monthly Expenditure ERN 2001-3000	Above ERN 3000
Variables	(1)	(2)	(3)	(4)	(5)
Membership in years	0.0559**	-0.00933**	-0.00269**	0.00516**	0.00686**
	(0.0270)	(0.00449)	(0.00133)	(0.00249)	(0.00332)
dummyyears2	0.749*	-0.124*	-0.124*	-0.0359*	0.0686*
	(0.418)	(0.0666)	(0.0694)	(0.0201)	(0.0372)
dummyyears3	0.448	-0.0742	-0.0742	-0.0215	0.0411
	(0.431)	(0.0631)	(0.0709)	(0.0186)	(0.0351)
dummyyears4	0.626	-0.104*	-0.104	-0.0300	0.0574*
	(0.404)	(0.0611)	(0.0665)	(0.0183)	(0.0341)
dummyyears5	0.635	-0.105*	-0.105	-0.0305	0.0583*
	(0.406)	(0.0633)	(0.0672)	(0.0189)	(0.0353)
dummyyears6	0.605	-0.100	-0.100	-0.0290	0.0554
	(0.442)	(0.0659)	(0.0728)	(0.0196)	(0.0367)
dummyyears7	0.132	-0.0219	-0.0219	-0.00635	0.0121
	(0.467)	(0.0711)	(0.0773)	(0.0206)	(0.0394)
dummyyears8	0.637	-0.106	-0.106	-0.0306	0.0585
	(0.495)	(0.0746)	(0.0817)	(0.0220)	(0.0414)
dummyyears9	0.946**	-0.157**	-0.157**	-0.0454**	0.0868**
	0.432	-0.0715	-0.0715	-0.0207	0.0396
Dummy loan cycle2	-0.163	0.0288	0.00695	-0.0159	-0.0198
	(0.245)	(0.0434)	(0.0105)	(0.0240)	(0.0299)
Dummy loan ycle3	0.265	-0.0469	-0.0113	0.0260	0.0323
	(0.246)	(0.0435)	(0.0107)	(0.0242)	(0.0300)
Dummy loan cycle4	0.249	-0.0441	-0.0106	0.0244	0.0303
	(0.260)	(0.0460)	(0.0113)	(0.0255)	(0.0317)
Dummy loan cycle5	0.101	-0.0179	-0.00433	0.00994	0.0123
	(0.273)	(0.0484)	(0.0117)	(0.0268)	(0.0333)
Dummy loan cycle6	0.718*	-0.127*	-0.0307	0.0704*	0.0874*
	(0.427)	(0.0755)	(0.0188)	(0.0420)	(0.0521)
Dummy loan cycle7	0.355	-0.0628	-0.0152	0.0348	0.0432
	(0.458)	(0.0810)	(0.0197)	(0.0449)	(0.0558)
Dummy loan cycle8	1.091**	-0.193**	-0.0466**	0.107**	0.133**
	(0.424)	(0.0750)	(0.0189)	(0.0420)	(0.0516)
Loan size/100	0.000307***	-5.43e-05***	-1.27e-05***	3.02e-05***	3.68e-05***
	(6.70e-05)	(1.19e-05)	(3.26e-06)	(6.91e-06)	(8.02e-06)

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

CHAPTER 6: CONCLUSIONS

Microfinance makes financial resources available to low-income people who have no access to formal financial institutions, and it is generally believed to be an effective tool for poverty alleviation. However, the empirical evidence is mixed and debatable. Using data from the State of Eritrea, this study investigated the determinants of early participation to the SMCP, the loan size, the impact of SMCP on monthly household income, household monthly expenditure, household asset level, housing improvement and monthly enterprise sales. The study also analysed the effect of duration of exposure in SMCP, loan cycle and loan size in credit program on the outcome variables. Doing so, the author hopes that the findings of this exercise will enrich the available evidence about microfinance in Eritrea and consequently policy and implementation of the program.

With regard to determinants of early participation, the findings indicate that age, perception of SMCP timeline loan disbursement and formal education have positive and significant effect on SMCP early participation. However, Anseba region appeared less likely to influence early participation to SMCP. Furthermore, Tesseney region, individual type of loan, duration exposure and formal education are found to have positive and significant influence on the loan size borrowed by SMCP clients. In order to investigate the impact of SMCP, the study uses control and treatment group: those who have been members of SMCP for a maximum of two years are used as a control groups, whereas, those who have been members of SMCP for three and more years are treatment group. In this case as well, the study found mixed results. The SMCP has a positive and significant impact on household asset acquisition and housing improvement of its borrowers. Analysis of the empirical evidence reveals that the probability of household asset acquisition and housing improvement for households in the treatment group are 17 and 23 percentage points more likely than the control group, respectively. However, the study finds that SMCP has no impact on monthly household income, monthly household expenditure and monthly total enterprise sales.

Duration of exposure to SMCP are found to have positive and significant effect on monthly household expenditure, monthly total enterprise sales, household asset acquisition and housing improvement. However, it has no significant effect on household income. In the case of dummy years, generally no significant effect is evidenced both on monthly household income and, monthly total enterprise sales. The effects of dummy years on household asset acquisition and housing improvement are generally positive and significant. In contrast, in most cases the effect of dummy years to monthly household expenditure are not significant except the dummy two year and nine year membership.

Specific loan cycle has positive and significant effect on monthly household income, household asset acquisition and housing improvement. However, the effects on household expenditure are not substantial. Only borrowers who have been in the sixths and eights loan cycles are more likely to be in the higher category of expenditure. Moreover, loan size also one of the indicators of credit program intensity where outcome variables are expected to vary across the loan size borrowed by clients. The effect of total loan size on monthly household income and total enterprise sales are positive and significant. The results indicate that for every ERN 1,000 borrowed by a client, its income increases by ERN 152 while total sale of enterprise increases by ERN 296. Even though total loan size is more likely to affect household asset acquisition and housing improvement, the magnitude of the

probability are not substantial. Furthermore, as loan size increases it is more likely for household expenditure to fall in the higher category. However, the probability of household to fall in the higher category of expenditure is very small.

APPENDICES

Appendix A

Table 2.2A SMCP loan disbursement by region and loan product in 2015

Region	Micro Bussines Loan		Small Scale Agricultural Loan		Oxen Loan		Small Business Loan		Irrigated Agricultural Loan		Total
	No Clients	Loan disbursed	No Clients	Loan Disbursed	No Clients	Loan Disbursed	No Clients	Loan Disbursed	No Clients	Loan Disbursed	
S.R.Sea	6	78,000.00	0	0	0	0.00	42	1,930,000.00	0	0.00	2,008,048.00
N.R.Sea	372	2,197,000.00	36	273,000.00	175	2,409,000.00	66	2,860,000.00	29	1,430,000.00	9,169,678.00
Anseba	288	2,748,000.00	939	6,428,000.00	563	7,569,000.00	226	8,771,000.00	323	7,968,000.00	33,486,339.00
Maekel	10	88,000.00	0	0	306	3,645,000.00	242	11,255,000.00	908	27,070,000.00	42,059,466.00
Debub	117	1,069,000.00	697	5,678,000.00	1,003	13,770,000.00	207	10,130,000.00	29	1,005,000.00	31,654,053.00
Gash Barka Barentu	305	3,472,000.00	937	7,569,000.00	331	3,016,000.00	272	12,680,000.00	2,198	68,419,000.00	95,160,043.00
Gash Barka Tesseney	847	8,847,000.00	1,299	10,434,000.00	0	0.00	277	13,360,000.00	904	30,350,000.00	62,994,327.00
Total	**1,945**	**18,499,000.00**	**3,908**	**30,382,000.00**	**2,378**	**30,409,000.00**	**1,332**	**60,986,000.00**	**4,391**	**136,242,000.00**	**276,531,954.00**

Source of Data: SMCP data base

Table 2.3A Survey sample by type of client, zoba and branch

		Male		Female		Total	
		N	**%**	**N**	**%**	**N**	**%**
Type of client	Group	110	37.4	163	40.9	273	39.4
	Individual	184	62.6	236	50.1	420	60.6
	Total	294	42%	399	58%	693	100%
Zoba	SKB	17	5.8	24	6.0	41	5.9
	Anseba	30	10.2	36	9.0	66	9.5
	GB_Barentu	63	21.4	119	29.8	182	26.3
	GB_Teseney	100	34.0	82	20.6	182	26.3
	Debub	61	20.7	115	28.8	176	25.4
	Maekel	23	7.8	23	5.8	46	6.6
	Total	294		399		693	
Centre/Branch	Massawa	17	5.8	24	6.0	41	5.9
	Keren	30	10.2	36	9.0	66	9.5
	Barentu	22	7.5	41	10.3	63	9.1
	Shambuko	21	7.1	38	9.5	59	8.5
	Tokombia	20	6.8	40	10.0	60	8.7
	Teseney	44	15.0	43	10.8	87	12.6
	Guluj	56	19.0	39	9.8	95	13.7
	Dekemhare	18	6.1	26	6.5	44	6.3
	Mendefera	22	7.5	59	14.8	81	11.7
	AdiQuala	21	7.1	30	7.5	51	7.4
	Berik	23	7.8	23	5.8	46	6.6
	Total	**294**		**399**		**693**	

Source of Data: SMCP data base

Table 5.2A SMCP clients by membership in years and loan cycle reached

SMCP membership in years	*Loan cycle reached*								*Total*
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	
1	51	1							52
2	20	21	7	3					51
3	11	19	22	10	1	2			65
4	7	24	18	20	11	2			82
5	7	9	15	11	19	2	1		64
6	3	11	12	12	8	6	2	1	55
7	3	7	9	13	8	1	1		42
8	1	2	7	6	10	1	5	2	34
9	1	2	3	2	2	2	1		13
10	3	5	1	4	4	2	2	1	22
11				1	2	1	2	3	9
12		1		2	3		1	2	9
13			1	3	1	1		1	7
14				1	2		1	1	5
15				1	1				2
16			1	1	2				4
17								1	1
18								1	1
1-2 year(missing)	1	8							9
3+years(missing)	18	41	41	21	24	10	3	4	162
Total	**126**	**151**	**137**	**111**	**98**	**30**	**19**	**17**	**693**

Appendix B

Table 5.1A Description of the outcome and explanatory variables of SMCP clients

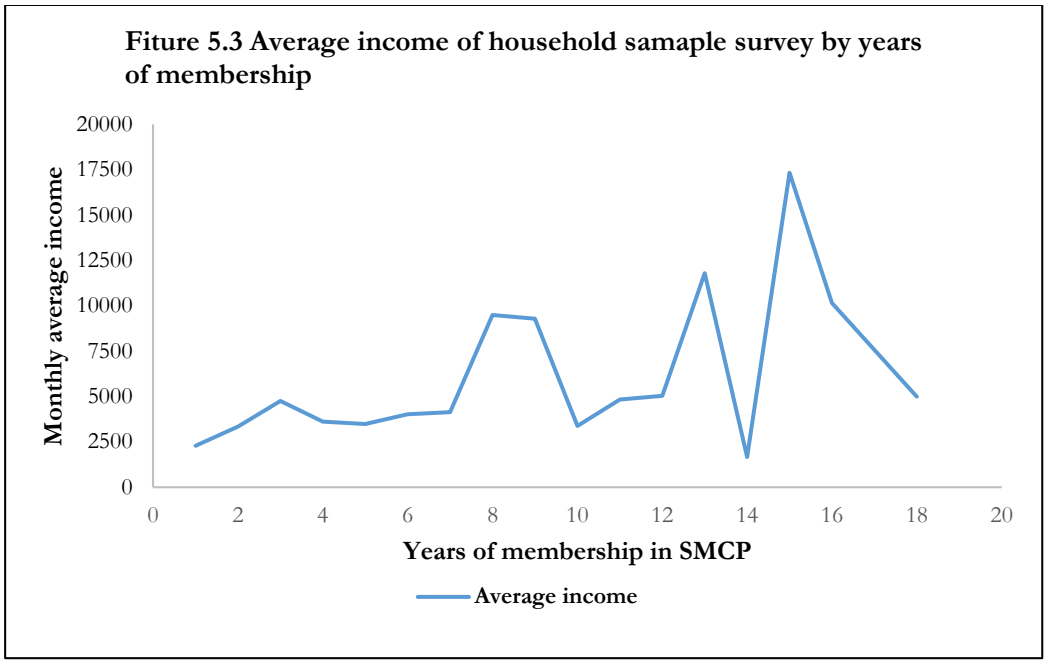
	Variable Label	Observations	Mean
Treatment	New entrants=0 and Veteran clients of SMCP=1	693	0.83
type_client	Type of Client (Group=0 and Individual=1)	693	0.61
hh_size	Household size	693	4.84
tot_children	Total number of children	693	4.87
grouptypeloan	Group loan	305	ERN 27,604.26
individualtyp~n	Individual loan	410	ERN 151,740.20
bothtypead~d	Total loan taken in	693	ERN 101,923.20
zoba1	Semenawi Keihbahri	693	0.06
zoba2	Anseba	693	0.10
zoba3	Barentu	693	0.26
zoba4	Tesseney	693	0.26
zoba5	Debub	693	0.25
zoba6	Maekel	693	0.07
ethnic1	Tigringna	693	0.73
ethnic2	Afar	693	0.004
ethnic3	Bilen	693	0.03
ethnic4	Tigre	693	0.15
ethnic5	Kunama	693	0.03
ethnic6	Nara	693	0.03
ethnic7	Hidarb	693	0.01
ethnic8	Saho	693	0.02
ethnic9	Rashida	693	0.001
q01	Gender(Female=1 and Male=0)	693	0.57
Tot_children	Total Number of Children	693	4.87
q02	Age	675	49.21
q031	Married(married=1 or others=0)	693	0.76
q032	Separated/Divorced	693	0.11
q033	Widowed	693	0.11
q034	Single/Never married	693	0.02
q041	Illiterate	693	0.32
q042	Informal	693	0.06
q043	Educated	693	0.61
edu_level	Other educational level	426	10.49 High school
q05a	No of children up to 5 years in the hh	693	1.02
q05b	No of children from 6 to 17 years in the hh	693	2.40
q05c	No of adult 18 years or older in the hh	693	2.36
q06	No of hh members who economically active	685	0.76
no_years	SMCP's membership in years	546	5.01
dummyyears1	One-year membership in SMCP	546	0.09
dummyyears2	Two-year membership in SMCP	546	0.09
dummyyears3	Three-year membership in SMCP	546	0.12
dummyyears4	Four-year membership in SMCP	546	0.15
dummyyears5	Five-year membership in SMCP	546	0.12
dummyyears6	Six-year membership in SMCP	546	0.10
dummyyears7	Seven-year membership in SMCP	546	0.07
dummyyears8	Eight-year membership in SMCP	546	0.06
dummyyears9	9-18- year membership in SMCP	546	0.15
l_cycle1	Loan cycle 1	693	0.18
l_cycle2	Loan cycle 2	693	0.20
l_cycle3	Loan cycle 3	693	0.20
l_cycle4	Loan cycle 4	693	0.16
l_cycle5	Loan cycle 5	693	0.14
l_cycle6	Loan cycle 6	693	0.04
l_cycle7	Loan cycle 7	693	0.03
l_cycle8	Loan cycle 8	693	0.04
q23a	No of children participated in education	693	2

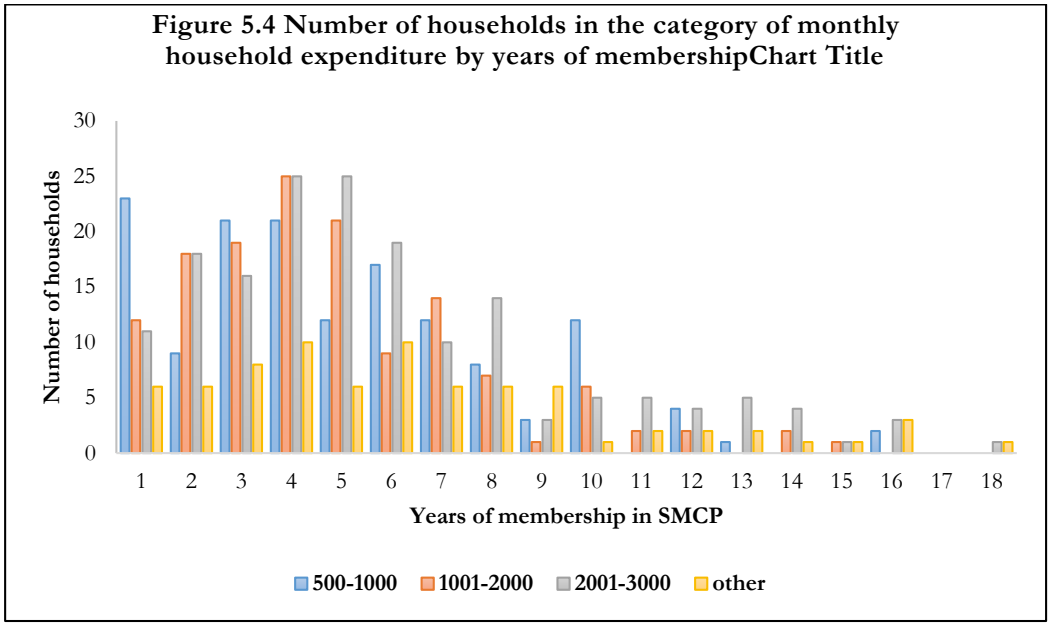
q23b	No of drop out children from education	688	0.38
q23da	No of children in kindergarten	692	2.10
q23db	No of children in elementary	680	0.38
q23dc	No of children in junior	680	0.13
q23dd	No of children in secondary	680	1.09
q23de	No of children in college/university	680	0.78
ln_income	hh monthly income in log form	680	0.51
hhasset	Household Asset	389	0.12
housingimprov~t	Housing improvement/purchased	693	8.01
q331	Expenditure ERN 500-1,000	683	0.44
q332	Expenditure ERN 1,001-2,000	689	0.36
q333	Expenditure ERN 2,001-3,000	689	0.30
q334	Expenditure ERN above 3,000	689	0.15
ln_msales	Monthly total enterprise sales log form	380	8.54
q48n	Total area of land holding in ha/tsmdi berai	418	2.95
q11	Source of loan other than SMCP	681	0.92
q15	Timeline of SMCP	691	0.84
q16	Perception on group loan	684	0.26
q19	Perception on interest rate	692	0.82
q20	Perception on saving	677	0.92

Table 5.2A Clients do not continue as SMCP membership by membership in years and loan cycle

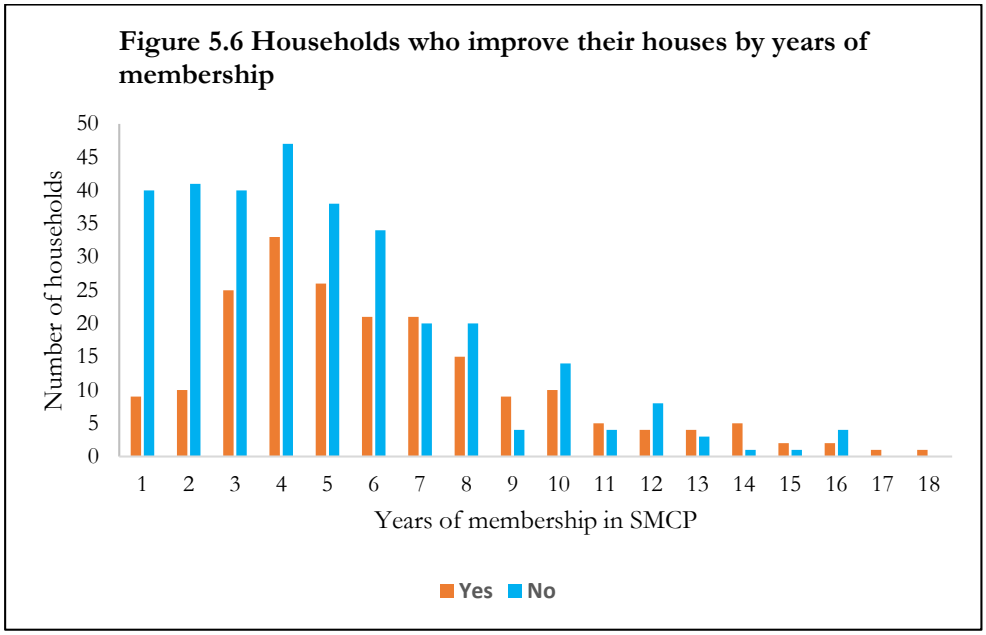
SMCP membership in years	**Loan cycle reached**									
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**Total**
1	14									**14**
2	1	2	1							**4**
3	2	2	3	1						**8**
4	1	2	1	2	1		1			**8**
5	1	2			1					**4**
6	1	2	1	1						**5**
7				1	1	1				**3**
8			1				1	1		**3**
9								1		**1**
10	2			3						**5**
11					1					**1**
12				1	1					**2**
13				1						**1**
14				1						**1**
15										
16				1						**1**
Above three years	2	6	4	2	2	3				**19**
Total	**24**	**16**	**11**	**14**	**7**	**4**	**2**	**2**		**83**

Appendix C





Household monthly expenditure has also categorical responses. It has four categories of possible answers. An expenditure between ERN500-1000, ERN 1001-2000, above ERN 3,000. The graph shows the number of people who fall in the four categories.



Housing improvement also another welfare indicator which is considered in our country as good indication of wellbeing. In the data it has dummy variable (Yes or No) response to the question if the household make any major housing improvement.

Figure 5.7 Average enterprise sales of household sample survey by years of membership

Appendix D

Table 5.3A Breusch-Pagan/Cook-Weisberg test for Heteroscedasticity and Variance Inflating Factor Test for Multicollinearity

OLS Regression	Chi 2(1)	Prob > chi 2	Ho: constant variance	VIF Value	Concern of multicollinearity
Determinant of loan size	295.9	0.0000	Reject	5.09	No
Impact on income	0.72	0.3965	Accept	4.18	No
Impact on sales	5.71	0.0169	Reject	17.31	Yes
Years effect on income	0.04	0.8365	Accept	6.27	No
Years effect on sales	3.13	0.0770	Accept	13.68	Yes
Dummy years effect on income	0.00	0.9487	Accept	4.95	No
Dummy years effect on loan size	218.83	0.0000	Reject	4.82	No
Dummy loan cycle effect on income	0.13	0.7209	Accept	3.52	No
Dummy loan cycle effect on sales	7.70	0.0055	Reject	12.32	Yes

Table 5.4C The impact of SMCP on Monthly Household Expenditure (ordered logit)

	Order logit Model	Marginal Effect (ordered logit)			
	Monthly household Expenditure	HH monthly Expenditure ERN 500-1000	HH Monthly Expenditure ERN 1001-2000	HH Monthly Expenditure ERN 2001-3000	Above ERN 3000
Variable	(1)	(2)	(3)	(4)	(5)
Treatment	0.0762	-0.0143	-0.00309	0.00789	0.00949
	(0.202)	(0.0379)	(0.00821)	(0.0209)	(0.0252)
Anseba	0.105	-0.0196	-0.00424	0.0108	0.0130
	(0.384)	(0.0721)	(0.0156)	(0.0398)	(0.0478)
Barentu	-0.382	0.0716	0.0155	-0.0396	-0.0475
	(0.330)	(0.0618)	(0.0135)	(0.0342)	(0.0411)
Tesseney	-0.392	0.0734	0.0159	-0.0405	-0.0487
	(0.331)	(0.0620)	(0.0136)	(0.0343)	(0.0412)
Debub	0.0544	-0.0102	-0.00220	0.00563	0.00677
	(0.327)	(0.0613)	(0.0133)	(0.0339)	(0.0407)
Maekel	-0.740*	0.139*	0.0300*	-0.0766*	-0.0921*
	(0.410)	(0.0766)	(0.0174)	(0.0425)	(0.0513)
Female	-0.0547	0.0103	0.00221	-0.00566	-0.00681
	(0.207)	(0.0388)	(0.00838)	(0.0214)	(0.0257)
Age	-0.00470	0.000880	0.000190	-0.000486	-0.000584
	(0.00849)	(0.00159)	(0.000346)	(0.000879)	(0.00106)
Separated/Divorced	-0.854***	0.160***	0.0346***	-0.0884***	-0.106***
	(0.243)	(0.0446)	(0.0119)	(0.0250)	(0.0312)
Widowed	-0.340	0.0637	0.0138	-0.0352	-0.0423
	(0.261)	(0.0489)	(0.0109)	(0.0271)	(0.0326)
Single/Never married	-0.672	0.126	0.0272	-0.0696	-0.0836
	(0.544)	(0.102)	(0.0227)	(0.0563)	(0.0680)
Informal Education	0.311	-0.0584	-0.0126	0.0322	0.0388
	(0.324)	(0.0606)	(0.0133)	(0.0335)	(0.0404)
Formal Education	0.533***	-0.1000***	-0.0216***	0.0552***	0.0664***
	(0.178)	(0.0331)	(0.00806)	(0.0183)	(0.0226)
Household size	0.0776	-0.0146	-0.00314	0.00804	0.00966
	(0.143)	(0.0267)	(0.00578)	(0.0147)	(0.0177)
No of children up to 5 years	-0.0919	0.0172	0.00372	-0.00951	-0.0114
	(0.147)	(0.0276)	(0.00599)	(0.0153)	(0.0184)

No of children 6-17 years	-0.00948	0.00178	0.000384	-0.000981	-0.00118
	(0.145)	(0.0272)	(0.00587)	(0.0150)	(0.0181)
No adults 18 & above years	0.0286	-0.00537	-0.00116	0.00296	0.00356
	(0.143)	(0.0268)	(0.00580)	(0.0148)	(0.0178)
No of hh members economically active	0.00948	-0.00178	-0.000384	0.000982	0.00118
	(0.0758)	(0.0142)	(0.00307)	(0.00785)	(0.00944)
No of participated children in Education	0.0995	-0.0187	-0.00403	0.0103	0.0124
	(0.0816)	(0.0153)	(0.00336)	(0.00844)	(0.0102)
No of dropouts children from school	-0.0394	0.00738	0.00159	-0.00408	-0.00490
	(0.0843)	(0.0158)	(0.00342)	(0.00873)	(0.0105)
No of children in kindergarten	0.161	-0.0301	-0.00651	0.0166	0.0200
	(0.202)	(0.0378)	(0.00819)	(0.0209)	(0.0251)
No of children in elementary	-0.0513	0.00962	0.00208	-0.00531	-0.00638
	(0.0862)	(0.0162)	(0.00350)	(0.00892)	(0.0107)
No of children in junior	-0.101	0.0190	0.00410	-0.0105	-0.0126
	(0.0801)	(0.0150)	(0.00330)	(0.00828)	(0.0100)
No of children in secondary	-0.0210	0.00394	0.000850	-0.00217	-0.00261
	(0.0884)	(0.0166)	(0.00358)	(0.00916)	(0.0110)
No of children in college/University	0.0254	-0.00475	-0.00103	0.00262	0.00315
	(0.187)	(0.0351)	(0.00758)	(0.0194)	(0.0233)
Constant cut1	-0.841				
	(0.640)				
Constant cut2	0.412				
	(0.638)				
Constant cut3	2.006***				
	(0.643)				
Observations	649	649	649	649	649

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 5.4.5A. The Impact of SMCP on specific household assets (Logit Model)

	Logit Model								
	Radio Video DVD	Jewellery	Television	Stove	Refrigerator	Furniture	Car	mobile phone	cycle
Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Treatment effect	1.824***	2.070**	1.674***	1.268	1.562**	1.807***	0.976	1.918***	1.835**
	(0.535)	(1.043)	(0.492)	(0.783)	(0.746)	(0.623)	(1.077)	(0.534)	(0.761)
Anseba	0.838	14.27	0.666	15.38	-0.0425	1.843*	14.51	-0.696	1.118
	(0.658)	(1,282)	(0.675)	(776.3)	(0.735)	(1.118)	(2,208)	(0.574)	(1.144)
Barentu	1.279**	15.09	1.008*	13.27	-0.0804	1.578	15.68	0.236	1.826*
	(0.589)	(1,282)	(0.600)	(776.3)	(0.641)	(1.072)	(2,208)	(0.469)	(1.074)
Tesseney	0.813	15.27	1.039*	14.06	-0.147	1.995*	15.35	-0.210	1.619
	(0.606)	(1,282)	(0.608)	(776.3)	(0.666)	(1.074)	(2,208)	(0.484)	(1.087)
Debub	0.698	14.81	0.857	15.03	-0.267	2.528**	14.63	-0.242	0.982
	(0.593)	(1,282)	(0.597)	(776.3)	(0.642)	(1.058)	(2,208)	(0.470)	(1.090)
Maekel	-0.663		-0.107		-0.829	2.086*	14.60		
	(0.928)		(0.787)		(0.959)	(1.125)	(2,208)		
Female	0.624*	0.378	1.030***	-0.0763	0.494	0.450	-0.991	0.265	0.117
	(0.327)	(0.540)	(0.334)	(0.585)	(0.454)	(0.372)	(0.728)	(0.314)	(0.449)
Age	0.00558	0.00667	0.0279*	-0.0164	-0.00295	0.0119	-0.0344	0.000646	-0.00568
	(0.0139)	(0.0235)	(0.0143)	(0.0265)	(0.0197)	(0.0166)	(0.0333)	(0.0136)	(0.0207)
Separated/Divorced	0.151	-0.129	-0.140	-0.876	-0.142	-1.096**		-0.101	-1.124*
	(0.334)	(0.578)	(0.343)	(0.703)	(0.492)	(0.493)		(0.341)	(0.665)
Widowed	-0.165	0.589	-0.609	-0.894	0.519	-0.727		-0.111	0.874*
	(0.396)	(0.593)	(0.442)	(0.878)	(0.498)	(0.536)		(0.386)	(0.492)
Single/Never married	0.129		0.828		0.278	0.933		-0.257	0.717
	(0.874)		(0.772)		(1.133)	(0.880)		(0.864)	(1.219)
Informal Education	-0.334	-0.138	0.385	1.369	-0.102	0.486		-1.919*	0.411
	(0.666)	(1.109)	(0.605)	(1.282)	(1.118)	(0.627)		(1.052)	(0.881)
Formal Education	1.234***	1.236**	1.624***	2.013**	1.584***	0.971***	1.842*	1.056*	1.755***

								**	
	(0.297)	(0.493)	(0.323)	(0.790)	(0.491)	(0.357)	(1.071)	(0.279)	(0.460)
Household size	0.317	0.0218	0.628	-0.190	0.454	0.510	-0.172	0.474	1.017
	(0.320)	(0.215)	(0.434)	(0.652)	(0.797)	(0.569)	(0.691)	(0.362)	(0.764)
No of children up to 5 years	-0.418	-0.134	-0.720	-0.264	-0.435	-0.702	0.117	-	-1.228
								0.679*	
	(0.330)	(0.250)	(0.438)	(0.668)	(0.792)	(0.570)	(0.698)	(0.371)	(0.765)
No of children 6-17 years	-0.247	0.158	-0.566	-0.0995	-0.397	-0.468	-0.0377	-0.323	-0.857
	(0.333)	(0.223)	(0.440)	(0.667)	(0.796)	(0.572)	(0.708)	(0.374)	(0.771)
No adults 18 & above years	-0.228	0.164	-0.585	0.161	-0.370	-0.399	0.103	-0.467	-0.925
	(0.315)	(0.222)	(0.430)	(0.644)	(0.789)	(0.567)	(0.695)	(0.357)	(0.765)
No of hh members economically active	0.0440	-0.266	-0.101	0.0968	0.195	-0.143	0.0366	-	0.273**
								0.0163	
	(0.110)	(0.181)	(0.113)	(0.191)	(0.147)	(0.130)	(0.254)	(0.109)	(0.135)
No of participated children in Education	-0.00414	-0.184	0.156	0.131	0.0705	0.0609	0.215	0.0996	0.322**
	(0.117)	(0.167)	(0.118)	(0.201)	(0.154)	(0.123)	(0.316)	(0.124)	(0.159)
No of dropouts children from school	0.0200	0.0793	0.164	-0.118	-0.175	-0.0955	-0.192	0.114	0.250
	(0.128)	(0.151)	(0.131)	(0.284)	(0.232)	(0.175)	(0.422)	(0.124)	(0.156)
No of children in kindergarten	0.343	0.457	0.0517	0.688**	0.511*	0.413	0.748*	-0.224	0.660**
	(0.257)	(0.367)	(0.273)	(0.345)	(0.298)	(0.264)	(0.420)	(0.303)	(0.304)
No of children in elementary	-0.148	0.176	-0.209	-0.181	-0.258	-0.0429	-0.572	-	-0.385**
								0.311*	
								*	
	(0.123)	(0.165)	(0.128)	(0.198)	(0.184)	(0.135)	(0.408)	(0.134)	(0.179)
No of children in junior	-0.126	0.163	0.00673	0.263	-0.137	-0.0840	-0.00719	-0.118	-0.0765
	(0.125)	(0.154)	(0.118)	(0.167)	(0.183)	(0.132)	(0.346)	(0.127)	(0.164)
No of children in secondary	0.0684	-0.296	-0.0553	0.275	0.198	0.118	-0.104	0.0890	0.161
	(0.115)	(0.225)	(0.122)	(0.192)	(0.149)	(0.127)	(0.370)	(0.119)	(0.150)
No of children in college/University	0.0767	-0.0460	-0.126	-0.192	2.99e-05	-0.0638	-0.110	0.239	-0.282
	(0.258)	(0.462)	(0.271)	(0.438)	(0.359)	(0.296)	(0.868)	(0.241)	(0.406)
Constant	-5.587***	-21.39	-7.178***	-18.70	-5.442***	-7.145***	-18.05	-	-7.587***
								3.876***	
	(1.203)	(1,282)	(1.253)	(776.3)	(1.613)	(1.669)	(2,208)	(1.108)	(1.860)
Observations	652	601	652	601	652	652	456	612	612

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 5.4.5B. The Impact of SMCP on specific household assets (Marginal effect)

	Marginal Effect								
	Radio Video DVD	Jewellery	Television	Stove	Refrigerator	Furniture	Car	mobile phone	cycle
Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Treatment effect	0.247***	0.121*	0.223***	0.0596	0.114**	0.182***	0.0343	0.280***	0.146**
	(0.0716)	(0.0623)	(0.0646)	(0.0372)	(0.0552)	(0.0629)	(0.0383)	(0.0769)	(0.0607)
Anseba	0.113	0.835	0.0887	0.723	-0.00311	0.186*	0.510	-0.102	0.0890
	(0.0888)	(75.03)	(0.0897)	(36.50)	(0.0538)	(0.113)	(77.57)	(0.0836)	(0.0911)
Barentu	0.173**	0.883	0.134*	0.624	-0.00588	0.159	0.551	0.0346	0.145*
	(0.0790)	(75.03)	(0.0794)	(36.50)	(0.0470)	(0.108)	(77.57)	(0.0685)	(0.0855)
Tesseney	0.110	0.894	0.138*	0.661	-0.0108	0.201*	0.539	-0.0307	0.129
	(0.0817)	(75.03)	(0.0805)	(36.50)	(0.0488)	(0.108)	(77.57)	(0.0707)	(0.0865)
Debub	0.0945	0.867	0.114	0.706	-0.0196	0.255**	0.514	-0.0354	0.0781
	(0.0802)	(75.03)	(0.0792)	(36.50)	(0.0470)	(0.107)	(77.57)	(0.0687)	(0.0868)
Maekel	-0.0898		-0.0142		-0.0607	0.210*	0.513		
	(0.126)		(0.105)		(0.0703)	(0.114)	(77.57)		
Female	0.0845*	0.0221	0.137***	-0.00359	0.0362	0.0453	-0.0348	0.0387	0.00932
	(0.0439)	(0.0317)	(0.0436)	(0.0275)	(0.0333)	(0.0374)	(0.0261)	(0.0459)	(0.0357)
Age	0.000756	0.000390	0.00371**	-0.000773	-0.000216	0.00120	-0.00121	9.45e-05	-0.000452
	(0.00188)	(0.00138)	(0.00189)	(0.00125)	(0.00144)	(0.00167)	(0.00118)	(0.00199)	(0.00165)
Separated/Divorced	0.0204	-0.00753	-0.0186	-0.0412	-0.0104	-0.110**		-0.0147	-0.0894*
	(0.0452)	(0.0339)	(0.0456)	(0.0332)	(0.0360)	(0.0495)		(0.0499)	(0.0529)
Widowed	-0.0224	0.0345	-0.0810	-0.0420	0.0380	-0.0733		-0.0163	0.0695*
	(0.0536)	(0.0348)	(0.0586)	(0.0414)	(0.0365)	(0.0540)		(0.0565)	(0.0390)
Single/Never married	0.0174		0.110		0.0204	0.0940		-0.0375	0.0571
	(0.118)		(0.102)		(0.0830)	(0.0886)		(0.126)	(0.0970)
Informal Education	-0.0452	-0.00807	0.0512	0.0644	-0.00744	0.0490		-0.281*	0.0327
	(0.0901)	(0.0649)	(0.0805)	(0.0606)	(0.0819)	(0.0632)		(0.153)	(0.0701)
Formal Education	0.167***	0.0723**	0.216***	0.0947**	0.116***	0.0979***	0.0647	0.154***	0.140***
	(0.0388)	(0.0295)	(0.0412)	(0.0383)	(0.0367)	(0.0359)	(0.0393)	(0.0395)	(0.0364)
Household size	0.0429	0.00127	0.0836	-0.00891	0.0332	0.0514	-0.00603	0.0692	0.0809
	(0.0433)	(0.0126)	(0.0576)	(0.0307)	(0.0584)	(0.0574)	(0.0243)	(0.0527)	(0.0607)
No of children up to 5 years	-0.0566	-0.00785	-0.0958*	-0.0124	-0.0319	-0.0707	0.00412	-0.0992*	-0.0977
	(0.0445)	(0.0147)	(0.0580)	(0.0314)	(0.0580)	(0.0573)	(0.0245)	(0.0538)	(0.0608)

No of children 6-17 years	-0.0334	0.00924	-0.0753	-0.00468	-0.0291	-0.0472	-0.00132	-0.0472	-0.0682
	(0.0451)	(0.0131)	(0.0584)	(0.0313)	(0.0583)	(0.0577)	(0.0249)	(0.0546)	(0.0613)
No adults 18 & above years	-0.0308	0.00957	-0.0779	0.00757	-0.0271	-0.0402	0.00363	-0.0683	-0.0736
	(0.0426)	(0.0130)	(0.0571)	(0.0303)	(0.0578)	(0.0572)	(0.0244)	(0.0520)	(0.0608)
No of hh members economically active	0.00595	-0.0155	-0.0135	0.00455	0.0143	-0.0144	0.00129	-0.00238	0.0217**
	(0.0148)	(0.0106)	(0.0151)	(0.00896)	(0.0108)	(0.0131)	(0.00892)	(0.0159)	(0.0107)
No of participated children in Education	-0.000560	-0.0108	0.0208	0.00618	0.00516	0.00614	0.00754	0.0146	0.0256**
	(0.0158)	(0.00982)	(0.0156)	(0.00946)	(0.0113)	(0.0124)	(0.0112)	(0.0181)	(0.0126)
No of dropouts children from school	0.00270	0.00464	0.0218	-0.00556	-0.0128	-0.00962	-0.00674	0.0166	0.0199
	(0.0174)	(0.00884)	(0.0174)	(0.0134)	(0.0170)	(0.0176)	(0.0149)	(0.0181)	(0.0124)
No of children in kindergarten	0.0465	0.0268	0.00689	0.0323**	0.0374*	0.0416	0.0263*	-0.0328	0.0525**
	(0.0346)	(0.0215)	(0.0363)	(0.0162)	(0.0218)	(0.0264)	(0.0151)	(0.0443)	(0.0240)
No of children in elementary	-0.0200	0.0103	-0.0278	-0.00851	-0.0189	-0.00432	-0.0201	-0.0455**	-0.0307**
	(0.0167)	(0.00969)	(0.0169)	(0.00933)	(0.0135)	(0.0136)	(0.0147)	(0.0194)	(0.0142)
No of children in junior	-0.0171	0.00955	0.000896	0.0123	-0.0100	-0.00847	-0.000253	-0.0172	-0.00609
	(0.0168)	(0.00906)	(0.0157)	(0.00789)	(0.0134)	(0.0133)	(0.0121)	(0.0186)	(0.0130)
No of children in secondary	0.00926	-0.0173	-0.00736	0.0129	0.0145	0.0119	-0.00364	0.0130	0.0128
	(0.0156)	(0.0133)	(0.0162)	(0.00908)	(0.0109)	(0.0128)	(0.0130)	(0.0174)	(0.0119)
No of children in college/University	0.0104	-0.00269	-0.0167	-0.00904	2.19e-06	-0.00643	-0.00387	0.0349	-0.0224
	(0.0349)	(0.0270)	(0.0360)	(0.0206)	(0.0263)	(0.0299)	(0.0305)	(0.0352)	(0.0323)
Observations	652	601	652	601	652	652	456	612	612

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Appendix E

Table 5.5.1A Outcome variables as a function of SMCP's membership in years and covariates (1-18 years)

	OLS Model		Logit Model		Marginal Effect (logit	
Variables	Monthly income (1)	Monthly total sales (2)	Household Asset (3)	Housing improvement (4)	Household Asset (5)	Housing Improvement (6)
Membership in years	0.0389	0.0491**	0.129***	0.128***	0.0250***	0.0269***
	(0.0273)	(0.0226)	(0.0341)	(0.0335)	(0.00628)	(0.00666)
Anseba		1.099***	0.600	1.406**	0.116	0.295***
		(0.324)	(0.542)	(0.556)	(0.104)	(0.114)
Barentu		0.727***	0.759	1.657***	0.147	0.348***
		(0.272)	(0.472)	(0.494)	(0.0904)	(0.0998)
Tesseney		0.560*	0.806*	1.657***	0.156*	0.348***
		(0.315)	(0.474)	(0.497)	(0.0908)	(0.100)
Debub		0.514*	0.207	0.732	0.0400	0.154
		(0.274)	(0.475)	(0.508)	(0.0918)	(0.106)
Maekel		0.195	-1.351		-0.261	
		(0.447)	(1.243)		(0.239)	
Afar		-0.549		0.371***		
		(0.427)		(0.131)		
Bilen		-0.00792	0.150	1.125*	0.0302	0.240*
		(0.657)	(0.632)	(0.636)	(0.127)	(0.128)
Tigre		0.469*	-1.013***	-0.0197	-0.198***	-0.00413
		(0.270)	(0.347)	(0.327)	(0.0644)	(0.0685)
Kunama		0.609	-1.167	-0.156	-0.225*	-0.0324
		(0.573)	(0.722)	(0.692)	(0.125)	(0.142)
Nara		-0.0879	-0.462	0.239	-0.0932	0.0510
		(0.344)	(0.679)	(0.620)	(0.136)	(0.134)
Hidarb		-0.777				
		(0.749)				
Saho		-0.527	-0.0315	0.0463	-0.00639	0.00976
		(0.360)	(0.750)	(0.737)	(0.152)	(0.156)
Rashida						
Female	-0.275	-0.380	0.393	-0.0378	0.0759	-0.00795
	(0.204)	(0.240)	(0.291)	(0.287)	(0.0560)	(0.0602)
Age	-3.09e-05	-0.0156	-0.00704	-0.000764	-0.00136	-0.000161
	(0.00794)	(0.00972)	(0.0121)	(0.0117)	(0.00233)	(0.00245)
Separated/Divorced	-0.383	-0.620**	0.230	-0.0714	0.0445	-0.0150
	(0.292)	(0.270)	(0.350)	(0.332)	(0.0675)	(0.0697)
Widowed	-0.00625	-0.171	-0.0213	-0.00882	-0.00411	-0.00185
	(0.270)	(0.245)	(0.360)	(0.358)	(0.0697)	(0.0753)
Single/Never married	-0.663	-0.276	-0.213	0.0923	-0.0412	0.0194
	(0.463)	(0.393)	(0.716)	(0.700)	(0.138)	(0.147)
Informal Education	0.385	0.620	-0.762	-0.324	-0.147	-0.0680
	(0.259)	(0.399)	(0.536)	(0.489)	(0.103)	(0.103)
Formal Education	0.0263	0.534***	1.231***	0.821***	0.238***	0.172***
	(0.186)	(0.205)	(0.261)	(0.257)	(0.0464)	(0.0520)
Household size	-0.0827	-0.241	-0.397	0.155	-0.0768	0.0325
	(0.173)	(0.400)	(0.512)	(0.293)	(0.0989)	(0.0615)
No of children up to 5 years	0.0778	0.135	0.236	-0.360	0.0456	-0.0756
	(0.177)	(0.389)	(0.508)	(0.303)	(0.0981)	(0.0632)
No of children 6-17 years	0.184	0.187	0.279	-0.246	0.0540	-0.0518
	(0.201)	(0.393)	(0.512)	(0.310)	(0.0989)	(0.0650)
No adults 18 & above years	0.165	0.176	0.324	-0.229	0.0627	-0.0481
	(0.166)	(0.387)	(0.502)	(0.286)	(0.0970)	(0.0599)
No of hh members economically	0.0148	0.139	0.190*	-0.0216	0.0368*	-0.00454

active						
	(0.0745)	(0.0911)	(0.109)	(0.105)	(0.0209)	(0.0221)
No of participated children in Education	-0.0641	-0.00341	0.0745	0.00607	0.0144	0.00127
	(0.0946)	(0.125)	(0.118)	(0.117)	(0.0228)	(0.0245)
No of dropouts children from school	-0.0501	-0.0602	0.197	-0.0552	0.0380	-0.0116
	(0.113)	(0.124)	(0.123)	(0.115)	(0.0235)	(0.0242)
No of children in kindergarten	0.141	0.125	0.592**	-0.171	0.115**	-0.0359
	(0.247)	(0.188)	(0.283)	(0.274)	(0.0539)	(0.0575)
No of children in elementary	0.114	-0.0488	-0.206*	-0.0321	-0.0398*	-0.00674
	(0.0695)	(0.0966)	(0.110)	(0.111)	(0.0211)	(0.0233)
No of children in junior	-0.0995	0.0415	-0.0284	0.106	-0.00548	0.0222
	(0.0754)	(0.102)	(0.109)	(0.108)	(0.0211)	(0.0225)
No of children in secondary	0.0626	0.0325	0.102	0.0273	0.0196	0.00574
	(0.0736)	(0.110)	(0.125)	(0.120)	(0.0241)	(0.0253)
No of children in college/University	0.266	0.200	-0.274	-0.147	-0.0530	-0.0309
	(0.188)	(0.163)	(0.246)	(0.247)	(0.0474)	(0.0519)
Constant	7.680***	8.579***	-1.498	-2.326**		
	(0.542)	(0.710)	(0.940)	(0.940)		
Observations	259	286	513	495	513	495
R-squared	0.134	0.163				
	Robust standard errors in parentheses			Standard errors in parentheses		
	*** p<0.01, ** p<0.05, * p<0.1			*** p<0.01, ** p<0.05, * p<0.1		

Table 5.5.1B Household expenditure as a function of SMCP's membership in years and covariates (categorical)

	Ordered logit Model	Marginal Effect of ordered logit			
	Monthly household Expenditure	HH monthly Expenditure ERN 500-1000	HH Monthly Expenditure ERN 1001-2000	HH Monthly Expenditure ERN 2001-3000	Above ERN 3000
Variables	(1)	(2)	(3)	(4)	(5)
Membership in years	0.0559**	-0.00933**	-0.00269**	0.00516**	0.00686**
	(0.0270)	(0.00449)	(0.00133)	(0.00249)	(0.00332)
Anseba	0.460	-0.0768	-0.0221	0.0425	0.0565
	(0.422)	(0.0703)	(0.0204)	(0.0388)	(0.0518)
Barentu	-0.219	0.0365	0.0105	-0.0202	-0.0268
	(0.367)	(0.0613)	(0.0177)	(0.0339)	(0.0451)
Tesseney	0.00917	-0.00153	-0.000441	0.000846	0.00112
	(0.366)	(0.0611)	(0.0176)	(0.0338)	(0.0449)
Debub	0.180	-0.0300	-0.00864	0.0166	0.0221
	(0.376)	(0.0627)	(0.0181)	(0.0346)	(0.0461)
Maekel	-0.964	0.161	0.0463	-0.0889	-0.118
	(0.747)	(0.124)	(0.0370)	(0.0691)	(0.0920)
Afar	0.803	-0.110	-0.0631	0.0448***	0.128
	(0.986)	(0.107)	(0.0920)	(0.0173)	(0.184)
Bilen	0.0652	-0.0107	-0.00379	0.00589	0.00858
	(0.511)	(0.0827)	(0.0308)	(0.0451)	(0.0684)
Tigre	-0.211	0.0368	0.00997	-0.0211	-0.0257
	(0.265)	(0.0472)	(0.0113)	(0.0274)	(0.0311)
Kunama	-0.550	0.102	0.0177**	-0.0593	-0.0600
	(0.524)	(0.105)	(0.00752)	(0.0617)	(0.0485)
Nara	-2.740***	0.547***	-0.130*	-0.265***	-0.152***
	(0.814)	(0.126)	(0.0738)	(0.0451)	(0.0204)
Hidarb	-0.753	0.144	0.0171	-0.0836	-0.0771
	(1.554)	(0.327)	(0.0205)	(0.187)	(0.122)
Saho	-0.571	0.106	0.0178**	-0.0618	-0.0619
	(0.674)	(0.136)	(0.00733)	(0.0798)	(0.0610)
Rashida	-12.43	0.759***	-0.271***	-0.322***	-0.166***
	(646.8)	(0.0244)	(0.0218)	(0.0218)	(0.0183)
Female	-0.216	0.0360	0.0104	-0.0199	-0.0265
	(0.239)	(0.0398)	(0.0116)	(0.0221)	(0.0293)
Age	-0.0132	0.00220	0.000635	-0.00122	-0.00162
	(0.00972)	(0.00162)	(0.000476)	(0.000897)	(0.00120)
Separated/Divorced	-0.941***	0.157***	0.0452***	-0.0868***	-0.115***
	(0.284)	(0.0461)	(0.0157)	(0.0260)	(0.0359)
Widowed	-0.217	0.0362	0.0104	-0.0200	-0.0266
	(0.301)	(0.0501)	(0.0146)	(0.0278)	(0.0369)
Single/Never married	-0.547	0.0913	0.0263	-0.0505	-0.0671
	(0.569)	(0.0947)	(0.0278)	(0.0524)	(0.0700)
Informal Education	0.364	-0.0607	-0.0175	0.0336	0.0447
	(0.383)	(0.0639)	(0.0186)	(0.0353)	(0.0472)
Formal Education	0.310	-0.0516	-0.0149	0.0285	0.0380
	(0.206)	(0.0343)	(0.0102)	(0.0190)	(0.0254)
Household size	0.212	-0.0353	-0.0102	0.0195	0.0260
	(0.235)	(0.0392)	(0.0114)	(0.0217)	(0.0289)
No of children up to 5 years	-0.155	0.0259	0.00745	-0.0143	-0.0190
	(0.242)	(0.0403)	(0.0117)	(0.0223)	(0.0297)
No of children 6-17 years	-0.197	0.0329	0.00948	-0.0182	-0.0242
	(0.254)	(0.0423)	(0.0123)	(0.0234)	(0.0312)
No adults 18 & above years	-0.0772	0.0129	0.00371	-0.00712	-0.00946
	(0.230)	(0.0384)	(0.0111)	(0.0213)	(0.0283)

No of hh members economically active	0.136	-0.0227	-0.00655	0.0126	0.0167
	(0.0886)	(0.0148)	(0.00430)	(0.00817)	(0.0109)
No of participated children in Education	0.164	-0.0274	-0.00789	0.0151	0.0201
	(0.101)	(0.0169)	(0.00492)	(0.00934)	(0.0124)
No of dropouts children from school	-0.109	0.0182	0.00525	-0.0101	-0.0134
	(0.0977)	(0.0163)	(0.00478)	(0.00903)	(0.0120)
No of children in kindergarten	0.312	-0.0520	-0.0150	0.0287	0.0382
	(0.229)	(0.0383)	(0.0110)	(0.0212)	(0.0281)
No of children in elementary	-0.137	0.0229	0.00660	-0.0127	-0.0168
	(0.0976)	(0.0163)	(0.00474)	(0.00901)	(0.0120)
No of children in junior	-0.0432	0.00720	0.00208	-0.00398	-0.00530
	(0.0952)	(0.0159)	(0.00457)	(0.00877)	(0.0117)
No of children in secondary	-0.0111	0.00186	0.000535	-0.00103	-0.00136
	(0.100)	(0.0167)	(0.00481)	(0.00924)	(0.0123)
No of children in college/University	-0.0406	0.00678	0.00195	-0.00375	-0.00499
	(0.203)	(0.0339)	(0.00977)	(0.0187)	(0.0249)
Constant cut1	-1.092				
	(0.737)				
Constant cut2	0.242				
	(0.735)				
Constant cut3	1.969***				
	(0.741)				
Observations	514	514	514	514	514

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 5.5.2A Outcome variables as a function of SMCP's dummy years membership and covariates

	OLS Model		Logit Model		Marginal Effect (logit)	
Variables	Monthly income(log) (1)	Monthly total sales(log) (2)	Household Asset (3)	Housing improvement (4)	Household Asset (5)	Housing Improvement (6)
dummyyears2	0.486	0.154	1.227**	0.506	0.231**	0.104
	(0.357)	(0.454)	(0.549)	(0.580)	(0.102)	(0.118)
dummyyears3	0.0768	0.355	1.262**	1.361***	0.238***	0.279***
	(0.363)	(0.470)	(0.494)	(0.499)	(0.0911)	(0.0997)
dummyyears4	0.0686	0.167	1.899***	1.546***	0.358***	0.316***
	(0.324)	(0.434)	(0.497)	(0.498)	(0.0890)	(0.0987)
dummyyears5	0.144	0.0631	1.380***	1.524***	0.260***	0.312***
	(0.353)	(0.515)	(0.507)	(0.517)	(0.0931)	(0.103)
dummyyears6	0.156	-0.403	1.268**	1.482***	0.239**	0.303***
	(0.341)	(0.477)	(0.519)	(0.528)	(0.0958)	(0.105)
dummyyears7	-0.0950	0.302	1.294**	2.247***	0.244**	0.460***
	(0.360)	(0.457)	(0.564)	(0.570)	(0.104)	(0.110)
dummyyears8	0.0786	0.751	2.211***	1.455**	0.417***	0.298***
	(0.359)	(0.539)	(0.589)	(0.576)	(0.106)	(0.115)
dummyyears9	0.182	0.657	2.185***	1.994***	0.412***	0.408***
	(0.370)	(0.436)	(0.518)	(0.519)	(0.0917)	(0.101)
Anseba	0.374	1.170***	0.541	1.408**	0.102	0.288**
	(0.517)	(0.324)	(0.549)	(0.559)	(0.103)	(0.112)
Barentu	0.744**	0.676**	0.781	1.697***	0.147*	0.347***
	(0.338)	(0.277)	(0.475)	(0.495)	(0.0887)	(0.0970)
Tesseney	-0.685	0.565*	0.786	1.734***	0.148	0.355***
	(0.422)	(0.313)	(0.483)	(0.502)	(0.0901)	(0.0983)
Debub	0.482	0.581**	0.231	0.676	0.0435	0.138
	(0.361)	(0.282)	(0.486)	(0.513)	(0.0915)	(0.104)
Maekel	-0.599	0.131	-1.202		-0.226	
	(0.473)	(0.464)	(1.233)		(0.231)	
Afar	1.741***	0.0917	2.319		0.363***	
	(0.473)	(0.723)	(1.446)		(0.140)	
Bilen	0.120	0.519*	0.316	1.256*	0.0618	0.258**
	(0.303)	(0.272)	(0.645)	(0.661)	(0.124)	(0.125)
Tigre	-0.703	0.611	-0.951***	-0.00978	-0.181***	-0.00200
	(0.493)	(0.595)	(0.353)	(0.332)	(0.0648)	(0.0680)
Kunama	-0.539	-0.0788	-1.156	-0.00481	-0.217*	-0.000986
	(0.402)	(0.380)	(0.729)	(0.721)	(0.124)	(0.148)
Nara	-0.464	-0.979	-0.528	0.205	-0.103	0.0426
	(0.674)	(0.769)	(0.699)	(0.642)	(0.134)	(0.134)
Hidarb	-0.479	-0.361				
	(0.359)	(0.373)				
Saho	-1.882***		0.230	0.0753	0.0450	0.0155
	(0.613)		(0.784)	(0.755)	(0.152)	(0.156)
Rashida	-0.543**	-0.391				
	(0.218)	(0.238)				
Female	-0.00181	-0.0155	0.348	-0.135	0.0655	-0.0277
	(0.00767)	(0.00949)	(0.298)	(0.292)	(0.0558)	(0.0598)
Age	-0.342	-0.612**	-0.00653	-0.00263	-0.00123	-0.000539
	(0.276)	(0.263)	(0.0123)	(0.0120)	(0.00232)	(0.00245)
Separated/Divorced	-0.119	-0.178	0.139	-0.121	0.0262	-0.0248
	(0.275)	(0.251)	(0.358)	(0.342)	(0.0675)	(0.0699)
Widowed	-0.774	-0.171	-0.152	-0.00520	-0.0285	-0.00106
	(0.486)	(0.420)	(0.366)	(0.364)	(0.0688)	(0.0745)
Single/Never married	0.362	0.786*	-0.145	0.307	-0.0272	0.0629
	(0.229)	(0.436)	(0.733)	(0.721)	(0.138)	(0.147)
Informal Education	0.0227	0.530**	-0.850	-0.271	-0.160	-0.0555
	(0.186)	(0.205)	(0.548)	(0.493)	(0.102)	(0.101)

Formal Education	0.204	-0.371	1.198***	0.863***	0.226***	0.177***
	(0.168)	(0.396)	(0.267)	(0.264)	(0.0465)	(0.0519)
Household size	-0.235	0.247	-0.503	0.204	-0.0947	0.0418
	(0.165)	(0.391)	(0.541)	(0.299)	(0.102)	(0.0611)
No of children up to 5 years	-0.0550	0.298	0.306	-0.418	0.0577	-0.0857
	(0.188)	(0.393)	(0.535)	(0.309)	(0.101)	(0.0628)
No of children 6-17 years	-0.137	0.301	0.380	-0.295	0.0715	-0.0604
	(0.167)	(0.382)	(0.540)	(0.317)	(0.101)	(0.0646)
No adults 18 & above years	-0.0367	0.144	0.416	-0.288	0.0784	-0.0591
	(0.0754)	(0.0908)	(0.531)	(0.291)	(0.0998)	(0.0594)
No of hh members economically active	-0.0725	0.0121	0.200*	-0.0275	0.0377*	-0.00563
	(0.0877)	(0.124)	(0.112)	(0.107)	(0.0209)	(0.0219)
No of participated children in Education	-0.00235	-0.0748	0.0777	0.00149	0.0146	0.000304
	(0.106)	(0.124)	(0.120)	(0.119)	(0.0227)	(0.0243)
No of dropouts children from school	-0.0146	0.113	0.202	-0.0500	0.0381	-0.0102
	(0.254)	(0.204)	(0.128)	(0.119)	(0.0240)	(0.0244)
No of children in kindergarten	0.0872	-0.0406	0.747**	-0.155	0.141**	-0.0317
	(0.0712)	(0.0989)	(0.302)	(0.275)	(0.0558)	(0.0562)
No of children in elementary	-0.103	0.0542	-0.237**	-0.0501	-0.0446**	-0.0103
	(0.0756)	(0.105)	(0.113)	(0.115)	(0.0211)	(0.0235)
No of children in junior	0.0300	-0.00713	0.00735	0.144	0.00138	0.0296
	(0.0750)	(0.111)	(0.112)	(0.110)	(0.0211)	(0.0224)
No of children in secondary	0.236	0.153	0.0866	0.0584	0.0163	0.0120
	(0.175)	(0.168)	(0.124)	(0.121)	(0.0233)	(0.0248)
No of children in college/University		-0.601	-0.302	-0.143	-0.0568	-0.0294
		(0.536)	(0.250)	(0.249)	(0.0469)	(0.0510)
Constant	7.683***	8.613***	-2.197**	-2.961***		
	(0.650)	(0.799)	(1.026)	(1.026)		
Observations	259	286	513	495	513	495
R-squared	0.298	0.196				
	Robust standard errors in parentheses			Standard errors in parentheses		
	*** p<0.01, ** p<0.05, * p<0.1			*** p<0.01, ** p<0.05, * p<0.1		

Table 5.5.2B Household expenditure as a function of SMCP's dummy membership in years and covariates

	Order logit Model	Marginal Effect of ordered logit			
	Monthly household Expenditure	HH monthly Expenditure ERN 500-1000	HH Monthly Expenditure ERN 1001-2000	HH Monthly Expenditure ERN 2001-3000	Above ERN 3000
Variables	(1)	(2)	(3)	(4)	(5)
dummyyears2	0.749*	-0.124*	-0.124*	-0.0359*	0.0686*
	(0.418)	(0.0666)	(0.0694)	(0.0201)	(0.0372)
dummyyears3	0.448	-0.0742	-0.0742	-0.0215	0.0411
	(0.431)	(0.0631)	(0.0709)	(0.0186)	(0.0351)
dummyyears4	0.626	-0.104*	-0.104	-0.0300	0.0574*
	(0.404)	(0.0611)	(0.0665)	(0.0183)	(0.0341)
dummyyears5	0.635	-0.105*	-0.105	-0.0305	0.0583*
	(0.406)	(0.0633)	(0.0672)	(0.0189)	(0.0353)
dummyyears6	0.605	-0.100	-0.100	-0.0290	0.0554
	(0.442)	(0.0659)	(0.0728)	(0.0196)	(0.0367)
dummyyears7	0.132	-0.0219	-0.0219	-0.00635	0.0121
	(0.467)	(0.0711)	(0.0773)	(0.0206)	(0.0394)
dummyyears8	0.637	-0.106	-0.106	-0.0306	0.0585
	(0.495)	(0.0746)	(0.0817)	(0.0220)	(0.0414)
dummyyears9	0.946**	-0.157**	-0.157**	-0.0454**	0.0868**
	0.432	-0.0715	-0.0715	-0.0207	0.0396
Anseba	(0.447)	(0.0707)	(0.0735)	(0.0206)	(0.0391)
	-0.180	0.0298	0.0298	0.00864	-0.0165
Barentu	(0.381)	(0.0617)	(0.0632)	(0.0179)	(0.0342)
	0.0280	-0.00464	-0.00464	-0.00135	0.00257
Tesseney	(0.391)	(0.0624)	(0.0648)	(0.0181)	(0.0346)
	0.240	-0.0398	-0.0398	-0.0115	0.0220
Debub	(0.394)	(0.0637)	(0.0649)	(0.0185)	(0.0353)
	-1.144*	0.189	0.189*	0.0549	-0.105
Maekel	(0.600)	(0.123)	(0.0995)	(0.0373)	(0.0689)
	0.645	-0.0916	-0.0916	-0.0480	0.0416
Afar	(0.532)	(0.120)	(0.0646)	(0.0891)	(0.0342)
	0.0561	-0.00918	-0.00918	-0.00319	0.00508
Bilen	(0.516)	(0.0836)	(0.0834)	(0.0303)	(0.0458)
	-0.178	0.0305	0.0305	0.00849	-0.0175
Tigre	(0.264)	(0.0470)	(0.0464)	(0.0117)	(0.0272)
	-0.590	0.109	0.109	0.0176***	-0.0637
Kunama	(0.497)	(0.105)	(0.0996)	(0.00654)	(0.0616)
	-2.735***	0.543***	0.543***	-0.129*	-0.263***
Nara	(0.931)	(0.127)	(0.144)	(0.0745)	(0.0453)
	-0.769	0.146	0.146	0.0166	-0.0851
Hidarb	(2.453)	(0.331)	(0.515)	(0.0231)	(0.189)
	-0.493	0.0898	0.0898	0.0169	-0.0523
Saho	(0.737)	(0.133)	(0.145)	(0.0104)	(0.0787)
	-12.33***	0.757***	0.757***	-0.272***	-0.320***
Rashida	(1.140)	(0.0261)	(0.0215)	(0.0229)	(0.0218)
	-0.226	0.0373	0.0373	0.0108	-0.0207
Female	(0.246)	(0.0396)	(0.0406)	(0.0116)	(0.0220)
	-0.0120	0.00199	0.00199	0.000578	-0.00110
Age	(0.00951)	(0.00160)	(0.00157)	(0.000474)	(0.000891)
	-0.939***	0.156***	0.156***	0.0451***	-0.0861***
Separated/Divorced	(0.284)	(0.0465)	(0.0461)	(0.0157)	(0.0262)
	-0.267	0.0442	0.0442	0.0128	-0.0245
Widowed	(0.326)	(0.0500)	(0.0540)	(0.0146)	(0.0278)
	-0.547	0.0905	0.0905	0.0262	-0.0501
Single/Never married	(0.525)	(0.0949)	(0.0869)	(0.0280)	(0.0527)

	0.387	-0.0641	-0.0641	-0.0186	0.0355
Informal Education	(0.426)	(0.0636)	(0.0702)	(0.0186)	(0.0352)
	0.318	-0.0526	-0.0526	-0.0153	0.0292
Formal Education	(0.201)	(0.0344)	(0.0333)	(0.0103)	(0.0191)
	0.225	-0.0373	-0.0373	-0.0108	0.0207
Household size	(0.217)	(0.0389)	(0.0360)	(0.0114)	(0.0216)
	-0.179	0.0296	0.0296	0.00858	-0.0164
No of children up to 5 years	(0.225)	(0.0401)	(0.0372)	(0.0117)	(0.0222)
	-0.210	0.0348	0.0348	0.0101	-0.0193
No of children 6-17 years	(0.253)	(0.0421)	(0.0418)	(0.0123)	(0.0234)
	-0.0894	0.0148	0.0148	0.00429	-0.00820
No adults 18 & above years	(0.218)	(0.0381)	(0.0361)	(0.0111)	(0.0211)
	0.135	-0.0224	-0.0224	-0.00648	0.0124
No of hh members economically active	(0.0891)	(0.0147)	(0.0147)	(0.00431)	(0.00816)
	0.174	-0.0288*	-0.0288	-0.00836*	0.0160*
No of participated children in Education	(0.123)	(0.0169)	(0.0203)	(0.00497)	(0.00938)
	-0.107	0.0176	0.0176	0.00511	-0.00977
No of dropouts children from school	(0.108)	(0.0164)	(0.0179)	(0.00483)	(0.00910)
	0.370	-0.0613	-0.0613	-0.0178	0.0339
No of children in kindergarten	(0.256)	(0.0382)	(0.0422)	(0.0111)	(0.0213)
	-0.149	0.0246	0.0246	0.00713	-0.0136
No of children in elementary	(0.122)	(0.0163)	(0.0201)	(0.00479)	(0.00904)
	-0.0387	0.00640	0.00640	0.00186	-0.00355
No of children in junior	(0.115)	(0.0160)	(0.0191)	(0.00461)	(0.00883)
	-0.0238	0.00394	0.00394	0.00114	-0.00218
No of children in secondary	(0.118)	(0.0168)	(0.0196)	(0.00486)	(0.00929)
	-0.0163	0.00269	0.00269	0.000781	-0.00149
No of children in college/University	(0.229)	(0.0341)	(0.0379)	(0.00989)	(0.0189)
	0.432	-0.0715	-0.0715	-0.0207	0.0396
Constant cut1	-0.736				
	(0.750)				
Constant cut2	0.613				
	(0.750)				
Constant cut3	2.347***				
	(0.759)				
Observations	514	514	514	514	514

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 5.5.3A Outcome variables as a function of SMCP's dummy loan cycle and covariates

	OLS Model		Logit Model		Marginal Effect (logit)	
Variables	Monthly income(log) (1)	Monthly total sales(log) (2)	Household Asset (3)	Housing improvement (4)	Household Asset (5)	Housing Improvement (6)
Dummy loan cycle2	0.357*	0.189	0.945***	0.894***	0.190***	0.183***
	(0.192)	(0.231)	(0.304)	(0.319)	(0.0594)	(0.0638)
Dummy loan cycle3	0.571***	0.384	0.578*	0.898***	0.116*	0.183***
	(0.203)	(0.249)	(0.311)	(0.325)	(0.0618)	(0.0650)
Dummy loan cycle4	0.447**	0.343	1.032***	1.215***	0.207***	0.248***
	(0.204)	(0.276)	(0.322)	(0.336)	(0.0628)	(0.0661)
Dummy loan cycle5	0.539**	0.363	0.993***	1.214***	0.199***	0.248***
	(0.257)	(0.258)	(0.339)	(0.352)	(0.0665)	(0.0695)
Dummy loan cycle6	1.004***	0.570	0.642	0.251	0.129	0.0512
	(0.297)	(0.449)	(0.491)	(0.538)	(0.0981)	(0.110)
Dummy loan cycle7	1.376***	0.0975	0.513	0.749	0.103	0.153
	(0.328)	(0.358)	(0.546)	(0.551)	(0.109)	(0.112)
Dummy loan cycle8	1.140***	1.002**	1.824***	1.573***	0.366***	0.321***
	(0.362)	(0.471)	(0.522)	(0.495)	(0.101)	(0.0981)
Anseba	0.754**	0.958***	0.245	0.960*	0.0491	0.196*
	(0.366)	(0.303)	(0.515)	(0.534)	(0.103)	(0.108)
Barentu	0.855***	0.520*	0.559	1.321***	0.112	0.270***
	(0.312)	(0.266)	(0.453)	(0.476)	(0.0906)	(0.0951)
Tesseney	-0.597*	0.313	0.422	1.054**	0.0847	0.215**
	(0.339)	(0.283)	(0.445)	(0.467)	(0.0892)	(0.0940)
Debub	0.779**	0.689***	0.392	0.498	0.0787	0.102
	(0.305)	(0.257)	(0.452)	(0.480)	(0.0905)	(0.0978)
Maekel	0.184	0.459	-0.353	-0.615	-0.0709	-0.126
	(0.339)	(0.281)	(0.557)	(0.646)	(0.112)	(0.132)
Afar		-0.854**	1.997		0.346**	
		(0.390)	(1.393)		(0.163)	
Bilen	1.177**	-0.112	-0.112	0.852	-0.0233	0.181
	(0.563)	(0.592)	(0.598)	(0.596)	(0.125)	(0.127)
Tigre	0.146	0.467*	-0.811***	-0.0529	-0.164***	-0.0107
	(0.280)	(0.266)	(0.313)	(0.302)	(0.0611)	(0.0610)
Kunama	-0.417	0.520	-0.854	0.203	-0.172	0.0421
	(0.413)	(0.456)	(0.635)	(0.605)	(0.120)	(0.127)
Nara	-0.375	-0.120	-0.457	0.217	-0.0946	0.0451
	(0.320)	(0.357)	(0.651)	(0.594)	(0.133)	(0.125)
Hidarb	0.212	-0.905				
	(0.521)	(0.749)				
Saho	-0.0798	-0.485	-0.647	-0.209	-0.132	-0.0417
	(0.345)	(0.339)	(0.698)	(0.708)	(0.138)	(0.138)
Rashida	-1.968***					
	(0.472)					
Female	-0.588***	-0.397*	0.235	-0.213	0.0472	-0.0434
	(0.186)	(0.205)	(0.260)	(0.262)	(0.0521)	(0.0533)
Age	-0.000363	-0.0153*	-0.00728	-0.00351	-0.00146	-0.000716
	(0.00672)	(0.00842)	(0.0109)	(0.0107)	(0.00218)	(0.00219)
Separated/Divorced	-0.0355	-0.424*	0.382	-0.121	0.0766	-0.0247
	(0.231)	(0.238)	(0.302)	(0.296)	(0.0603)	(0.0604)
Widowed	-0.0311	-0.0826	0.0702	0.0315	0.0141	0.00642
	(0.221)	(0.231)	(0.316)	(0.322)	(0.0634)	(0.0658)
Single/Never married	-0.612	-0.0926	-0.476	-0.0318	-0.0956	-0.00649
	(0.418)	(0.374)	(0.693)	(0.696)	(0.139)	(0.142)

Informal Education	-0.0544	0.390	-0.589	0.0776	-0.118	0.0158
	(0.221)	(0.331)	(0.456)	(0.420)	(0.0911)	(0.0858)
Formal Education	-0.172	0.496***	1.147***	0.911***	0.230***	0.186***
	(0.149)	(0.179)	(0.232)	(0.235)	(0.0432)	(0.0459)
Household size	0.124	-0.214	0.0346	0.217	0.00694	0.0443
	(0.0927)	(0.339)	(0.188)	(0.253)	(0.0378)	(0.0515)
No of children up to 5 years	-0.159*	0.115	-0.120	-0.394	-0.0241	-0.0805
	(0.0891)	(0.329)	(0.194)	(0.257)	(0.0388)	(0.0522)
No of children 6-17 years	-0.0214	0.196	-0.101	-0.206	-0.0203	-0.0420
	(0.0884)	(0.330)	(0.191)	(0.260)	(0.0383)	(0.0530)
No adults 18 & above years	-0.0815	0.211	-0.0770	-0.296	-0.0154	-0.0604
	(0.0966)	(0.331)	(0.188)	(0.250)	(0.0376)	(0.0508)
No of hh members economically active	-0.0869	0.00170	0.0972	-0.0432	0.0195	-0.00882
	(0.0596)	(0.0800)	(0.0947)	(0.0946)	(0.0190)	(0.0193)
No of participated children in Education	-0.0437	-0.0137	0.0173	-0.0652	0.00348	-0.0133
	(0.0570)	(0.0867)	(0.0978)	(0.0994)	(0.0196)	(0.0203)
No of dropouts children from school	0.0395	0.0223	0.159	-0.0567	0.0320	-0.0116
	(0.0814)	(0.111)	(0.107)	(0.107)	(0.0214)	(0.0219)
No of children in kindergarten	-0.160	0.0213	0.527**	-0.248	0.106**	-0.0507
	(0.149)	(0.153)	(0.249)	(0.246)	(0.0494)	(0.0501)
No of children in elementary	0.0353	-0.0446	-0.191*	-0.0769	-0.0383*	-0.0157
	(0.0635)	(0.0868)	(0.102)	(0.101)	(0.0202)	(0.0207)
No of children in junior	-0.104*	0.0565	0.0199	0.106	0.00400	0.0217
	(0.0587)	(0.0918)	(0.0979)	(0.0967)	(0.0196)	(0.0197)
No of children in secondary	0.0219	-0.0101	0.183*	0.0747	0.0368*	0.0153
	(0.0722)	(0.0942)	(0.106)	(0.104)	(0.0212)	(0.0212)
No of children in college/University	0.182	0.139	-0.173	-0.0754	-0.0348	-0.0154
	(0.132)	(0.162)	(0.220)	(0.225)	(0.0441)	(0.0459)
Constant	7.434***	8.559***	-1.456*	-2.086**		
	(0.569)	(0.661)	(0.869)	(0.885)		
Observation	367	362	648	637	648	637
R-squared	0.313	0.138				

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 5.5.3B Household expenditure as a function of SMCP's dummy loan cycle and covariates

	Order logit Model	Marginal Effect of ordered logit			
	Monthly household Expenditure	HH monthly Expenditure ERN 500-1000	HH Monthly Expenditure ERN 1001-2000	HH Monthly Expenditure ERN 2001-3000	Above ERN 3000
Variables	(1)	(2)	(3)	(4)	(5)
Dummy loan cycle2	-0.163	0.0288	0.00695	-0.0159	-0.0198
	(0.245)	(0.0434)	(0.0105)	(0.0240)	(0.0299)
Dummy loan cycle3	0.265	-0.0469	-0.0113	0.0260	0.0323
	(0.246)	(0.0435)	(0.0107)	(0.0242)	(0.0300)
Dummy loan cycle4	0.249	-0.0441	-0.0106	0.0244	0.0303
	(0.260)	(0.0460)	(0.0113)	(0.0255)	(0.0317)
Dummy loan cycle5	0.101	-0.0179	-0.00433	0.00994	0.0123
	(0.273)	(0.0484)	(0.0117)	(0.0268)	(0.0333)
Dummy loan cycle6	0.718*	-0.127*	-0.0307	0.0704*	0.0874*
	(0.427)	(0.0755)	(0.0188)	(0.0420)	(0.0521)
Dummy loan cycle7	0.355	-0.0628	-0.0152	0.0348	0.0432
	(0.458)	(0.0810)	(0.0197)	(0.0449)	(0.0558)
Dummy loan cycle8	1.091**	-0.193**	-0.0466**	0.107**	0.133**
	(0.424)	(0.0750)	(0.0189)	(0.0420)	(0.0516)
Anseba	0.174	-0.0309	-0.00745	0.0171	0.0212
	(0.401)	(0.0711)	(0.0172)	(0.0393)	(0.0489)
Barentu	-0.342	0.0605	0.0146	-0.0335	-0.0416
	(0.356)	(0.0630)	(0.0153)	(0.0350)	(0.0434)
Tesseney	-0.352	0.0624	0.0151	-0.0345	-0.0429
	(0.344)	(0.0610)	(0.0149)	(0.0338)	(0.0419)
Debub	0.0562	-0.00995	-0.00240	0.00551	0.00684
	(0.355)	(0.0628)	(0.0152)	(0.0348)	(0.0432)
Maekel	-0.757*	0.134*	0.0324*	-0.0742*	-0.0922*
	(0.437)	(0.0772)	(0.0194)	(0.0429)	(0.0535)
Afar	0.760	-0.111	-0.0590	0.0503*	0.120
	(0.968)	(0.114)	(0.0926)	(0.0269)	(0.181)
Bilen	-0.186	0.0342	0.00795	-0.0197	-0.0225
	(0.481)	(0.0911)	(0.0167)	(0.0528)	(0.0550)
Tigre	-0.0439	0.00782	0.00216	-0.00445	-0.00554
	(0.248)	(0.0444)	(0.0119)	(0.0253)	(0.0310)
Kunama	-0.718	0.144	0.0113	-0.0824	-0.0728*
	(0.485)	(0.106)	(0.0110)	(0.0587)	(0.0389)
Nara	-2.237***	0.473***	-0.104	-0.230***	-0.139***
	(0.677)	(0.125)	(0.0673)	(0.0464)	(0.0201)
Hidarb	-1.594	0.342	-0.0413	-0.179	-0.121**
	(1.321)	(0.291)	(0.118)	(0.125)	(0.0510)
Saho	-1.295**	0.275*	-0.0169	-0.149**	-0.109***
	(0.649)	(0.147)	(0.0466)	(0.0700)	(0.0339)
Rashida	-12.26	0.745***	-0.279***	-0.306***	-0.161***
	(491.5)	(0.0213)	(0.0191)	(0.0191)	(0.0160)
Female	-0.244	0.0433	0.0104	-0.0239	-0.0298
	(0.215)	(0.0380)	(0.00931)	(0.0211)	(0.0262)
Age	-0.00864	0.00153	0.000369	-0.000847	-0.00105
	(0.00873)	(0.00154)	(0.000377)	(0.000856)	(0.00106)
Separated/Divorced	-0.778***	0.138***	0.0332***	-0.0762***	-0.0947***
	(0.247)	(0.0430)	(0.0120)	(0.0240)	(0.0308)
Widowed	-0.256	0.0453	0.0109	-0.0251	-0.0311
	(0.269)	(0.0476)	(0.0117)	(0.0264)	(0.0329)
Single/Never married	-0.722	0.128	0.0309	-0.0708	-0.0880
	(0.548)	(0.0968)	(0.0241)	(0.0537)	(0.0671)
Informal Education	0.0455	-0.00806	-0.00195	0.00446	0.00555
	(0.335)	(0.0593)	(0.0143)	(0.0328)	(0.0408)

Formal Education	0.322*	-0.0571*	-0.0138*	0.0316*	0.0392*
	(0.186)	(0.0329)	(0.00826)	(0.0183)	(0.0228)
Household size	0.0739	-0.0131	-0.00316	0.00725	0.00901
	(0.145)	(0.0256)	(0.00619)	(0.0142)	(0.0176)
No of children up to 5 years	-0.0831	0.0147	0.00355	-0.00815	-0.0101
	(0.148)	(0.0263)	(0.00636)	(0.0145)	(0.0181)
No of children 6-17 years	-0.00474	0.000840	0.000203	-0.000465	-0.000577
	(0.147)	(0.0260)	(0.00628)	(0.0144)	(0.0179)
No adults 18 & above years	0.0340	-0.00602	-0.00145	0.00333	0.00414
	(0.145)	(0.0257)	(0.00622)	(0.0143)	(0.0177)
No of hh members economically active	-0.000284	5.03e-05	1.21e-05	-2.79e-05	-3.46e-05
	(0.0776)	(0.0137)	(0.00332)	(0.00761)	(0.00945)
No of participated children in Education	0.0806	-0.0143	-0.00344	0.00790	0.00982
	(0.0833)	(0.0147)	(0.00359)	(0.00816)	(0.0102)
No of dropouts children from school	-0.0500	0.00885	0.00214	-0.00490	-0.00608
	(0.0880)	(0.0156)	(0.00377)	(0.00863)	(0.0107)
No of children in kindergarten	0.134	-0.0238	-0.00574	0.0132	0.0164
	(0.203)	(0.0359)	(0.00867)	(0.0199)	(0.0247)
No of children in elementary	-0.0720	0.0128	0.00308	-0.00706	-0.00877
	(0.0886)	(0.0157)	(0.00380)	(0.00868)	(0.0108)
No of children in junior	-0.0717	0.0127	0.00307	-0.00703	-0.00873
	(0.0851)	(0.0151)	(0.00366)	(0.00833)	(0.0104)
No of children in secondary	-0.0444	0.00786	0.00190	-0.00435	-0.00541
	(0.0907)	(0.0161)	(0.00388)	(0.00889)	(0.0110)
No of children in college/University	-0.0270	0.00478	0.00115	-0.00264	-0.00329
	(0.187)	(0.0331)	(0.00799)	(0.0183)	(0.0228)
Constant cut1	-1.357**				
	(0.688)				
Constant cut2	-0.0440				
	(0.685)				
Constant cut3	1.593**				
	(0.689)				
Observations	649	649	649	649	649

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 5.5.4A Outcome variables as a function of loan size

	OLS Model		Logit Model		Marginal Effect (logit)	
Variables	Monthly income (1)	Monthly total sales (2)	Household Asset (3)	Housing improvement (4)	Household Asset (5)	Household Asset (7)
Total loan size/100	1.521**	2.958***	0.000308***	0.000162**	6.24e-05***	0.000162**
	(0.627)	(1.054)	(8.37e-05)	(7.60e-05)	(1.63e-05)	(7.60e-05)
Anseba	-1,862	8,413**	0.117	0.770	0.0236	0.770
	(2,942)	(4,065)	(0.510)	(0.525)	(0.103)	(0.525)
Barentu	4,833**	3,066	0.571	1.331***	0.116	1.331***
	(2,014)	(3,739)	(0.451)	(0.471)	(0.0909)	(0.471)
Tesseney	-2,586	13,046**	0.441	1.089**	0.0893	1.089**
	(2,056)	(5,744)	(0.444)	(0.463)	(0.0895)	(0.463)
Debub	2,640	11,012***	0.320	0.408	0.0648	0.408
	(1,979)	(3,961)	(0.450)	(0.474)	(0.0909)	(0.474)
Maekel	133.4	984.7	-0.400	-0.640	-0.0809	-0.640
	(2,553)	(4,074)	(0.556)	(0.637)	(0.112)	(0.637)
Afar		-6,143	2.002		0.353**	
		(7,159)	(1.353)		(0.160)	
Bilen	20,163***	2,437	0.0306	0.936	0.00644	0.936
	(7,765)	(9,906)	(0.595)	(0.582)	(0.126)	(0.582)
Tigre	-332.8	4,109	-0.665**	0.00374	-0.137**	0.00374
	(2,204)	(4,414)	(0.311)	(0.298)	(0.0626)	(0.298)
Kunama	-3,131	-1,244	-0.952	-0.0312	-0.191*	-0.0312
	(3,414)	(9,404)	(0.621)	(0.580)	(0.114)	(0.580)
Nara	-7,622***	-6,899	-0.457	0.0664	-0.0951	0.0664
	(1,937)	(4,708)	(0.634)	(0.573)	(0.130)	(0.573)
Hidarb	-3,710	-6,184				
	(2,513)	(6,835)				
Saho	-3,913	-10,173	-0.491	-0.289	-0.102	-0.289
	(2,419)	(7,079)	(0.672)	(0.677)	(0.136)	(0.677)
Rashida	-3,862					
	(3,296)					
Female	-5,582***	-5,248	0.334	-0.111	0.0676	-0.111
	(1,896)	(4,528)	(0.258)	(0.257)	(0.0519)	(0.257)
Age	-26.90	-302.4*	-0.00656	-0.00231	-0.00133	-0.00231
	(61.38)	(179.4)	(0.0107)	(0.0105)	(0.00216)	(0.0105)
Separated/Divorced	2,538	-7,253*	0.365	-0.111	0.0739	-0.111
	(1,876)	(3,819)	(0.299)	(0.290)	(0.0602)	(0.290)
Widowed	254.1	-5,123*	0.0467	0.000921	0.00946	0.000921
	(1,665)	(2,841)	(0.309)	(0.315)	(0.0626)	(0.315)
Single/Never married	-2,740	-4,657	-0.435	-0.0518	-0.0881	-0.0518
	(2,064)	(5,899)	(0.678)	(0.686)	(0.137)	(0.686)
Informal Education	-803.3	4,051	-0.599	0.0981	-0.121	0.0981
	(1,756)	(4,017)	(0.452)	(0.413)	(0.0911)	(0.413)
Formal Education	-1,850	6,658**	1.046***	0.893***	0.212***	0.893***
	(1,265)	(2,668)	(0.229)	(0.232)	(0.0435)	(0.232)
Household size	2,500**	-9,328*	0.0383	0.209	0.00775	0.209
	(976.9)	(5,631)	(0.185)	(0.247)	(0.0374)	(0.247)
No of children up to 5 years	-1,932**	6,132	-0.111	-0.372	-0.0225	-0.372
	(920.0)	(4,884)	(0.190)	(0.251)	(0.0385)	(0.251)
No of children 6-17 years	-1,467	7,538	-0.0946	-0.184	-0.0191	-0.184
	(910.9)	(4,714)	(0.186)	(0.253)	(0.0377)	(0.253)
No adults 18 & above years	-1,842*	8,343	-0.0824	-0.277	-0.0167	-0.277
	(967.3)	(5,154)	(0.183)	(0.243)	(0.0371)	(0.243)
No of hh members economically active	-823.3	606.6	0.0802	-0.0416	0.0162	-0.0416
	(555.1)	(1,700)	(0.0929)	(0.0918)	(0.0188)	(0.0918)
No of participated children in Education	-540.4	-36.45	0.0206	-0.0652	0.00417	-0.0652

	(479.2)	(2,518)	(0.0969)	(0.0975)	(0.0196)	(0.0975)
No of dropouts children from school	310.1	383.0	0.161	-0.0584	0.0326	-0.0584
	(704.2)	(1,702)	(0.103)	(0.103)	(0.0208)	(0.103)
No of children in kindergarten	-2,131	2,628	0.457*	-0.216	0.0925*	-0.216
	(1,335)	(3,580)	(0.248)	(0.245)	(0.0497)	(0.245)
No of children in elementary	353.5	42.11	-0.167*	-0.0567	-0.0337*	-0.0567
	(568.5)	(1,697)	(0.0997)	(0.0980)	(0.0200)	(0.0980)
No of children in junior	-337.6	434.6	0.0109	0.0715	0.00220	0.0715
	(537.9)	(1,590)	(0.0968)	(0.0940)	(0.0196)	(0.0940)
No of children in secondary	-179.5	-71.87	0.182*	0.0764	0.0368*	0.0764
	(592.3)	(1,335)	(0.106)	(0.102)	(0.0213)	(0.102)
No of children in college/University	1,241	2,236	-0.129	-0.0164	-0.0260	-0.0164
	(1,332)	(3,410)	(0.219)	(0.222)	(0.0444)	(0.222)
Constant	6,401	23,445*	-1.084	-1.534*		-1.534*
	(4,872)	(12,624)	(0.844)	(0.845)		(0.845)
Observations	385	372	648	637	648	637
R-squared	0.232	0.100				
	Robust standard errors in parentheses			Standard errors in parentheses		
	*** p<0.01, ** p<0.05, * p<0.1			*** p<0.01, ** p<0.05, * p<0.1		

Table 5.5.4B Household expenditure as a function of SMCP's loan size and covariates

	Order logit Model	Marginal Effect of ordered logit			
	Monthly household Expenditure	HH monthly Expenditure ERN 500-1000	HH Monthly Expenditure ERN 1001-2000	HH Monthly Expenditure ERN 2001-3000	Above ERN 3000
Variables	(1)	(2)	(3)	(4)	(5)
Loan size/100	0.000307***	-5.43e-05***	-1.27e-05***	3.02e-05***	3.68e-05***
	(6.70e-05)	(1.19e-05)	(3.26e-06)	(6.91e-06)	(8.02e-06)
Anseba	0.183	-0.0324	-0.00758	0.0180	0.0219
	(0.397)	(0.0702)	(0.0164)	(0.0390)	(0.0476)
Barentu	-0.286	0.0506	0.0118	-0.0281	-0.0343
	(0.356)	(0.0629)	(0.0148)	(0.0351)	(0.0426)
Tesseney	-0.277	0.0489	0.0114	-0.0272	-0.0331
	(0.345)	(0.0609)	(0.0144)	(0.0340)	(0.0413)
Debub	0.0607	-0.0107	-0.00251	0.00597	0.00727
	(0.355)	(0.0627)	(0.0147)	(0.0349)	(0.0425)
Maekel	-0.745*	0.132*	0.0308	-0.0733*	-0.0892*
	(0.435)	(0.0766)	(0.0188)	(0.0428)	(0.0524)
Afar	0.905	-0.129	-0.0714	0.0566***	0.144
	(0.961)	(0.104)	(0.0941)	(0.0172)	(0.184)
Bilen	-0.213	0.0394	0.00806	-0.0229	-0.0246
	(0.481)	(0.0925)	(0.0139)	(0.0539)	(0.0525)
Tigre	0.0791	-0.0138	-0.00408	0.00787	0.0100
	(0.247)	(0.0427)	(0.0132)	(0.0242)	(0.0318)
Kunama	-0.798*	0.162	0.00639	-0.0919	-0.0766**
	(0.479)	(0.106)	(0.0158)	(0.0569)	(0.0356)
Nara	-2.175***	0.460***	-0.102	-0.223***	-0.135***
	(0.677)	(0.126)	(0.0665)	(0.0471)	(0.0203)
Hidarb	-1.531	0.327	-0.0402	-0.171	-0.116**
	(1.306)	(0.288)	(0.114)	(0.124)	(0.0525)
Saho	-1.128*	0.237	-0.00956	-0.130*	-0.0972***
	(0.643)	(0.145)	(0.0396)	(0.0715)	(0.0371)
Rashida	-12.20	0.741***	-0.281***	-0.303***	-0.158***
	(491.5)	(0.0220)	(0.0195)	(0.0192)	(0.0155)
Female	-0.174	0.0307	0.00719	-0.0171	-0.0208
	(0.214)	(0.0378)	(0.00890)	(0.0210)	(0.0256)
Age	-0.00889	0.00157	0.000368	-0.000874	-0.00106
	(0.00866)	(0.00153)	(0.000362)	(0.000852)	(0.00104)
Separated/Divorced	-0.828***	0.146***	0.0343***	-0.0814***	-0.0992***
	(0.245)	(0.0426)	(0.0119)	(0.0240)	(0.0302)
Widowed	-0.296	0.0523	0.0122	-0.0291	-0.0355
	(0.267)	(0.0471)	(0.0112)	(0.0262)	(0.0320)
Single/Never married	-0.829	0.147	0.0343	-0.0816	-0.0993
	(0.543)	(0.0955)	(0.0233)	(0.0533)	(0.0654)
Informal Education	0.0665	-0.0118	-0.00275	0.00654	0.00796
	(0.333)	(0.0588)	(0.0138)	(0.0327)	(0.0399)
Formal Education	0.224	-0.0397	-0.00929	0.0221	0.0269
	(0.188)	(0.0332)	(0.00794)	(0.0185)	(0.0226)
Household size	0.0955	-0.0169	-0.00395	0.00939	0.0114
	(0.143)	(0.0252)	(0.00592)	(0.0140)	(0.0171)
No of children up to 5 years	-0.102	0.0180	0.00421	-0.0100	-0.0122
	(0.146)	(0.0259)	(0.00608)	(0.0144)	(0.0176)
No of children 6-17 years	-0.0309	0.00546	0.00128	-0.00304	-0.00370
	(0.144)	(0.0255)	(0.00598)	(0.0142)	(0.0173)
No adults 18 & above years	0.0119	-0.00210	-0.000492	0.00117	0.00143
	(0.143)	(0.0253)	(0.00592)	(0.0141)	(0.0171)
No of hh members economically active	0.0102	-0.00181	-0.000424	0.00101	0.00123

	(0.0772)	(0.0136)	(0.00319)	(0.00759)	(0.00924)
No of participated children in Education	0.0807	-0.0143	-0.00334	0.00794	0.00966
	(0.0819)	(0.0145)	(0.00342)	(0.00804)	(0.00982)
No of dropouts children from school	-0.0431	0.00761	0.00178	-0.00424	-0.00516
	(0.0868)	(0.0153)	(0.00361)	(0.00854)	(0.0104)
No of children in kindergarten	0.0431	-0.00761	-0.00178	0.00423	0.00516
	(0.207)	(0.0366)	(0.00856)	(0.0204)	(0.0248)
No of children in elementary	-0.0507	0.00896	0.00210	-0.00499	-0.00607
	(0.0865)	(0.0153)	(0.00359)	(0.00851)	(0.0104)
No of children in junior	-0.0700	0.0124	0.00290	-0.00688	-0.00838
	(0.0845)	(0.0149)	(0.00352)	(0.00830)	(0.0101)
No of children in secondary	-0.0505	0.00892	0.00209	-0.00497	-0.00605
	(0.0899)	(0.0159)	(0.00373)	(0.00884)	(0.0108)
No of children in college/University	-0.0390	0.00689	0.00161	-0.00383	-0.00467
	(0.188)	(0.0332)	(0.00778)	(0.0185)	(0.0225)
Constant cut1	-1.185*				
	(0.674)				
Constant cut2	0.138				
	(0.671)				
Constant cut3	1.791***				
	(0.675)				
Observations	649	649	649	649	649

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Appendix F

Figure 5.6 Borrowing effect over time on the outcome variables

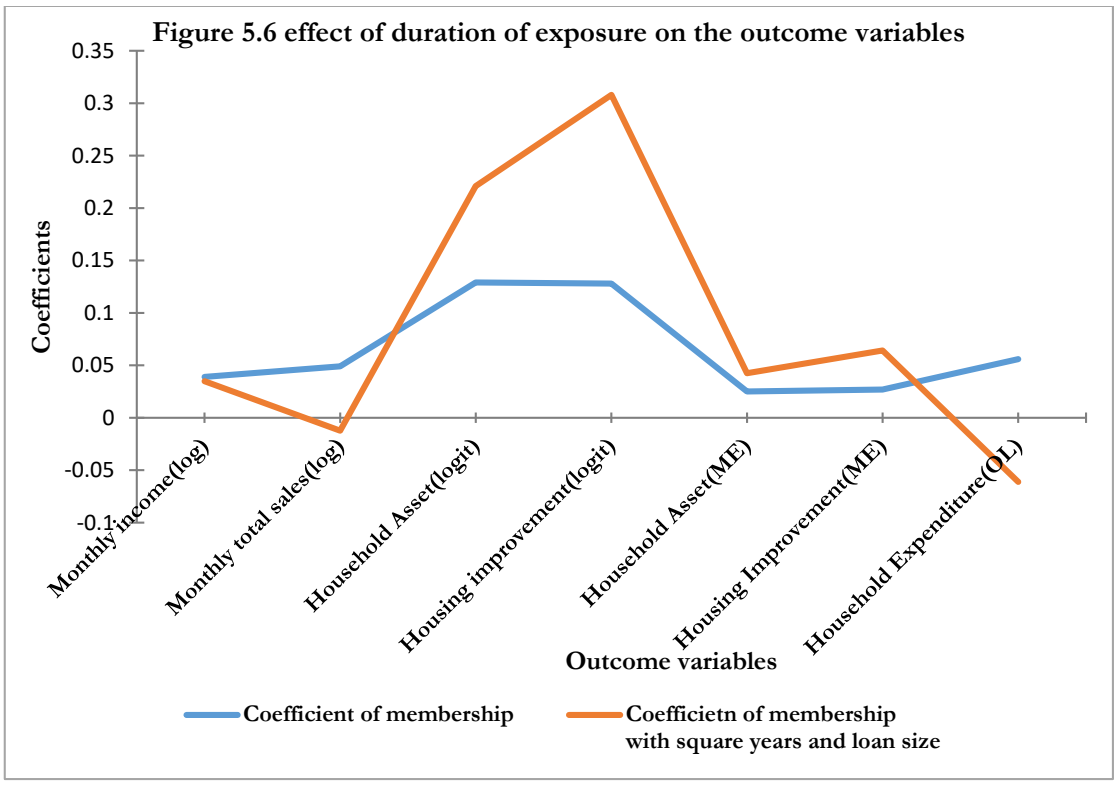


Table 5.5A The effect of duration of exposure, loan cycle and loan size on outcome variables (Summary with loan size and years square)

	OLS Model		Logit Model		Marginal Effect	
Variables	Monthly income(log) (1)	Monthly total sales(log) (2)	Household Asset (3)	Housing improvement (4)	Household Asset (5)	Housing Improvement (6)
Membership in years	0.0349	-0.0123	0.221**	0.308***	0.0425**	0.0641***
	(0.0754)	(0.0884)	(0.105)	(0.104)	(0.0199)	(0.0210)
dummyyears2	0.474	0.152	1.212**	0.496	0.227**	0.101
	(0.357)	(0.456)	(0.549)	(0.581)	(0.101)	(0.118)
dummyyears3	0.0688	0.313	1.195**	1.312***	0.224**	0.268***
	(0.363)	(0.474)	(0.496)	(0.501)	(0.0912)	(0.0999)
dummyyears4	0.0601	0.126	1.810***	1.473***	0.339***	0.301***
	(0.323)	(0.436)	(0.502)	(0.503)	(0.0900)	(0.0997)
dummyyears5	0.0800	-0.0228	1.228**	1.406***	0.230**	0.287***
	(0.352)	(0.526)	(0.521)	(0.529)	(0.0959)	(0.105)
dummyyears6	0.0572	-0.474	1.052*	1.319**	0.197*	0.269**
	(0.353)	(0.491)	(0.548)	(0.553)	(0.101)	(0.111)
dummyyears7	-0.0730	0.298	1.067*	2.070***	0.200*	0.422***
	(0.381)	(0.482)	(0.607)	(0.611)	(0.113)	(0.120)
dummyyears8	-0.00827	0.650	1.845***	1.182*	0.346***	0.241*
	(0.408)	(0.561)	(0.664)	(0.646)	(0.121)	(0.130)
dummyyears9	-0.00892	0.476	1.419*	1.395*	0.266*	0.285*
	(0.580)	(0.645)	(0.843)	(0.812)	(0.156)	(0.164)
l_cycle2	0.426*	0.248	1.025***	0.907***	0.192***	0.185***
	(0.252)	(0.274)	(0.341)	(0.350)	(0.0619)	(0.0696)
l_cycle3	0.645**	0.556*	0.258	0.953***	0.0484	0.194***
	(0.273)	(0.309)	(0.360)	(0.367)	(0.0674)	(0.0731)
l_cycle4	0.420	0.118	0.961**	1.369***	0.180***	0.279***
	(0.283)	(0.329)	(0.379)	(0.382)	(0.0694)	(0.0741)
l_cycle5	0.537*	0.192	0.863**	1.123***	0.162**	0.229***
	(0.315)	(0.325)	(0.409)	(0.411)	(0.0754)	(0.0816)
l_cycle6	1.174***	0.0134	0.0784	-0.0473	0.0147	-0.00964
	(0.448)	(0.522)	(0.667)	(0.709)	(0.125)	(0.144)
l_cycle7	1.034***	-0.300	-0.0763	0.493	-0.0143	0.101
	(0.383)	(0.504)	(0.665)	(0.661)	(0.125)	(0.134)
l_cycle8	0.728	0.388	1.250*	1.552**	0.234*	0.316**
	(0.582)	(0.585)	(0.742)	(0.685)	(0.138)	(0.137)
Total loan size/100	0.771	1.381	0.000454**	0.000162***	9.54e-05**	0.771
	(1.780)	(1.240)	(0.000204)	(3.73e-05)	(4.22e-05)	(1.780)
	Robust standard errors in parentheses		Standard errors in parentheses			
	*** p<0.01, ** p<0.05, * p<0.1		*** p<0.01, ** p<0.05, * p<0.1			

Table 5.5B The effect of duration of exposure, loan cycle and loan size on expenditure (Summary with loan size and years square)

	Order logit Model	Marginal Effect			
	Monthly household Expenditure	HH monthly Expenditure ERN 500-1000	HH Monthly Expenditure ERN 1001-2000	HH Monthly Expenditure ERN 2001-3000	Above ERN 3000
Variables	(1)	(2)	(3)	(4)	(5)
Membership in years	-0.0612	0.0102	0.00283	-0.00571	-0.00729
	(0.0851)	(0.0141)	(0.00395)	(0.00796)	(0.0101)
dummyyears2	0.726*	-0.120*	-0.0329*	0.0673*	0.0854*
	(0.404)	(0.0665)	(0.0190)	(0.0375)	(0.0479)
dummyyears3	0.339	-0.0560	-0.0154	0.0314	0.0399
	(0.384)	(0.0632)	(0.0176)	(0.0355)	(0.0453)
dummyyears4	0.478	-0.0790	-0.0217	0.0443	0.0563
	(0.376)	(0.0618)	(0.0174)	(0.0347)	(0.0444)
dummyyears5	0.382	-0.0630	-0.0173	0.0354	0.0450
	(0.395)	(0.0651)	(0.0181)	(0.0365)	(0.0466)
dummyyears6	0.264	-0.0435	-0.0120	0.0244	0.0310
	(0.422)	(0.0695)	(0.0192)	(0.0390)	(0.0497)
dummyyears7	-0.230	0.0379	0.0104	-0.0213	-0.0270
	(0.466)	(0.0770)	(0.0212)	(0.0433)	(0.0548)
dummyyears8	0.0262	-0.00433	-0.00119	0.00243	0.00309
	(0.513)	(0.0847)	(0.0233)	(0.0475)	(0.0604)
dummyyears9	-0.266	0.0439	0.0121	-0.0247	-0.0313
	(0.667)	(0.110)	(0.0302)	(0.0620)	(0.0784)
l_cycle2	-0.219	0.0362	0.00987	-0.0202	-0.0259
	(0.279)	(0.0461)	(0.0126)	(0.0257)	(0.0330)
l_cycle3	0.277	-0.0459	-0.0125	0.0256	0.0328
	(0.284)	(0.0470)	(0.0129)	(0.0262)	(0.0336)
l_cycle4	0.176	-0.0292	-0.00796	0.0163	0.0209
	(0.303)	(0.0500)	(0.0137)	(0.0280)	(0.0358)
l_cycle5	-0.0405	0.00670	0.00183	-0.00374	-0.00479
	(0.325)	(0.0538)	(0.0147)	(0.0300)	(0.0384)
l_cycle6	0.473	-0.0783	-0.0214	0.0437	0.0560
	(0.574)	(0.0950)	(0.0260)	(0.0531)	(0.0679)
l_cycle7	-0.0162	0.00268	0.000732	-0.00150	-0.00192
	(0.540)	(0.0894)	(0.0244)	(0.0499)	(0.0639)
l_cycle8	0.631	-0.104	-0.0285	0.0583	0.0746
	(0.554)	(0.0918)	(0.0252)	(0.0514)	(0.0655)
Loan size/100	0.000637***	-0.000104***	-2.81e-05***	5.73e-05***	7.53e-05***
	(0.000180)	(2.93e-05)	(8.76e-06)	(1.63e-05)	(2.16e-05)

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 5.5.1C Outcome variables as a function of SMCP's membership in years and covariates (1-18 years) with membership in years and loan size square

	OLS Model		Logit Model		Marginal Effect (logit	
Variables	Monthly income (1)	Monthly total sales (2)	Household Asset (3)	Housing improvement (4)	Household Asset (5)	Housing Improvement (6)
Membership in years	0.0349	-0.0123	0.221**	0.308***	0.0425**	0.0641***
	(0.0754)	(0.0884)	(0.105)	(0.104)	(0.0199)	(0.0210)
Membership in years(square)	-0.00213	0.00280	-0.00737	-0.0132*	-0.00142	-0.00274**
	(0.00512)	(0.00550)	(0.00684)	(0.00678)	(0.00131)	(0.00139)
Loan size (square)	5.66e-09**	2.46e-09**	2.24e-09	1.32e-09	4.31e-10	2.75e-10
	(2.31e-09)	(1.06e-09)	(2.10e-09)	(1.97e-09)	(4.02e-10)	(4.09e-10)
Anseba		1.048***	0.574	1.389**	0.110	0.289**
		(0.310)	(0.544)	(0.555)	(0.104)	(0.113)
Barentu		0.704***	0.754	1.675***	0.145	0.349***
		(0.263)	(0.471)	(0.493)	(0.0899)	(0.0984)
Tesseney		0.502	0.781*	1.642***	0.150*	0.342***
		(0.307)	(0.475)	(0.495)	(0.0905)	(0.0991)
Debub		0.488*	0.156	0.648	0.0300	0.135
		(0.267)	(0.477)	(0.508)	(0.0918)	(0.105)
Maekel		0.150	-1.109		-0.213	
		(0.455)	(1.230)		(0.236)	
Afar		-0.628	2.355		0.371***	
		(0.432)	(1.436)		(0.134)	
Bilen		-0.270	0.118	1.106*	0.0237	0.234*
		(0.709)	(0.641)	(0.647)	(0.129)	(0.130)
Tigre		0.465*	-0.982***	0.0207	-0.191***	0.00431
		(0.260)	(0.348)	(0.328)	(0.0646)	(0.0684)
Kunama		0.577	-1.175	-0.131	-0.225*	-0.0269
		(0.606)	(0.725)	(0.705)	(0.124)	(0.144)
Nara		-0.0697	-0.438	0.280	-0.0879	0.0593
		(0.339)	(0.683)	(0.629)	(0.136)	(0.134)
Hidarb		-0.792				
		(0.771)				
Saho		-0.465	0.0310	0.108	0.00624	0.0227
		(0.385)	(0.749)	(0.735)	(0.151)	(0.155)
Rashida						
Gender	-0.277	-0.360	0.406	-0.0517	0.0781	-0.0108
	(0.202)	(0.240)	(0.294)	(0.289)	(0.0561)	(0.0602)
Age	-6.03e-06	-0.0161*	-0.00677	-0.000566	-0.00130	-0.000118
	(0.00786)	(0.00972)	(0.0121)	(0.0118)	(0.00233)	(0.00245)
Separated/Divorced	-0.376	-0.632**	0.171	-0.137	0.0329	-0.0285
	(0.295)	(0.268)	(0.352)	(0.336)	(0.0677)	(0.0699)
Widowed	-0.0103	-0.169	-0.0261	-0.0161	-0.00502	-0.00336
	(0.256)	(0.240)	(0.361)	(0.360)	(0.0694)	(0.0750)
Single/Never married	-0.729	-0.287	-0.185	0.177	-0.0356	0.0370
	(0.450)	(0.387)	(0.723)	(0.712)	(0.139)	(0.148)
Informal Education	0.352	0.590	-0.789	-0.336	-0.152	-0.0700
	(0.259)	(0.398)	(0.536)	(0.488)	(0.102)	(0.101)
Formal Education	-0.0421	0.484**	1.198***	0.812***	0.230***	0.169***
	(0.187)	(0.204)	(0.263)	(0.260)	(0.0468)	(0.0522)
Household size	-0.0926	-0.339	-0.419	0.158	-0.0805	0.0329
	(0.169)	(0.377)	(0.521)	(0.299)	(0.1000)	(0.0622)
No of children up to 5 years	0.0623	0.221	0.252	-0.372	0.0486	-0.0776
	(0.172)	(0.363)	(0.516)	(0.308)	(0.0992)	(0.0638)
No of children 6-17 years	0.188	0.294	0.306	-0.242	0.0589	-0.0504
	(0.195)	(0.369)	(0.520)	(0.316)	(0.1000)	(0.0656)
No adults 18 & above years	0.161	0.273	0.339	-0.243	0.0652	-0.0507

	(0.163)	(0.363)	(0.511)	(0.291)	(0.0981)	(0.0606)
No of hh members economically active	0.00977	0.128	0.183*	-0.0334	0.0352*	-0.00697
	(0.0715)	(0.0931)	(0.110)	(0.106)	(0.0209)	(0.0221)
No of participated children in Education	-0.0501	-0.0180	0.0714	0.00651	0.0137	0.00136
	(0.0911)	(0.126)	(0.118)	(0.117)	(0.0227)	(0.0243)
No of dropouts children from school	-0.0445	-0.0441	0.198	-0.0532	0.0380	-0.0111
	(0.111)	(0.126)	(0.123)	(0.117)	(0.0235)	(0.0243)
No of children in kindergarten	0.0347	0.134	0.614**	-0.143	0.118**	-0.0298
	(0.227)	(0.188)	(0.288)	(0.276)	(0.0545)	(0.0574)
No of children in elementary	0.132*	-0.0420	-0.210*	-0.0453	-0.0405*	-0.00944
	(0.0713)	(0.0979)	(0.111)	(0.112)	(0.0211)	(0.0233)
No of children in junior	-0.120	0.0434	-0.0307	0.105	-0.00590	0.0218
	(0.0734)	(0.103)	(0.110)	(0.108)	(0.0211)	(0.0223)
No of children in secondary	0.0870	0.0264	0.112	0.0496	0.0215	0.0103
	(0.0772)	(0.110)	(0.123)	(0.119)	(0.0236)	(0.0248)
No of children in college/University	0.195	0.196	-0.297	-0.157	-0.0571	-0.0327
	(0.182)	(0.170)	(0.248)	(0.248)	(0.0475)	(0.0516)
Constant	7.756***	8.835***	-1.705*	-2.761***		
	(0.555)	(0.765)	(0.974)	(0.975)		
Observations	259	286	513	495	513	495
R-squared	0.161	0.177				
	Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1			Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1		

Table 5.5.1D Household expenditure as a function of SMCP's membership in years and covariates (categorical) with square years and loan size

	Ordered logit Model	Marginal Effect of ordered logit			
	Monthly household Expenditure	HH monthly Expenditure ERN 500-1000	HH Monthly Expenditure ERN 1001-2000	HH Monthly Expenditure ERN 2001-3000	Above ERN 3000
Variables	(1)	(2)	(3)	(4)	(5)
Membership in years	-0.0612	0.0102	0.00283	-0.00571	-0.00729
	(0.0851)	(0.0141)	(0.00395)	(0.00796)	(0.0101)
Membership in years(square)	0.00591	-0.000982	-0.000273	0.000551	0.000704
	(0.00556)	(0.000925)	(0.000259)	(0.000521)	(0.000663)
Loan size (square)	5.06e-09***	-8.41e-10***	-2.34e-10***	4.72e-10***	6.03e-10***
	(1.74e-09)	(2.92e-10)	(8.59e-11)	(1.71e-10)	(2.05e-10)
Anseba	0.416	-0.0692	-0.0192	0.0388	0.0496
	(0.424)	(0.0705)	(0.0197)	(0.0395)	(0.0506)
Barentu	-0.245	0.0408	0.0113	-0.0229	-0.0292
	(0.370)	(0.0615)	(0.0171)	(0.0345)	(0.0441)
Tesseney	-0.0368	0.00612	0.00170	-0.00343	-0.00438
	(0.370)	(0.0615)	(0.0171)	(0.0345)	(0.0441)
Debub	0.177	-0.0293	-0.00815	0.0165	0.0210
	(0.380)	(0.0631)	(0.0176)	(0.0354)	(0.0453)
Maekel	-1.042	0.173	0.0481	-0.0972	-0.124
	(0.749)	(0.124)	(0.0358)	(0.0701)	(0.0897)
Afar	0.833	-0.112	-0.0651	0.0476***	0.130
	(0.986)	(0.105)	(0.0919)	(0.0180)	(0.181)
Bilen	-0.0639	0.0107	0.00330	-0.00616	-0.00788
	(0.526)	(0.0893)	(0.0260)	(0.0516)	(0.0637)
Tigre	-0.182	0.0313	0.00853	-0.0182	-0.0217
	(0.266)	(0.0467)	(0.0114)	(0.0273)	(0.0307)
Kunama	-0.640	0.119	0.0169***	-0.0700	-0.0662
	(0.524)	(0.106)	(0.00647)	(0.0620)	(0.0448)
Nara	-2.741***	0.542***	-0.130*	-0.262***	-0.151***
	(0.813)	(0.125)	(0.0721)	(0.0450)	(0.0204)
Hidarb	-0.761	0.144	0.0158	-0.0844	-0.0758
	(1.546)	(0.324)	(0.0234)	(0.184)	(0.118)
Saho	-0.501	0.0913	0.0165*	-0.0537	-0.0541
	(0.672)	(0.132)	(0.00938)	(0.0781)	(0.0623)
Rashida	-12.81	0.759***	-0.272***	-0.321***	-0.166***
	(689.4)	(0.0241)	(0.0216)	(0.0218)	(0.0179)
Gender	-0.167	0.0277	0.00769	-0.0155	-0.0198
	(0.240)	(0.0399)	(0.0112)	(0.0224)	(0.0286)
Age	-0.0126	0.00209	0.000581	-0.00117	-0.00150
	(0.00973)	(0.00161)	(0.000458)	(0.000908)	(0.00116)
Separated/Divorced	-0.958***	0.159***	0.0442***	-0.0893***	-0.114***
	(0.286)	(0.0462)	(0.0156)	(0.0265)	(0.0353)
Widowed	-0.218	0.0362	0.0100	-0.0203	-0.0259
	(0.300)	(0.0498)	(0.0140)	(0.0280)	(0.0358)
Single/Never married	-0.618	0.103	0.0285	-0.0576	-0.0736
	(0.568)	(0.0941)	(0.0268)	(0.0529)	(0.0680)
Informal Education	0.338	-0.0562	-0.0156	0.0315	0.0403
	(0.383)	(0.0636)	(0.0178)	(0.0356)	(0.0457)
Formal Education	0.234	-0.0389	-0.0108	0.0218	0.0279
	(0.208)	(0.0345)	(0.00978)	(0.0194)	(0.0249)
Household size	0.165	-0.0274	-0.00760	0.0154	0.0196
	(0.233)	(0.0387)	(0.0108)	(0.0217)	(0.0278)
No of children up to 5 years	-0.115	0.0192	0.00532	-0.0108	-0.0137

	(0.240)	(0.0398)	(0.0111)	(0.0223)	(0.0286)
No of children 6-17 years	-0.141	0.0234	0.00650	-0.0131	-0.0168
	(0.252)	(0.0419)	(0.0117)	(0.0235)	(0.0301)
No adults 18 & above years	-0.0365	0.00606	0.00168	-0.00340	-0.00435
	(0.228)	(0.0379)	(0.0105)	(0.0212)	(0.0272)
No of hh members economically active	0.139	-0.0231	-0.00641	0.0129	0.0165
	(0.0890)	(0.0148)	(0.00417)	(0.00827)	(0.0107)
No of participated children in Education	0.158	-0.0263	-0.00731	0.0148	0.0189
	(0.102)	(0.0169)	(0.00474)	(0.00943)	(0.0121)
No of dropouts children from school	-0.106	0.0176	0.00488	-0.00985	-0.0126
	(0.0978)	(0.0162)	(0.00460)	(0.00913)	(0.0117)
No of children in kindergarten	0.294	-0.0488	-0.0136	0.0274	0.0350
	(0.231)	(0.0384)	(0.0107)	(0.0216)	(0.0275)
No of children in elementary	-0.122	0.0202	0.00561	-0.0113	-0.0145
	(0.0979)	(0.0163)	(0.00457)	(0.00914)	(0.0117)
No of children in junior	-0.0424	0.00704	0.00196	-0.00395	-0.00505
	(0.0948)	(0.0158)	(0.00437)	(0.00883)	(0.0113)
No of children in secondary	-0.00913	0.00152	0.000422	-0.000851	-0.00109
	(0.102)	(0.0169)	(0.00469)	(0.00946)	(0.0121)
No of children in college/University	-0.0894	0.0149	0.00413	-0.00834	-0.0107
	(0.207)	(0.0343)	(0.00956)	(0.0192)	(0.0246)
Constant cut1	-1.405*				
	(0.762)				
Constant cut2	-0.0573				
	(0.759)				
Constant cut3	1.700**				
	(0.764)				
Observations	514	514	514	514	514

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 5.5.2C Outcome variables as a function of SMCP's dummy years membership and covariates with square years and loan size

	OLS Model		Logit Model		Marginal Effect (logit)	
Variables	Monthly income(log) (1)	Monthly total sales(log) (2)	Household Asset (3)	Housing improvement (4)	Household Asset (5)	Housing Improvement (6)
dummyyears2	0.474	0.152	1.212**	0.496	0.227**	0.101
	(0.357)	(0.456)	(0.549)	(0.581)	(0.101)	(0.118)
dummyyears3	0.0688	0.313	1.195**	1.312***	0.224**	0.268***
	(0.363)	(0.474)	(0.496)	(0.501)	(0.0912)	(0.0999)
dummyyears4	0.0601	0.126	1.810***	1.473***	0.339***	0.301***
	(0.323)	(0.436)	(0.502)	(0.503)	(0.0900)	(0.0997)
dummyyears5	0.0800	-0.0228	1.228**	1.406***	0.230**	0.287***
	(0.352)	(0.526)	(0.521)	(0.529)	(0.0959)	(0.105)
dummyyears6	0.0572	-0.474	1.052*	1.319**	0.197*	0.269**
	(0.353)	(0.491)	(0.548)	(0.553)	(0.101)	(0.111)
dummyyears7	-0.0730	0.298	1.067*	2.070***	0.200*	0.422***
	(0.381)	(0.482)	(0.607)	(0.611)	(0.113)	(0.120)
dummyyears8	-0.00827	0.650	1.845***	1.182*	0.346***	0.241*
	(0.408)	(0.561)	(0.664)	(0.646)	(0.121)	(0.130)
dummyyears9	-0.00892	0.476	1.419*	1.395*	0.266*	0.285*
	(0.580)	(0.645)	(0.843)	(0.812)	(0.156)	(0.164)
Membership in years(square)	-0.000376	-0.000373	0.00437	0.00351	0.000820	0.000717
	(0.00332)	(0.00325)	(0.00485)	(0.00468)	(0.000906)	(0.000953)
Loan size (square)	4.76e-09**		2.26e-09	1.71e-09	4.23e-10	3.48e-10
	(1.97e-09)		(2.14e-09)	(2.02e-09)	(4.00e-10)	(4.10e-10)
Anseba	0.512	1.106***	0.531	1.414**	0.0996	0.289***
	(0.488)	(0.312)	(0.551)	(0.561)	(0.103)	(0.112)
Barentu	0.789**	0.655**	0.762	1.686***	0.143	0.344***
	(0.340)	(0.272)	(0.477)	(0.498)	(0.0887)	(0.0973)
Tesseney	-0.607	0.498	0.764	1.724***	0.143	0.352***
	(0.411)	(0.309)	(0.484)	(0.504)	(0.0901)	(0.0985)
Debub	0.554	0.530*	0.233	0.674	0.0436	0.138
	(0.360)	(0.280)	(0.489)	(0.516)	(0.0915)	(0.105)
Maekel	-0.473	0.0892	-1.275		-0.239	
	(0.451)	(0.467)	(1.248)		(0.233)	
Afar		-0.665	2.341		0.365***	
		(0.536)	(1.453)		(0.140)	
Bilen	1.746***	-0.204	0.285	1.202*	0.0554	0.247*
	(0.550)	(0.773)	(0.653)	(0.667)	(0.126)	(0.128)
Tigre	0.169	0.503*	-0.940***	0.000750	-0.178***	0.000153
	(0.302)	(0.264)	(0.357)	(0.335)	(0.0653)	(0.0683)
Kunama	-0.640	0.572	-1.157	-0.00434	-0.216*	-0.000885
	(0.489)	(0.623)	(0.730)	(0.723)	(0.123)	(0.147)
Nara	-0.448	-0.0660	-0.470	0.243	-0.0915	0.0502
	(0.394)	(0.377)	(0.701)	(0.641)	(0.135)	(0.134)
Hidarb	-0.398	-0.980				
	(0.632)	(0.790)				
Saho	-0.339	-0.291	0.300	0.131	0.0584	0.0269
	(0.326)	(0.376)	(0.779)	(0.758)	(0.150)	(0.157)
Rashida	-1.967***					
	(0.597)					
Gender	-0.521**	-0.363	0.367	-0.109	0.0688	-0.0223
	(0.216)	(0.239)	(0.299)	(0.294)	(0.0558)	(0.0599)
Age	-0.00190	-0.0155	-0.00735	-0.00304	-0.00138	-0.000621
	(0.00767)	(0.00959)	(0.0125)	(0.0120)	(0.00234)	(0.00245)
Separated/Divorced	-0.321	-0.638**	0.140	-0.123	0.0263	-0.0250
	(0.275)	(0.260)	(0.359)	(0.342)	(0.0672)	(0.0698)

Widowed	-0.0986	-0.172	-0.141	-0.00334	-0.0265	-0.000681
	(0.261)	(0.246)	(0.367)	(0.364)	(0.0687)	(0.0743)
Single/Never married	-0.787	-0.178	-0.173	0.271	-0.0323	0.0553
	(0.491)	(0.413)	(0.735)	(0.722)	(0.138)	(0.147)
Informal Education	0.332	0.746*	-0.881	-0.294	-0.165	-0.0600
	(0.227)	(0.436)	(0.553)	(0.496)	(0.103)	(0.101)
Formal Education	-0.0294	0.481**	1.172***	0.841***	0.220***	0.172***
	(0.186)	(0.206)	(0.269)	(0.265)	(0.0468)	(0.0521)
Household size	0.189	-0.453	-0.563	0.191	-0.106	0.0389
	(0.169)	(0.373)	(0.550)	(0.296)	(0.103)	(0.0604)
No of children up to 5 years	-0.244	0.321	0.357	-0.411	0.0670	-0.0840
	(0.166)	(0.364)	(0.544)	(0.306)	(0.102)	(0.0621)
No of children 6-17 years	-0.0491	0.394	0.433	-0.287	0.0812	-0.0587
	(0.189)	(0.370)	(0.548)	(0.314)	(0.103)	(0.0640)
No adults 18 & above years	-0.133	0.381	0.475	-0.276	0.0890	-0.0564
	(0.168)	(0.357)	(0.540)	(0.288)	(0.101)	(0.0587)
No of hh members economically active	-0.0401	0.130	0.198*	-0.0280	0.0371*	-0.00571
	(0.0727)	(0.0929)	(0.112)	(0.108)	(0.0208)	(0.0219)
No of participated children in Education	-0.0666	-0.00507	0.0741	-0.00248	0.0139	-0.000506
	(0.0858)	(0.125)	(0.122)	(0.119)	(0.0228)	(0.0243)
No of dropouts children from school	0.00265	-0.0564	0.213*	-0.0453	0.0399*	-0.00925
	(0.104)	(0.126)	(0.129)	(0.119)	(0.0239)	(0.0243)
No of children in kindergarten	-0.0903	0.133	0.700**	-0.181	0.131**	-0.0369
	(0.239)	(0.207)	(0.303)	(0.277)	(0.0557)	(0.0565)
No of children in elementary	0.114	-0.0329	-0.216*	-0.0341	-0.0405*	-0.00695
	(0.0763)	(0.0997)	(0.115)	(0.115)	(0.0213)	(0.0235)
No of children in junior	-0.114	0.0521	0.00898	0.145	0.00168	0.0296
	(0.0752)	(0.104)	(0.113)	(0.110)	(0.0211)	(0.0222)
No of children in secondary	0.0469	-0.00661	0.0869	0.0572	0.0163	0.0117
	(0.0780)	(0.110)	(0.125)	(0.122)	(0.0234)	(0.0249)
No of children in college/University	0.158	0.142	-0.342	-0.179	-0.0641	-0.0364
	(0.178)	(0.170)	(0.253)	(0.254)	(0.0471)	(0.0518)
Constant	7.647***	8.708***	-2.131**	-2.927***		
	(0.646)	(0.804)	(1.033)	(1.029)		
Observations	259	286	513	495	513	495
R-squared	0.316	0.209				
	Robust standard errors in parentheses			Standard errors in parentheses		
	*** p<0.01, ** p<0.05, * p<0.1			*** p<0.01, ** p<0.05, * p<0.1		

Table 5.5.2D Household expenditure as a function of SMCP's dummy membership in years and covariates with square years and loan size

	Order logit Model	Marginal Effect of ordered logit			
	Monthly household Expenditure	HH monthly Expenditure ERN 500-1000	HH Monthly Expenditure ERN 1001-2000	HH Monthly Expenditure ERN 2001-3000	Above ERN 3000
Variables	(1)	(2)	(3)	(4)	(5)
dummyyears2	0.726*	-0.120*	-0.0329*	0.0673*	0.0854*
	(0.404)	(0.0665)	(0.0190)	(0.0375)	(0.0479)
dummyyears3	0.339	-0.0560	-0.0154	0.0314	0.0399
	(0.384)	(0.0632)	(0.0176)	(0.0355)	(0.0453)
dummyyears4	0.478	-0.0790	-0.0217	0.0443	0.0563
	(0.376)	(0.0618)	(0.0174)	(0.0347)	(0.0444)
dummyyears5	0.382	-0.0630	-0.0173	0.0354	0.0450
	(0.395)	(0.0651)	(0.0181)	(0.0365)	(0.0466)
dummyyears6	0.264	-0.0435	-0.0120	0.0244	0.0310
	(0.422)	(0.0695)	(0.0192)	(0.0390)	(0.0497)
dummyyears7	-0.230	0.0379	0.0104	-0.0213	-0.0270
	(0.466)	(0.0770)	(0.0212)	(0.0433)	(0.0548)
dummyyears8	0.0262	-0.00433	-0.00119	0.00243	0.00309
	(0.513)	(0.0847)	(0.0233)	(0.0475)	(0.0604)
dummyyears9	-0.266	0.0439	0.0121	-0.0247	-0.0313
	(0.667)	(0.110)	(0.0302)	(0.0620)	(0.0784)
Membership in years(square)	0.00639*	-0.00106*	-0.000290	0.000593	0.000753*
	(0.00388)	(0.000641)	(0.000179)	(0.000365)	(0.000455)
Loan size (square)	4.90e-09***	-8.09e-10***	-2.22e-10***	4.54e-10***	5.77e-10***
	(1.75e-09)	(2.91e-10)	(8.40e-11)	(1.70e-10)	(2.04e-10)
Anseba	0.404	-0.0666	-0.0183	0.0374	0.0475
	(0.430)	(0.0710)	(0.0196)	(0.0398)	(0.0508)
Barentu	-0.217	0.0358	0.00984	-0.0201	-0.0256
	(0.375)	(0.0619)	(0.0170)	(0.0348)	(0.0441)
Tesseney	-0.0188	0.00311	0.000854	-0.00174	-0.00222
	(0.380)	(0.0627)	(0.0172)	(0.0352)	(0.0447)
Debub	0.223	-0.0368	-0.0101	0.0207	0.0262
	(0.388)	(0.0640)	(0.0177)	(0.0359)	(0.0457)
Maekel	-1.203	0.199	0.0546	-0.112	-0.142
	(0.754)	(0.124)	(0.0357)	(0.0702)	(0.0894)
Afar	0.649	-0.0921	-0.0470	0.0438	0.0952
	(1.005)	(0.120)	(0.0879)	(0.0386)	(0.170)
Bilen	-0.0916	0.0154	0.00445	-0.00886	-0.0110
	(0.531)	(0.0909)	(0.0241)	(0.0527)	(0.0623)
Tigre	-0.163	0.0279	0.00746	-0.0161	-0.0192
	(0.269)	(0.0467)	(0.0113)	(0.0272)	(0.0308)
Kunama	-0.616	0.114	0.0160***	-0.0667	-0.0632
	(0.524)	(0.105)	(0.00612)	(0.0611)	(0.0448)
Nara	-2.638***	0.522***	-0.121	-0.254***	-0.147***
	(0.813)	(0.130)	(0.0737)	(0.0477)	(0.0207)
Hidarb	-0.711	0.133	0.0153	-0.0778	-0.0709
	(1.572)	(0.323)	(0.0181)	(0.184)	(0.123)
Saho	-0.365	0.0647	0.0136	-0.0379	-0.0404
	(0.676)	(0.127)	(0.0156)	(0.0752)	(0.0672)
Rashida	-13.57	0.756***	-0.274***	-0.319***	-0.164***
	(1,288)	(0.0235)	(0.0213)	(0.0217)	(0.0177)
Gender	-0.172	0.0283	0.00779	-0.0159	-0.0202
	(0.241)	(0.0398)	(0.0110)	(0.0224)	(0.0284)
Age	-0.0128	0.00212	0.000582	-0.00119	-0.00151
	(0.00974)	(0.00160)	(0.000451)	(0.000904)	(0.00115)

Separated/Divorced	-0.969***	0.160***	0.0439***	-0.0898***	-0.114***
	(0.289)	(0.0465)	(0.0154)	(0.0265)	(0.0352)
Widowed	-0.268	0.0442	0.0121	-0.0248	-0.0315
	(0.301)	(0.0497)	(0.0138)	(0.0279)	(0.0355)
Single/Never married	-0.613	0.101	0.0278	-0.0569	-0.0722
	(0.573)	(0.0943)	(0.0265)	(0.0531)	(0.0677)
Informal Education	0.371	-0.0612	-0.0168	0.0344	0.0437
	(0.384)	(0.0633)	(0.0175)	(0.0355)	(0.0453)
Formal Education	0.248	-0.0410	-0.0113	0.0230	0.0292
	(0.210)	(0.0346)	(0.00975)	(0.0195)	(0.0249)
Household size	0.186	-0.0307	-0.00843	0.0172	0.0219
	(0.234)	(0.0385)	(0.0107)	(0.0217)	(0.0276)
No of children up to 5 years	-0.150	0.0247	0.00680	-0.0139	-0.0176
	(0.241)	(0.0397)	(0.0110)	(0.0223)	(0.0284)
No of children 6-17 years	-0.171	0.0283	0.00777	-0.0159	-0.0202
	(0.254)	(0.0419)	(0.0116)	(0.0235)	(0.0299)
No adults 18 & above years	-0.0544	0.00899	0.00247	-0.00505	-0.00641
	(0.228)	(0.0376)	(0.0104)	(0.0211)	(0.0268)
No of hh members economically active	0.130	-0.0215	-0.00591	0.0121	0.0153
	(0.0896)	(0.0148)	(0.00412)	(0.00829)	(0.0106)
No of participated children in Education	0.164	-0.0270	-0.00742	0.0152	0.0193
	(0.103)	(0.0169)	(0.00473)	(0.00948)	(0.0121)
No of dropouts children from school	-0.0977	0.0161	0.00443	-0.00906	-0.0115
	(0.0993)	(0.0164)	(0.00457)	(0.00921)	(0.0117)
No of children in kindergarten	0.336	-0.0555	-0.0153	0.0312	0.0396
	(0.233)	(0.0384)	(0.0106)	(0.0216)	(0.0274)
No of children in elementary	-0.116	0.0192	0.00526	-0.0108	-0.0137
	(0.0993)	(0.0164)	(0.00457)	(0.00921)	(0.0117)
No of children in junior	-0.0339	0.00560	0.00154	-0.00315	-0.00400
	(0.0966)	(0.0159)	(0.00437)	(0.00895)	(0.0114)
No of children in secondary	-0.0198	0.00327	0.000899	-0.00184	-0.00233
	(0.103)	(0.0170)	(0.00466)	(0.00951)	(0.0121)
No of children in college/University	-0.0863	0.0142	0.00391	-0.00800	-0.0102
	(0.210)	(0.0347)	(0.00955)	(0.0194)	(0.0248)
Constant cut1	-0.844				
	(0.789)				
Constant cut2	0.522				
	(0.788)				
Constant cut3	2.291***				
	(0.795)				
Observations	514	514	514	514	514

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 5.5.3C Outcome variables as a function of SMCP's dummy loan cycle and covariates with square years and loan size

	OLS Model		Logit Model		Marginal Effect (logit)	
Variables	Monthly income(log) (1)	Monthly total sales(log) (2)	Household Asset (3)	Housing improvement (4)	Household Asset (5)	Housing Improvement (6)
Dummy loan cycle2	0.426*	0.248	1.025***	0.907***	0.192***	0.185***
	(0.252)	(0.274)	(0.341)	(0.350)	(0.0619)	(0.0696)
Dummy loan cycle3	0.645**	0.556*	0.258	0.953***	0.0484	0.194***
	(0.273)	(0.309)	(0.360)	(0.367)	(0.0674)	(0.0731)
Dummy loan cycle4	0.420	0.118	0.961**	1.369***	0.180***	0.279***
	(0.283)	(0.329)	(0.379)	(0.382)	(0.0694)	(0.0741)
Dummy loan cycle5	0.537*	0.192	0.863**	1.123***	0.162**	0.229***
	(0.315)	(0.325)	(0.409)	(0.411)	(0.0754)	(0.0816)
Dummy loan cycle6	1.174***	0.0134	0.0784	-0.0473	0.0147	-0.00964
	(0.448)	(0.522)	(0.667)	(0.709)	(0.125)	(0.144)
Dummy loan cycle7	1.034***	-0.300	-0.0763	0.493	-0.0143	0.101
	(0.383)	(0.504)	(0.665)	(0.661)	(0.125)	(0.134)
Dummy loan cycle8	0.728	0.388	1.250*	1.552**	0.234*	0.316**
	(0.582)	(0.585)	(0.742)	(0.685)	(0.138)	(0.137)
Membership in Years(square)	-0.00306	0.00201	0.00423	0.00292	0.000792	0.000595
	(0.00222)	(0.00193)	(0.00274)	(0.00272)	(0.000509)	(0.000552)
Loan size(square)	3.67e-09*	2.84e-09**	3.37e-09	2.28e-09	6.32e-10	4.65e-10
	(2.21e-09)	(1.22e-09)	(2.44e-09)	(2.29e-09)	(4.55e-10)	(4.66e-10)
Anseba	0.528	1.077***	0.632	1.411**	0.118	0.287**
	(0.432)	(0.325)	(0.556)	(0.560)	(0.104)	(0.112)
Barentu	0.861**	0.712**	0.701	1.528***	0.132	0.311***
	(0.338)	(0.275)	(0.485)	(0.498)	(0.0903)	(0.0982)
Tesseney	-0.515	0.485	0.739	1.441***	0.139	0.294***
	(0.392)	(0.311)	(0.490)	(0.501)	(0.0913)	(0.0991)
Debub	0.698**	0.483*	0.197	0.598	0.0369	0.122
	(0.339)	(0.278)	(0.489)	(0.514)	(0.0916)	(0.104)
Maekel	0.0271	0.207	-0.893		-0.167	
	(0.444)	(0.438)	(1.222)		(0.229)	
Afar		-0.781	2.620*		0.387***	
		(0.501)	(1.503)		(0.121)	
Bilen	1.678***	-0.473	-0.0623	0.891	-0.0122	0.185
	(0.584)	(0.702)	(0.648)	(0.655)	(0.127)	(0.133)
Tigre	0.320	0.460*	-1.055***	-0.0542	-0.199***	-0.0110
	(0.292)	(0.271)	(0.355)	(0.333)	(0.0636)	(0.0675)
Kunama	-0.333	0.664	-1.221*	-0.0472	-0.227*	-0.00959
	(0.509)	(0.573)	(0.740)	(0.738)	(0.123)	(0.149)
Nara	-0.169	0.0771	-0.390	0.394	-0.0763	0.0818
	(0.352)	(0.398)	(0.708)	(0.641)	(0.138)	(0.134)
Hidarb	-0.253	-0.844				
	(0.376)	(0.949)				
Saho	-0.214	-0.333	0.103	0.287	0.0202	0.0594
	(0.341)	(0.424)	(0.784)	(0.778)	(0.153)	(0.163)
Rashida	-1.788***					
	(0.539)					
Gender	-0.563**	-0.387	0.397	-0.138	0.0745	-0.0280
	(0.222)	(0.241)	(0.300)	(0.297)	(0.0559)	(0.0605)
Age	-0.00402	-0.0158*	-0.00571	0.00169	-0.00107	0.000345
	(0.00762)	(0.00954)	(0.0124)	(0.0120)	(0.00232)	(0.00244)
Separated/Divorced	-0.269	-0.579**	0.190	-0.0553	0.0356	-0.0113
	(0.269)	(0.265)	(0.355)	(0.337)	(0.0665)	(0.0687)
Widowed	0.0219	-0.0718	0.0348	0.0529	0.00652	0.0108
	(0.255)	(0.248)	(0.369)	(0.364)	(0.0692)	(0.0741)
Single/Never married	-0.685	-0.288	-0.435	-0.0142	-0.0815	-0.00290

	(0.513)	(0.403)	(0.756)	(0.724)	(0.142)	(0.147)
Informal Education	0.248	0.598	-0.783	-0.336	-0.147	-0.0685
	(0.246)	(0.400)	(0.563)	(0.504)	(0.105)	(0.103)
Formal Education	-0.0466	0.475**	1.240***	0.795***	0.233***	0.162***
	(0.182)	(0.204)	(0.271)	(0.264)	(0.0468)	(0.0520)
Household size	0.182	-0.267	-0.407	0.137	-0.0763	0.0279
	(0.172)	(0.380)	(0.523)	(0.295)	(0.0979)	(0.0600)
No of children up to 5 years	-0.256	0.141	0.251	-0.347	0.0470	-0.0707
	(0.170)	(0.364)	(0.518)	(0.304)	(0.0971)	(0.0617)
No of children 6-17 years	-0.0252	0.213	0.280	-0.225	0.0525	-0.0457
	(0.194)	(0.373)	(0.523)	(0.314)	(0.0980)	(0.0638)
No adults 18 & above years	-0.140	0.208	0.333	-0.229	0.0624	-0.0467
	(0.170)	(0.366)	(0.513)	(0.288)	(0.0960)	(0.0586)
No of hh members economically active	-0.0404	0.123	0.239**	-0.0221	0.0448**	-0.00450
	(0.0714)	(0.0933)	(0.115)	(0.110)	(0.0212)	(0.0224)
No of participated children in Education	-0.0856	0.00338	0.0759	-0.00470	0.0142	-0.000957
	(0.0850)	(0.126)	(0.122)	(0.120)	(0.0228)	(0.0245)
No of dropouts children from school	0.00916	-0.0270	0.217*	-0.0548	0.0407*	-0.0112
	(0.103)	(0.130)	(0.130)	(0.121)	(0.0241)	(0.0247)
No of children in kindergarten	-0.122	0.146	0.563*	-0.223	0.106*	-0.0453
	(0.246)	(0.193)	(0.296)	(0.275)	(0.0549)	(0.0559)
No of children in elementary	0.0902	-0.0282	-0.204*	-0.0286	-0.0383*	-0.00582
	(0.0737)	(0.100)	(0.113)	(0.116)	(0.0210)	(0.0237)
No of children in junior	-0.0957	0.0526	-0.0306	0.148	-0.00574	0.0301
	(0.0756)	(0.105)	(0.113)	(0.112)	(0.0211)	(0.0226)
No of children in secondary	0.0918	0.0163	0.115	0.0413	0.0216	0.00842
	(0.0754)	(0.110)	(0.123)	(0.123)	(0.0230)	(0.0250)
No of children in college/University	0.243	0.167	-0.416	-0.227	-0.0779	-0.0463
	(0.178)	(0.177)	(0.259)	(0.255)	(0.0482)	(0.0519)
Constant	7.385***	8.516***	-1.697*	-2.560***		
	(0.641)	(0.736)	(0.979)	(0.980)		
Observation	259	286	513	495	513	495
R-squared	0.340	0.195				

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 5.5.3D Household expenditure as a function of SMCP's dummy loan cycle and covariates with square years and loan size

	Order logit Model	Marginal Effect of ordered logit			
	Monthly household Expenditure	HH monthly Expenditure ERN 500-1000	HH Monthly Expenditure ERN 1001-2000	HH Monthly Expenditure ERN 2001-3000	Above ERN 3000
Variables	(1)	(2)	(3)	(4)	(5)
Dummy loan cycle2	-0.219	0.0362	0.00987	-0.0202	-0.0259
	(0.279)	(0.0461)	(0.0126)	(0.0257)	(0.0330)
Dummy loan cycle3	0.277	-0.0459	-0.0125	0.0256	0.0328
	(0.284)	(0.0470)	(0.0129)	(0.0262)	(0.0336)
Dummy loan cycle4	0.176	-0.0292	-0.00796	0.0163	0.0209
	(0.303)	(0.0500)	(0.0137)	(0.0280)	(0.0358)
Dummy loan cycle5	-0.0405	0.00670	0.00183	-0.00374	-0.00479
	(0.325)	(0.0538)	(0.0147)	(0.0300)	(0.0384)
Dummy loan cycle6	0.473	-0.0783	-0.0214	0.0437	0.0560
	(0.574)	(0.0950)	(0.0260)	(0.0531)	(0.0679)
Dummy loan cycle7	-0.0162	0.00268	0.000732	-0.00150	-0.00192
	(0.540)	(0.0894)	(0.0244)	(0.0499)	(0.0639)
Dummy loan cycle8	0.631	-0.104	-0.0285	0.0583	0.0746
	(0.554)	(0.0918)	(0.0252)	(0.0514)	(0.0655)
Membership in years(square)	0.00111	-0.000184	-5.01e-05	0.000103	0.000131
	(0.00215)	(0.000356)	(9.71e-05)	(0.000198)	(0.000254)
Loan size (square)	4.02e-09**	-6.65e-10**	-1.81e-10**	3.71e-10**	4.75e-10**
	(1.91e-09)	(3.17e-10)	(8.95e-11)	(1.82e-10)	(2.24e-10)
Anseba	0.384	-0.0636	-0.0173	0.0355	0.0454
	(0.426)	(0.0705)	(0.0193)	(0.0392)	(0.0505)
Barentu	-0.322	0.0533	0.0145	-0.0297	-0.0381
	(0.376)	(0.0622)	(0.0171)	(0.0348)	(0.0445)
Tesseney	-0.142	0.0236	0.00643	-0.0132	-0.0168
	(0.375)	(0.0621)	(0.0170)	(0.0347)	(0.0444)
Debub	0.0858	-0.0142	-0.00387	0.00792	0.0101
	(0.383)	(0.0634)	(0.0173)	(0.0354)	(0.0453)
Maekel	-1.127	0.187	0.0509	-0.104	-0.133
	(0.748)	(0.123)	(0.0351)	(0.0692)	(0.0890)
Afar	0.632	-0.0897	-0.0460	0.0425	0.0932
	(1.009)	(0.121)	(0.0884)	(0.0391)	(0.171)
Bilen	-0.0764	0.0128	0.00382	-0.00731	-0.00932
	(0.527)	(0.0895)	(0.0250)	(0.0515)	(0.0630)
Tigre	-0.200	0.0343	0.00899	-0.0198	-0.0235
	(0.269)	(0.0473)	(0.0110)	(0.0275)	(0.0307)
Kunama	-0.570	0.105	0.0165**	-0.0610	-0.0600
	(0.535)	(0.106)	(0.00659)	(0.0621)	(0.0477)
Nara	-2.700***	0.533***	-0.124*	-0.258***	-0.150***
	(0.813)	(0.128)	(0.0725)	(0.0467)	(0.0206)
Hidarb	-0.898	0.172	0.0125	-0.0995	-0.0854
	(1.514)	(0.321)	(0.0410)	(0.177)	(0.105)
Saho	-0.468	0.0844	0.0157	-0.0493	-0.0508
	(0.667)	(0.129)	(0.0106)	(0.0760)	(0.0629)
Rashida	-14.00	0.759***	-0.272***	-0.321***	-0.166***
	(1,288)	(0.0222)	(0.0204)	(0.0217)	(0.0179)
Gender	-0.216	0.0357	0.00973	-0.0199	-0.0255
	(0.243)	(0.0402)	(0.0111)	(0.0225)	(0.0288)
Age	-0.0139	0.00230	0.000628	-0.00128	-0.00165
	(0.00980)	(0.00162)	(0.000453)	(0.000906)	(0.00116)
Separated/Divorced	-0.926***	0.153***	0.0418***	-0.0855***	-0.110***
	(0.288)	(0.0464)	(0.0152)	(0.0264)	(0.0351)
Widowed	-0.162	0.0268	0.00730	-0.0149	-0.0191

	(0.302)	(0.0500)	(0.0137)	(0.0279)	(0.0358)
Single/Never married	-0.582	0.0964	0.0263	-0.0538	-0.0689
	(0.572)	(0.0945)	(0.0263)	(0.0528)	(0.0680)
Informal Education	0.284	-0.0470	-0.0128	0.0262	0.0336
	(0.386)	(0.0638)	(0.0175)	(0.0356)	(0.0457)
Formal Education	0.207	-0.0342	-0.00933	0.0191	0.0245
	(0.210)	(0.0347)	(0.00963)	(0.0194)	(0.0250)
Household size	0.154	-0.0255	-0.00694	0.0142	0.0182
	(0.234)	(0.0387)	(0.0106)	(0.0216)	(0.0277)
No of children up to 5 years	-0.109	0.0181	0.00493	-0.0101	-0.0129
	(0.241)	(0.0399)	(0.0109)	(0.0222)	(0.0285)
No of children 6-17 years	-0.125	0.0208	0.00566	-0.0116	-0.0148
	(0.254)	(0.0420)	(0.0115)	(0.0234)	(0.0301)
No adults 18 & above years	-0.0315	0.00522	0.00142	-0.00291	-0.00373
	(0.229)	(0.0380)	(0.0104)	(0.0212)	(0.0271)
No of hh members economically active	0.124	-0.0205	-0.00558	0.0114	0.0146
	(0.0902)	(0.0149)	(0.00412)	(0.00832)	(0.0107)
No of participated children in Education	0.154	-0.0255	-0.00695	0.0142	0.0182
	(0.103)	(0.0170)	(0.00466)	(0.00943)	(0.0122)
No of dropouts children from school	-0.102	0.0169	0.00460	-0.00940	-0.0120
	(0.0986)	(0.0163)	(0.00453)	(0.00912)	(0.0117)
No of children in kindergarten	0.321	-0.0531	-0.0145	0.0296	0.0379
	(0.231)	(0.0383)	(0.0105)	(0.0214)	(0.0273)
No of children in elementary	-0.140	0.0232	0.00634	-0.0130	-0.0166
	(0.0989)	(0.0163)	(0.00452)	(0.00913)	(0.0117)
No of children in junior	-0.0365	0.00605	0.00165	-0.00337	-0.00432
	(0.0962)	(0.0159)	(0.00433)	(0.00888)	(0.0114)
No of children in secondary	-0.00191	0.000316	8.62e-05	-0.000176	-0.000226
	(0.103)	(0.0170)	(0.00463)	(0.00948)	(0.0121)
No of children in college/University	-0.109	0.0180	0.00490	-0.0100	-0.0128
	(0.205)	(0.0339)	(0.00927)	(0.0189)	(0.0243)
Constant cut1	-1.441*				
	(0.752)				
Constant cut2	-0.0827				
	(0.749)				
Constant cut3	1.689**				
	(0.754)				
Observations	514	514	514	514	514

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 5.5.4C Outcome variables as a function of loan size with square years and loan size

	OLS Model		Logit Model		Marginal Effect (logit)	
Variables	Monthly income (1)	Monthly total sales (2)	Household Asset (3)	Housing improvement (4)	Household Asset (6)	Household Asset (7)
Total loan size/100	0.771	1.381	0.000863***	0.000454**	0.000162***	9.54e-05**
	(1.780)	(1.240)	(0.000212)	(0.000204)	(3.73e-05)	(4.22e-05)
Membership in years(square)	-3.285	24.62	0.00393	0.00465*	0.000736	0.000978*
	(13.59)	(31.80)	(0.00251)	(0.00248)	(0.000466)	(0.000515)
Loan size square/1000	3.67e-05		-1.13e-08***	-5.77e-09	-2.11e-09***	-1.21e-09
	(4.93e-05)		(3.58e-09)	(3.57e-09)	(6.48e-10)	(7.44e-10)
Anseba	-388.8	9,994**	0.526	1.305**	0.0985	0.274**
	(3,431)	(4,733)	(0.552)	(0.555)	(0.103)	(0.115)
Barentu	5,509**	3,567	0.592	1.540***	0.111	0.324***
	(2,202)	(4,033)	(0.479)	(0.494)	(0.0892)	(0.100)
Tesseney	-2,070	16,267**	0.659	1.508***	0.123	0.317***
	(2,117)	(7,008)	(0.480)	(0.496)	(0.0894)	(0.101)
Debub	3,008	8,776**	0.109	0.620	0.0204	0.130
	(2,332)	(3,915)	(0.485)	(0.511)	(0.0908)	(0.107)
Maekel	-1,127	2,906	-1.169		-0.219	
	(2,475)	(7,050)	(1.215)		(0.227)	
Afar		-5,314	2.342		0.370**	
		(9,244)	(1.467)		(0.144)	
Bilen	23,561***	5,512	0.269	1.150*	0.0523	0.245*
	(8,708)	(12,048)	(0.652)	(0.637)	(0.126)	(0.127)
Tigre	1,559	3,223	-0.761**	0.101	-0.145**	0.0214
	(2,332)	(4,712)	(0.355)	(0.332)	(0.0666)	(0.0701)
Kunama	-4,020	-3,939	-1.057	-0.157	-0.197	-0.0324
	(2,663)	(11,662)	(0.731)	(0.705)	(0.125)	(0.143)
Nara	-5,406***	-9,461*	-0.185	0.334	-0.0360	0.0712
	(1,941)	(5,500)	(0.697)	(0.621)	(0.136)	(0.134)
Hidarb	-2,786	-6,438				
	(2,266)	(8,558)				
Saho	-477.7	-8,538	0.209	0.139	0.0407	0.0293
	(1,984)	(7,850)	(0.751)	(0.742)	(0.145)	(0.158)
Rashida	-2,530					
	(3,350)					
Gender	-3,667**	-4,822	0.409	-0.0384	0.0765	-0.00807
	(1,510)	(5,280)	(0.295)	(0.287)	(0.0548)	(0.0603)
Age	-27.61	-316.4	-0.00886	-0.000414	-0.00166	-8.71e-05
	(44.37)	(203.9)	(0.0124)	(0.0117)	(0.00231)	(0.00246)
Separated/Divorced	1,006	-9,138**	0.269	-0.0248	0.0504	-0.00522
	(1,462)	(4,374)	(0.351)	(0.331)	(0.0656)	(0.0695)
Widowed	-605.8	-5,931*	0.0111	0.0226	0.00208	0.00476
	(1,451)	(3,456)	(0.363)	(0.355)	(0.0680)	(0.0747)
Single/Never married	-1,674	-6,270	-0.468	-0.0697	-0.0876	-0.0146
	(2,253)	(7,033)	(0.742)	(0.712)	(0.139)	(0.150)
Informal Education	1,213	2,783	-0.948*	-0.362	-0.178*	-0.0760
	(2,082)	(5,025)	(0.561)	(0.494)	(0.104)	(0.104)
Formal Education	-1,401	6,247**	1.031***	0.726***	0.193***	0.153***
	(1,381)	(3,117)	(0.267)	(0.261)	(0.0474)	(0.0534)
Household size	3,800***	-7,161	-0.277	0.188	-0.0518	0.0396
	(1,386)	(6,860)	(0.511)	(0.295)	(0.0956)	(0.0618)
No of children up to 5 years	-3,237**	3,819	0.0880	-0.408	0.0165	-0.0857
	(1,440)	(5,861)	(0.507)	(0.304)	(0.0949)	(0.0636)
No of children 6-17 years	-2,289	4,809	0.196	-0.257	0.0367	-0.0540
	(1,416)	(5,458)	(0.510)	(0.311)	(0.0954)	(0.0652)
No adults 18 & above years	-3,071**	5,512	0.214	-0.257	0.0401	-0.0541

	(1,272)	(6,054)	(0.500)	(0.287)	(0.0936)	(0.0601)
No of hh members economically active	-355.4	1,840	0.161	-0.0379	0.0301	-0.00797
	(550.4)	(1,952)	(0.111)	(0.106)	(0.0207)	(0.0223)
No of participated children in Education	-576.3	854.9	0.0582	-0.00646	0.0109	-0.00136
	(642.8)	(4,038)	(0.121)	(0.117)	(0.0226)	(0.0245)
No of dropouts children from school	476.4	585.4	0.208*	-0.0572	0.0390*	-0.0120
	(691.3)	(2,111)	(0.124)	(0.116)	(0.0230)	(0.0243)
No of children in kindergarten	401.4	4,815	0.553*	-0.186	0.103*	-0.0391
	(1,557)	(4,683)	(0.294)	(0.271)	(0.0543)	(0.0570)
No of children in elementary	164.8	-230.9	-0.205*	-0.0224	-0.0384*	-0.00470
	(555.0)	(2,032)	(0.112)	(0.111)	(0.0208)	(0.0233)
No of children in junior	-151.5	-21.59	-0.0268	0.108	-0.00502	0.0227
	(588.8)	(1,790)	(0.112)	(0.107)	(0.0210)	(0.0225)
No of children in secondary	307.4	912.0	0.0984	0.0303	0.0184	0.00638
	(629.1)	(1,670)	(0.125)	(0.121)	(0.0234)	(0.0254)
No of children in college/University	1,542	231.1	-0.345	-0.169	-0.0646	-0.0356
	(1,400)	(2,602)	(0.253)	(0.249)	(0.0471)	(0.0523)
Constant	1,856	24,961*	-1.289	-2.032**		
	(4,346)	(14,054)	(0.941)	(0.928)		
Observations	269	294	513	495	513	495
R-squared	0.389	0.102				
	Robust standard errors in parentheses			Standard errors in parentheses		
	*** p<0.01, ** p<0.05, * p<0.1			*** p<0.01, ** p<0.05, * p<0.1		

Table 5.5.4D Household expenditure as a function of SMCP's loan size and covariates with square years and total loan size

	Order logit Model	Marginal Effect of ordered logit			
Variables	Monthly household Expenditure (1)	HH monthly Expenditure ERN 500-1000 (2)	HH Monthly Expenditure ERN 1001-2000 (3)	HH Monthly Expenditure ERN 2001-3000 (4)	Above ERN 3000 (5)
Loan size/100	0.000637***	-0.000104***	-2.81e-05***	5.73e-05***	7.53e-05***
	(0.000180)	(2.93e-05)	(8.76e-06)	(1.63e-05)	(2.16e-05)
Membership in years(square)	0.000284	-4.66e-05	-1.25e-05	2.56e-05	3.36e-05
	(0.00198)	(0.000325)	(8.73e-05)	(0.000178)	(0.000234)
Total loan size/1000	-5.38e-09*	8.82e-10*	2.37e-10	-4.84e-10*	-6.36e-10*
	(3.19e-09)	(5.21e-10)	(1.45e-10)	(2.85e-10)	(3.80e-10)
Anseba	0.411	-0.0674	-0.0181	0.0370	0.0486
	(0.422)	(0.0692)	(0.0187)	(0.0379)	(0.0500)
Barentu	-0.371	0.0608	0.0164	-0.0333	-0.0438
	(0.372)	(0.0611)	(0.0166)	(0.0336)	(0.0440)
Tesseney	-0.124	0.0204	0.00548	-0.0112	-0.0147
	(0.371)	(0.0609)	(0.0164)	(0.0334)	(0.0439)
Debub	0.0744	-0.0122	-0.00329	0.00670	0.00880
	(0.382)	(0.0626)	(0.0169)	(0.0343)	(0.0451)
Maekel	-0.932	0.153	0.0411	-0.0838	-0.110
	(0.731)	(0.119)	(0.0333)	(0.0659)	(0.0868)
Afar	0.716	-0.102	-0.0498	0.0476	0.104
	(0.994)	(0.117)	(0.0859)	(0.0357)	(0.168)
Bilen	0.0543	-0.00900	-0.00267	0.00501	0.00665
	(0.518)	(0.0850)	(0.0264)	(0.0470)	(0.0643)
Tigre	0.0294	-0.00489	-0.00141	0.00273	0.00357
	(0.273)	(0.0452)	(0.0133)	(0.0252)	(0.0333)
Kunama	-0.459	0.0833	0.0129*	-0.0479	-0.0483
	(0.533)	(0.103)	(0.00719)	(0.0596)	(0.0492)
Nara	-2.546***	0.502***	-0.115	-0.245***	-0.142***
	(0.822)	(0.135)	(0.0741)	(0.0507)	(0.0207)
Hidarb	-0.774	0.147	0.0109	-0.0838	-0.0739
	(1.497)	(0.310)	(0.0303)	(0.172)	(0.109)
Saho	-0.279	0.0493	0.00998	-0.0282	-0.0310
	(0.669)	(0.123)	(0.0169)	(0.0715)	(0.0686)
Rashida	-12.92	0.748***	-0.275***	-0.314***	-0.159***
	(830.4)	(0.0243)	(0.0214)	(0.0216)	(0.0172)
Gender	-0.198	0.0325	0.00873	-0.0178	-0.0234
	(0.240)	(0.0394)	(0.0107)	(0.0216)	(0.0284)
Age	-0.0150	0.00246	0.000662	-0.00135	-0.00177
	(0.00972)	(0.00159)	(0.000441)	(0.000876)	(0.00115)
Separated/Divorced	-0.946***	0.155***	0.0417***	-0.0851***	-0.112***
	(0.286)	(0.0458)	(0.0149)	(0.0257)	(0.0348)
Widowed	-0.193	0.0317	0.00853	-0.0174	-0.0228
	(0.301)	(0.0493)	(0.0134)	(0.0271)	(0.0356)
Single/Never married	-0.683	0.112	0.0302	-0.0614	-0.0807
	(0.569)	(0.0931)	(0.0257)	(0.0511)	(0.0676)
Informal Education	0.257	-0.0421	-0.0113	0.0231	0.0303
	(0.382)	(0.0627)	(0.0170)	(0.0344)	(0.0453)
Formal Education	0.0814	-0.0134	-0.00360	0.00733	0.00963
	(0.213)	(0.0349)	(0.00943)	(0.0191)	(0.0252)
Household size	0.227	-0.0373	-0.0100	0.0204	0.0269
	(0.235)	(0.0385)	(0.0105)	(0.0212)	(0.0279)
No of children up to 5 years	-0.200	0.0328	0.00883	-0.0180	-0.0236
	(0.242)	(0.0397)	(0.0108)	(0.0218)	(0.0287)
No of children 6-17 years	-0.198	0.0325	0.00875	-0.0178	-0.0234

	(0.254)	(0.0417)	(0.0113)	(0.0229)	(0.0301)
No adults 18 & above years	-0.0989	0.0162	0.00436	-0.00889	-0.0117
	(0.230)	(0.0377)	(0.0102)	(0.0207)	(0.0272)
No of hh members economically active	0.121	-0.0199	-0.00536	0.0109	0.0144
	(0.0890)	(0.0146)	(0.00399)	(0.00798)	(0.0106)
No of participated children in Education	0.167*	-0.0275*	-0.00739	0.0151*	0.0198*
	(0.101)	(0.0165)	(0.00454)	(0.00906)	(0.0120)
No of dropouts children from school	-0.0983	0.0161	0.00434	-0.00884	-0.0116
	(0.0980)	(0.0160)	(0.00441)	(0.00882)	(0.0116)
No of children in kindergarten	0.273	-0.0447	-0.0120	0.0245	0.0322
	(0.230)	(0.0379)	(0.0102)	(0.0208)	(0.0272)
No of children in elementary	-0.138	0.0227	0.00611	-0.0125	-0.0164
	(0.0970)	(0.0159)	(0.00436)	(0.00874)	(0.0115)
No of children in junior	-0.0296	0.00486	0.00131	-0.00267	-0.00350
	(0.0951)	(0.0156)	(0.00419)	(0.00855)	(0.0112)
No of children in secondary	-0.00273	0.000447	0.000120	-0.000245	-0.000322
	(0.102)	(0.0167)	(0.00449)	(0.00915)	(0.0120)
No of children in college/University	-0.129	0.0211	0.00569	-0.0116	-0.0152
	(0.205)	(0.0336)	(0.00907)	(0.0184)	(0.0243)
Constant cut1	-1.205				
	(0.733)				
Constant cut2	0.171				
	(0.730)				
Constant cut3	1.952***				
	(0.736)				
Observations	514	514	514	514	514

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Appendix G

Survey Questionnaire

Introduction: Good day! My name is …… and I work for a research group that has been hired by SMCP. The purpose of the survey is to better understand the impact of the SMCP on the socioeconomic performance and welfare of its clients. We want to assure you that the information you give us will be completely confidential and will be used exclusively for our statistical research only. The information you give us will not be associated with your business specifically and will not affect your cooperation with SMCP and your ability to get loans in the future. The survey asks several questions about your household, your business and yourself. We are trying to understand the changes that have taken place over the past years. The survey will take about 30 to 40 minutes to complete. Is this ok? May we continue? Thank you.

Name of the interviewee: _____ Type of client (Group Vs Individual):_____ a. Group borrower _____

b. Individual borrower_____
c. Promoted from group to individual borrower_____
d. Self-relegated from individual to group borrower_____
Client identification number: _____

Zoba: _____

SubZoba: _____

Center/Branch: _____

Town/Village: _____

Ethnicity: _____

I. Socio-demographic Questions

1. Gender of client

a. Male
b. Female

2. How old are you? _____ Years
3. Currently, are you …?
a. Married
b. Separated/divorced
c. Widowed
d. Single/never married
4. Grade of education?
a. Illiterate_____
b. Informal (read and write)_____
c. Educated (grade in years)_____

5. Household size_____ (number of persons in a household)
a. Children up to five years _____
b. Children (from 6 to 17 years old)_____
c. Adults (18 years of age or older) _____.

6. How many persons in your household are working (engaged in work that earns income or products)? H.H members who economically active:_____

7. Who is the head of your household (the person who is the principal decision maker)?

a. Myself _____
b. My husband/wife_____
c. Other (specify)_____

II. SMCP's Services Methodology, Awareness, Accessibility and Loan Cycle 8.1 Since when are you a client of SMCP? Since a. One Year_____ b. two years _____ c. more than two years (specify years_____)

If your answer to Q. # 8.1 is b or c please answer Q. # 8.2a and Q. # 8.2b.

Otherwise go to Q. # 9.

8.2a. Indicate the amount of loan you have taken from SMCP

Individual Loan	Amount (how many times)	Sum	Group Loan	Amount (how many times)	Sum
5000 Nakfas			750Nakfas		
10000			1000		
20000			2000		
30000			3000		
40000			6000		
50000			9000		
60000			12000		
80000			15000		
100,000			20000		

8.2b. which loan cycle are you in? _____.

9. What for purpose you have taken the last loan?

a. To establish a new business
b. To expand existing business
c. Other, (specify)_____

10. How do you come to know about the existence of SMCP in your village or town? a. from village meetings

b. from relatives/friends
c. from mass media
d. through the administration
e. from other group members (other SMCP clients)
f. Other, specify_____

11. before becoming SMCP's client which of the following was/were your main source of credit?

a. Friends/relatives
b. Money lenders
c. Government ministries/institutions
d. Non-government organizations (NGOs)
e. Other microfinance institutions (such as ACCORD)
f. Commercial Banks
g. Businesses/ Traders who lend in kind

h. Other, specify_____
i. I have never taken a loan from any sources

12. If your answer to question # 11 is from b to g, in that case how much annual rate of interest did you use to pay? _____

13. What is/are the main reason (s) that made you to choose to borrow from SMCP?
a. loan amount is appropriate to my needs
b. cannot meet Commercial Banks' requirements
c. SMCP's interest rate is reasonable
d. easy accessibility
e. I want to get continuous, phase by phase growing loans
f. Other, specify _____

14. Is the amount of loan provided by SMCP enough for you?
a. Yes b. No

15. How fast does you loan requests get processed by SMCP?
a. Soon enough and fast
b. Delayed

16. What is your opinion on the process of getting loans via group solidarity scheme? a. it is helpful

b. it is not convenient
c. no opinion

17. Have you ever defaulted (failed to pay) in your loans?
a. Yes b. No

If your answer to Q. # 17 is yes answer Q. # 18 or else go to Q. # 19.

18. What was the main reason for your defaulting?
a. Business failure
b. Some of my group members failed to pay their share
c. Repayment period is too short
d. Borrowed more than I needed
e. Borrowed less than I needed
f. External factors (war, drought, etc.)
g. Invested the loan on non-income generating project
h. Other, specify _____

19. How do you see the amount of interest rate (service payment) charged by SMCP?

a. Low b. Reasonable c. Excessive

20. How do you see the amount of mandatory savings paid prior to accessing SMCP Loan?

a. Fair amount b. Excessive

21. Would you like to continue getting SMCP service in the future?

a. Yes (go to Q. # 23.1) b. No (go to Q.# 22)

22. If your answer to Q. #21 is "NO", which of the following is/are the main reasons?

a. Have adequate personal funds
b. Loan amount is too small
c. Repayment schedule is too short
d. Getting a loan via group solidarity is inconvenient
e. Can borrower from other microfinance programs (sources) at lower interest rate

f. Loan procedure is too long
g. Can get a loan from friends/relatives
h. Other, specify_____.

III. Household Level Questions

3.1 Education of Children

23.1 How many of your school aged children (6-17 years of age) are currently attending school? _____

If your answer to Q. # 23.1 is my entire school going children are at school go to Q. # 23.4 otherwise please go to Q. # 23.2 and Q. # 23.3

23.2. How many of your children have dropped out of school: _____

23.3. What are the reason(s) for never attending school or dropping out of school?

a. To work in the household enterprise
b. To do household chores (household tasks)
c. Because there is no school nearby
d. I can send them to school because of lack of funds (money)
e. Other, (specify)_____ .

23.4. How many of your children have reached the following school levels:

a. Kindergarten: _____
b. Elementary school:_____
c. Joiner Secondary School:_____
d. High School:_____
e. Collage:_____
f. Other (specify):_____.

23.5. How does the amount of money your household spend on school and school expenses for this current school year changed compared to what you paid out lastschool year. Did the amount…

a. Decrease
b. Stay the same
c. Increase
d. Not applicable

3.2 Household Income

24. How much is your monthly income (if he/she gives year income divide it by 12 months)? _____

25. Has your households overall income _____ in the previous periods?

a. Decreased greatly_____ (Go to #26.)
b. Decreased_____ (Go to #26.)
c. Stayed the same_____ (Go to #28.1)
d. Increased_____ (Go to #27.)
e. Increased greatly_____ (Go to #27.)

26. Why did your income decrease or decrease greatly?

a. I or household member has been sick
b. Poor sales
c. Unable to get inputs
d. Agricultural production was poor
e. Household member lost a job
f. Natural disaster (such as flood, earthquake)
g. Decreased enterprise returns
h. Other, (specify) _____

27. If increased at all, why did your income increase?

a. Expanded existing enterprise
b. Undertook new enterprise
c. Able to buy inputs at cheaper price
d. Sold in new markets
e. Got a job
f. Good agricultural season
g. Household member took paid job
h. Salary of a household member in existing job has increased
i. Increase in remittances
j. Other, (specify) _____

3.3 Household level Assets

28.1. Did you in the previous periods purchase any kind/kinds of Consumer Durable Good/goods?

a. Yes (go to Q. # 28.2) b. No (go to Q. # 29.1)

28.2. If your answer is yes which of the following did you purchase?

Item	Select which of these items you (your household) own?	Were you a client of SMCP when this item (s) was (were) acquired?	
		Yes	No
a. Radio, Video, DVD			
b. Jewellery			
c. Bicycle			
d. Television			
e. Stove			
f. Refrigerator			
g. Computer			
h. Motorcycle			
i. Car			
j. Furniture			
k. Sawing machine			
l. Mobile Phone			
m. Other, specify			

29.1. Did you previously make any major improvements or changes to your residence (for instance house renovations, house expansion, purchasing of new house, change of residence, etc?

a. Yes (go to Q. # 29.2) b. No (go to Q. # 30.1)

29.2. If yes, indicate which ones, if not go to Q. # 30.1

Type	Read & Check	Were you a client of SMCP when this took place?	
		Yes	No

a. Housing repairs or improvements (such as fixing or improving roof, Walls, floors, etc.)			
b. Housing expansion (such as built an extra room, stock room, shed, etc.)			
c. Improvement in utilities such as (water, electricity, telephone), sanitation systems, etc.			
d. Purchase a new house			
e. Changed to bigger residence.			
f. Changed to smaller residence.			
g. Other, specify			

3.4 Household Level: Coping Strategies

30.1. has in the previous periods your basic household diet
a. Improved (go to Q#30.2)
b. Stayed the same (go to Q#_31.1)
c. Worsened (go to Q#_30.3)

30.2. How has it improved: (quality – quantity), describe:
a. There is moderate improvement in quantity
b. There is moderate improvement in quality
c. There is significant improvement in quantity
d. There is significant improvement in quality

30.3. Was there in the past a time when you and your family didn't have a proper diet, either because of a lack of food or a lack of money to buy food stuffs?

a. Yes (go to Q. # 30.4) b. No (go to Q. # 31.1)

30.4. How long did this period last? Months _____.

31.1. has in the previous periods your household experienced an unusually large expense (such as a birth, marriage, or death) or experienced an unexpected economic crisis (such as a natural disaster, loss of job, eviction)?
a. Yes (go to Q. # 32.1) b. NO (go to Q. # 31.2)

31.2. How did you cope? (Don't read. multiple responses possible.)
a. Out of current income
b. Gift or handout from friends or family
c. Loan from friends or family
d. Took SMCP loan
e. Other loan at cost
f. Sold assets
g. Withdrew savings
h. Remittances
i. Other, (Specify) _____

32.1 was there a time period in the recent past in which you or a member of your household needed medical attention?

a. Yes (go to Q. # 32.2) b. No (go to Q. # 33)

32.2 Where did you get the money to pay these medical costs? (Don't read: Multiple responses possible.)

a. Out of current income
b. Gift or handout from friends or family
c. Loan from friends or family
d. Took SMCP loan
e. Other loan at cost
f. Sold assets
g. Withdrew savings
h. Remittances
i. Got free health care (government hospital)
j. Did not get medical help because could not afford it
k. Other (Specify) _____.

33. How much is your monthly household expenditure (money spent on food, house rent, utilities (electricity, water, and telephone), etc)? a. 500-1000

b. 1001-2000
c. 2001-3000
d. other (specific) _____

IV. Enterprise Level Questions:
Type of Enterprise

34. In which of the following economic activities are you participating?
a. in my own farming enterprise
b. in my own formal non farming (licensed) enterprise
c. in my own informal non farming (which does not require license) enterprise
d. other, specify_____

35 Is this enterprise activity…?

a. primarily your own enterprise
b. primarily a household (family) enterprise
c. a business partnership with others (with people outside your household)
d. other, specify_____

4.2 Type of Product Sales and Profits

36. In previous times what were your total enterprise_____sales. *(Cash and credit)*?

a. weekly	b. bi-weekly	c. monthly	d. for other periods

37. In the previous periods did you observe or witness any increase in sales?
a. Yes b. No

38. In what principal ways did you use the profit that you get from your enterprise?

Category	choose
a. Buy food	
b. Buy clothing	
c. Pay school expenses	
d. Pay health-related costs	

e. Buy items for the house	
f. Reinvest in my enterprise	
g. Save	
h. Animal raising	
i. Other (specify)	

4.3 Expansion of Enterprise

39. In the previous periods, did you make any of the following changes to your enterprise?

	Yes	No
a. Added now products		
b. Hired more workers		
c. Improved quality or desirability of product/add value		
d. Reduced costs by buying inputs in greater volume or at whole prices		
e. Developed a new enterprise		
f. Sold in new markets/locations		
g. Invested (major) in enterprise site (building, storage room, etc.)		
h. Other, specify		

40. In the previous times, did you purchase or invest in any of the following assets for your enterprise activity?

supporting investments	Yes	No
a. Purchased small tools/accessories such as cooking utensils, hoes, plow, baskets, basins, barrels, etc…		
b. Purchased major tools such as generator, stoves, equipment, machinery, etc.		
c. Purchased own means of transportation such as a bicycle, motor, cycle, pushcart, car, horse cart etc.		
d. Invested in a storage structure such as a granary, stock room		
e. Made a minor investment in your marketing site by purchasing a chair, table, shed, or the like		
f. Invested in structures for your marketing site (kiosk, shop)		
Others specify_____		

41. Do you employ any of the following business management practices in your enterprise?

	Yes	NO	Did before entering SMCP	Have since entering SMCP
a. Do you keep accounting records?				
b. Do you have a separate budget for enterprise activities & household expenses?				
c. Do you pay yourself a wage out of your profit?				
d. Do you know which product(s) bring you the most profit?				
e. Do you have a fixed location with protection from the sun and rain for selling your products, such as a store, stall, or kiosk?				
f. Do you have a fixed location for producing or storing your products that is different from the location where your family lives?				

42. Do you have any additional source of income?

a. Yes (go to Q.# 43) b. No (go to Q. # 44)

43. If your answer is yes what are the sources?

a. rental income
b. remittances
c. pension
d. Other, specify _____

44.1. In previous times has total profits (total sales minus total expenses) for this business….

a. decreased (go to Q. # 44.2)
b. stayed the same (go to Q. # 45)
c. increased (go to Q. # 44.3)

44.2. Why did your business profits decrease?

	Yes	No
a. Poor sales		
b. Increased competition		
c. Decrease in demand		
d. Could not collect credit		
e. Eviction		
f. Increased input costs		
g. Natural or other disasters		
h. Other (specify) _____		

44.3. Why did your business profits increase?

	Yes	No
a. Expanded size of enterprise facility		
b. Added new products		

c. Improved quality or desirability of products		
d. Access to more credit		
e. Lower input prices		
f. Sold in new markets/locations		
g. Purchased new productive assets (such as machinery, equipment, tools)		
h. Purchased marketing site (such as shop, kiosk)		
i. Increased demand		
j. Other (specify) _____.		

45. How many people do you currently employ in your major business other than yourself?

Type of employment	Number of employees
a. Paid fulltime	
b. Paid part time	
c. Casual laborer	

46. What is the major business supported by your SMCP loan?

Sector	Business type	
a. Manufacturing	Wood works	
	Textile	
	Metal works	
	Hand crafts (ceramic, wood, textile etc.	
	Other, (specify)_____	
b. Agriculture/Agro-business	Growing & selling	
	Process	
	Buying and selling	
	Other, (specify)_____	
c. Trade	Wholesale	
	Retail	
	Hawking	
	Other (specify)	
d. Service	Education	
	Transport-	
	Restaurant-	
	Repairing-	
	Tailoring-	
	Snack bar	
	Bar	
	Barber	
	Internet café	

	Pharmacy	
	Stationary	
	Other (specify)	

4.4 Farming Related Questions

47. Do you have income (cash and/or in kind) from agricultural production?
    a. Yes b. No

48. What is the total size (area) of your land holding? _____ in ha/Tsmdi Berai

49. How is your agricultural income last year in contrast to the year before?
    a. increased remarkably (go to Q. # 50)
    b. increased (go to Q. # 50)
    c. stay the same (go to Q. # 51)
    d. decreased (go to Q. # 50)

50. Reasons for increasing or decrease of your agricultural income (select either of).

Reasons for increase		Reasons for decrease	
a. Good rainfall season		a. Bad rainfall season	
b. Use of insecticide		b. Was unable to use insecticide	
c. Use of industrial fertilizer		c. Was unable to use industrial fertilizer	
d. Use of organic fertilizer		d.. Was unable to use organic fertilizer	
e. Got extra (more) labor help		e. Was unable to get labor help	
f. Other, specify		f. Other. specify_____	

5.1 Livestock breeding

What animals and how many of each species do you own?

Animal/Species	How many of each before becoming a client of SMCP	How many of each after becoming a client of SMCP
a. Oxen		
b. Cows		
c. Donkeys		
d. Sheep stock		
e. Goat Stock		
f. Poultry		
g. Camels		
h. Bees		

51. Do you have additional income from secondary animal production? (Sell of milk, eggs, butter, etc.)
    a. Yes b. No

53. Out of your agricultural products which of the following do use for consumption and which ones for sell.

Type of product	For sale in quintal(s)	For consumption in quintal (s)
a. Taff		
b. Sorghum		
c. Barley		
d. Dagusha		
e. Bltug		
f. Sesame		
g. Beans/peas		
h. wheat		
i. vegetables		
j. Horticulture		

54. In the recent past have you made expenses for high-quality inputs such as fertilizer, pesticide, insecticide, quality seeds etc in crop production?
a. Yes b. No

55. How many people do you currently employ in your farm other than yourself?

Type of employment	Number of employees
a. Paid fulltime	
b. Paid part time	
c. Nobody	

56. In the recent past, how many children helped you in the farm?

	Number of children	Number of children who missed school or never enrolled in school so that they could help you with this work
a. Under 10 years of age		
b. 11 to 17 years of age		
c. Nobody /No one		

57. Do you possess livestock for commercial animal husbandry (ranching)?
a. Yes b. NO

V. <u>Individual Level:</u>

58. Since you became a client of SMCP have you borrowed money from other sources (other than SMCP)?
a. Yes (go to Q. # 59) b. No (go to Q.# 60)

59. If yes: from which sources, how much did you borrow?

Type of Institution	Amount of Last Loan	Interest rate charged
a. ROSCAs		
b. Other money lending institutions		
c. Individuals (Family, Friends		
d. Money lender		

e. Trader (business men)		
f. Other, specify		

60. How did you spend your last loan?

Loan Use Strategies	Loan amount	
	From SMCP	From other Sources
a. Expansion of business activity (offfarm activities)		
b. Establishing of new business venture		
c. Agricultural production (without livestock)		
d. Purchase of livestock		
e. Purchase of food		
f. Payment of school expenses		
g. Health care expenses		
h. Purchase of clothes		
i. Purchase of household items		
j. Cash for emergencies		
k. Pocket money		
l. Repayment of another loan		
m. To assist somebody else		
n. To give it to spouse		
o. Other specify _____		

5.1 Savings

61.1 At present do you have personal cash savings (at home, in a bank, etc)...?
a. Yes (Go to Q. # 61.2) b. No (Go to Q.# 62)

61.2 In the past, did your personal cash savings?
a. Decreased greatly
b. Decreased
c. Stayed the same
d. Increased
e. Increased greatly

62. Please give reasons for not having personal cash savings. Because of …… a. low saving ability

b. discouraging low interest rates offered by Commercial Banks
c. lack of availability of nearby saving institutions
d. Commercial Banks have limiting and time consuming withdrawal systems.
e. I reinvested it in my enterprise
f. I paid part of my pending loans
g. Other, specify_____.

5.2 Please indicate the extent to which you agree with the following statements.

63. I am confident that the future life for me and my family will be better than today.

a	b	c
Disagree	No opinion	agree

64. I feel respected by my spouse, family, and friends.

a	b	c
Disagree	No opinion	agree

65. I actively participate in my local community.

a	b	c
Disagree	No opinion	agree

66. Confidence in facing financial crisis and ability to find solutions

a	b	c
Low	Somewhat	High

67. Confidence in the ability to communicate with others

a	b	c
Low	somewhat	High

For female respondents only 6.1

Women's Empowerment

68. In the previous times, did your daily (weekly) workload in terms of your household and business activities…..?

a. increase remarkably (go to Q. # 69)
b. increase (go to Q. # 69)
c. stay the same (go to Q. # 71)
d. decrease (go to Q. # 71)

69. Did you have the possibility of alleviating your increased workload?

a. Yes (go to Q. # 70) b. No (go to Q. # 71)

70. If yes, how did you alleviate the increased workload?

a. my husband helped me with the work
b. my children helped me with the work
c. another family member helped me with the work
d. I hired labour to help me in the business
e. I hired someone to take care of domestic chores
f. my husband/family hired labour for me
g. other; specify:_____

71. In your household, who decides on the following expenses? *(Pertinent to married clients only)*

Decisions on	Child education	Food expenses	Savings	Taking loans	Loan uses	Business purchases	Profit use
my husband alone							
most of the time my husband							

my husband & myself together							
most of the time myself							
myself alone							
other, specify							

72. How many hours per day do you work to undertake your (domestic and business) chores. Hours worked per day: _____.

73. In the previous times did you purchase any consumer goods (clothing, cosmetics, jewellery, etc… for yourself?

a. Yes b. No

74. Have you ever faced any kind of pressure, tension and/or violence in family as a result of your becoming SMCP's client?

a. Yes b. No

75. Have you until now participating in_____ training?

a. literacy
b. business management
c. farm extension
d. accounting
e. storage
f. health care/family planning
g. nutrition practices
h. Other, specify_____

76. Degree of respect in your family

a	b	c
Little	medium/somewhat	High

77. Degree of social recognition

a	b	c
Little	somewhat	High

78. Degree of physical mobility

a	b	c
Little	somewhat	High

The End

Name of enumerator: _____ Signature_____

Date: _____

Commencing time:_____ Ending time: _____

Name of Supervisor: _____ Signature_____

REFERENCE

Addison, T. (2003) 'From Conflict to Recovery in Africa'. Oxford University Press.

Alexander-Tedeschi, G. and D. Karlan (2006) 'Microfinance Impact: Bias from Dropouts', *unpublished manuscript, Department of Economics, Yale University*.

Angelucci, M., D. Karlan and J. Zinman (2015) 'Microcredit Impacts: Evidence from a Randomized Microcredit Program Placement Experiment by Compartamos Banco', *American Economic Journal: Applied Economics* 7(1): 151-182.

Anyango, E., E. Esipisu, L. Opoku, S. Johnson, M. Malkamaki and C. Musoke (2006) 'Village Savings and Loan Associations in Zanzibar', *London: Department for International Development (DFID)*.

Asgedom, Y.G. and W. Muturi 'Socio-Economic Determinants of Eritrea's Savings and Micro Credit Program Loan Repayment Performance: A Case of the Dekemhare Sub-Zone'.

Ashraf, M.A. (2014) 'The Theory of Planned Behavior and Microfinance Participation: From the Perspective of Nonparticipating Rural Poor in Bangladesh', *Research Journal of Finance and Accounting* 5(7): 159-168.

Ashraf, M.A. and Y.B. Ibrahim (2014) 'Poverty Alleviation and Identifying the Barriers to the Rural Poor Participation in MFIs: A Case Study in Bangladesh1', *Journal of Economic Cooperation & Development* 35(3): 99.

Attanasio, O., B. Augsburg, R. De Haas, E. Fitzsimons and H. Harmgart (2015) 'The Impacts of Microfinance: Evidence from Joint-Liability Lending in Mongolia', *American Economic Journal: Applied Economics* 7(1): 90-122.

Augsburg, B., R. De Haas, H. Harmgart and C. Meghir (2015) 'The Impacts of Microcredit: Evidence from Bosnia and Herzegovina', *American Economic Journal: Applied Economics* 7(1): 183-203.

Ayamga, M., D. Sarpong and S. Asuming-Brempong (2006) 'Factors Influencing the Decision to Participate in Micro-Credit Programme: An Illustration for Northern Ghana', *Ghana Journal of Development Studies* 3(2): 57-65.

Banerjee, A., D. Karlan and J. Zinman (2015) 'Six Randomized Evaluations of Microcredit: Introduction and further Steps', *American Economic Journal: Applied Economics* 7(1): 1-21.

Banerjee, A.V. (2013) 'Microcredit Under the Microscope: What have we Learned in the Past Two Decades, and what do we Need to Know?', *Annual Review Economics.* 5(1): 487-519.

Banerjee, A.V. (2013) 'Microcredit Under the Microscope: What have we Learned in the Past Two Decades, and what do we Need to Know?', *Annu.Rev.Econ.* 5(1): 487-519.

Bank of Eritrea (2015), 'Legal Tender Nakfa Currency Notes Regulation No 124/2015', Asmara, Eritrea.

Bank of Eritrea Proclamation (1997) 'Proclamation No. 94/1997', Asmara, Eritrea.

Bank of Eritrea Proclamation (1997) 'Proclamation No.93/1997', Asmara, Eritrea.

Bateman, M. (2012) 'The Role of Microfinance in Contemporary Rural Development Finance Policy and Practice: Imposing Neoliberalism as 'best Practice', *Journal of Agrarian Change* 12(4): 587-600.

Bateman, M. and H. Chang (2009) 'The Microfinance Illusion'

Bauchet, J., C. Marshall, L. Starita, J. Thomas and A. Yalouris (2011) 'Latest Findings from Randomized Evaluations of Microfinance'.

Beatriz, A. and J. Morduch (2005) 'The Economics of Microfinance'

Berhane, G. and C. Gardebroek (2011) 'Does Microfinance Reduce Rural Poverty? Evidence Based on Household Panel Data from Northern Ethiopia', *American Journal of Agricultural Economics* 93(1): 43-55.

Brannen, C.F. (2010) 'An Impact Study of the Village Savings and Loan Association (VSLA) Program in Zanzibar, Tanzania'.

Chen, M. and E. Dunn (1996) 'Household Economic Portfolios, Assessing the Impact of Microenterprise Services', *Management Systems International Washington DC*.

Chowdhury, A. (2009) 'Microfinance as a Poverty Reduction tool—A Critical Assessment', *United Nations, Department of Economic and Social Affairs (DESA) working paper, (89)*.

Cintina, I. and I. Love (2017) 'Re-Evaluating Microfinance: Evidence from Propensity Score Matching', *The World Bank Economic Review*: p.lhw069.

Cohen, B., R. Jessor, H. Reed, C.B. Lloyd, J. Behrman and D. Lam (2005) 'Conceptual Framework', *Growing up global: The changing transitions to adulthood in developing countries*: 32-63.

Coleman, B.E. (2006) 'Microfinance in Northeast Thailand: Who Benefits and how Much?', *World Development* 34(9): 1612-1638.

Crépon, B., F. Devoto, E. Duflo and W. Pariente (2011) 'Impact of microcredit in rural areas of Morocco: Evidence from a Randomized Evaluation'.

Duflo, E., R. Glennerster and M. Kremer (2007) 'Using Randomization in Development Economics Research: A Toolkit', *Handbook of development economics* 4: 3895-3962.

Duvendack M, Palmer-Jones R, Copestake JG, Hooper L, Loke Y, Rao N (2011) 'What is the evidence of the impact of microfinance on the well-being of poor people?' London: EPPI-Centre, Social Science Research Unit, Institute of Education, University of London. ISBN: 978-1-907345-19-7

Duvendack, M. and R. Palmer-Jones (2012) 'High Noon for Microfinance Impact Evaluations: Re-Investigating the Evidence from Bangladesh',*The Journal of Development Studies* 48(12): 1864-1880.

Evans, T.G., A.M. Adams, R. Mohammed and A.H. Norris (1999) 'Demystifying Nonparticipation in Microcredit: A Population-Based Analysis', *World Development* 27(2): 419-430.

Goldberg, N. and D. Karlan (2006) 'The Impact of Microfinance: A Review of Methodological Issues', *Financial Access Initiative and Innovation for Poverty Action*.

Gujarati, D.N. and D.C. Porter (2003) 'Basic Econometrics. 4th', *New York: McGraw-Hill*.

Habte, A.T. (2016) 'The Impact of Microfinance on Household Livelihoods: Evidence from Rural Eritrea'. University of the Western Cape PhD Thesis.

Haque, A.C., A. Das and A. Rahman (2017) 'The Effectiveness of Micro-Credit Programmes Focusing on Household Income, Expenditure and Savings: Evidence from Bangladesh', *Journal of Competitiveness* 8(2).

Hayes, A.F. and L. Cai (2007) 'Using Heteroscedasticity-Consistent Standard Error Estimators in OLS Regression: An Introduction and Software Implementation', *Behavior research methods* 39(4): 709-722.

Hermes, N., R. Lensink and A. Meesters (2011) 'Outreach and Efficiency of Microfinance Institutions', *World Development* 39(6): 938-948.

Hermes, N., R. Lensink and H.T. Mehrteab (2005) 'Peer Monitoring, Social Ties and Moral Hazard in Group Lending Programs: Evidence from Eritrea', *World Development* 33(1): 149-169.

Hiatt, Shon R., & Warner P. Woodworth (2006) 'Alleviating poverty through microfinance: Village banking outcomes in Central America ', *The Social Science Journal*, 43(3), 471–77.

http://data.uis.unesco.org/index.aspx?queryid=166 accessed on October 25, 2017

https://stateofthecampaign.org/data-reported/ accessed on November 06, 2017

Hulme, D. (2000) 'Impact Assessment Methodologies for Microfinance: Theory, Experience and Better Practice', *World Development* 28(1): 79-98.

Imai, K.S. and M.S. Azam (2012) 'Does Microfinance Reduce Poverty in Bangladesh? New Evidence from Household Panel Data', *Journal of Development studies* 48(5): 633-653.

Karim, L. (2011) 'Microfinance and its Discontents: Women in Debt in Bangladesh', University of Minnesota Press.

Karlan, D.S. (2001) 'Microfinance Impact Assessments: The Perils of using New Members as a Control Group', *Journal of Microfinance/ESR Review* 3(2): 75-85.

Karlan, Dean (2007) 'Cross sectional impact analysis: Bias from dropouts. Microfinance Journal' (December).

Khan, M.A. and M.A. Rahaman (2007) 'Impact of Microfinance on Living Standards, Empowerment and Poverty Alleviation of Poor People: A Case Study on Microfinance in the Chittagong District of Bangladesh'.

Khan, Z., Z. Bahari and S. Mahnaz Hassan (2014) 'SWOT' Analysis of Contemporary Microfinance Impact Assessment Approaches', *Pakistan Journal of Social Sciences (PJSS)* 34(2).

Khandker, S.R. (2005) 'Microfinance and Poverty: Evidence using Panel Data from Bangladesh', *The World Bank Economic Review* 19(2): 263-286.

Khandker, S.R., G.B. Koolwal and H.A. Samad (2009) 'Handbook on Impact Evaluation: Quantitative Methods and Practices'. *World Bank Publications*.

King, E.M. and J.R. Behrman (2009) 'Timing and Duration of Exposure in Evaluations of Social Programs', *The World Bank Research Observer* 24(1): 55-82.

Kutner, M.H., C. Nachtsheim and J. Neter (2004) 'Applied Linear Regression Models'. McGraw-Hill/Irwin. 406-410, 608-623

Lensink, R. and H.T. Mehrteab (2003) 'Risk Behaviour and Group Formation in Microcredit Groups in Eritrea'.

Li, X., C. Gan and B. Hu (2011) 'The Welfare Impact of Microcredit on Rural Households in China', *The Journal of Socio-Economics* 40(4): 404-411.

Maazullah, (2016, November 11) *'Akhuwat Microfinance: Participation, Impact and Gender-Based Heterogeneity in Business Returns*'. *ISS PhD Theses*. Erasmus University Rotterdam.

Manalo, M.S. (2003), 'Microfinance Institutions' Response in Conflict Environments: Eritrea-Savings and Micro Credit Program, West Bank and Gaza-Palestine for Credit and Development, Haiti-Micro Credit National, SA'. The World Bank.

Mason, D.R. (2014) 'Who Gets what? Determinants of Loan Size and Credit Rationing among Microcredit Borrowers: Evidence from Nicaragua', *Journal of International Development* 26(1): 77-90.

Mehrteab, H.T. (2005) 'adverse selection and moral hazard in group-based lending: Evidence from Eritrea'.

Mengesha, L.G. and M.J. Holmes (2013) 'Monetary Policy and its Transmission Mechanisms in Eritrea', *Journal of Policy Modeling* 35(5): 766-780.

Meyer, R.L. (2002) 'The Demand for Flexible Microfinance Products: Lessons from Bangladesh', *Journal of International Development* 14(3): 351-368.

Morduch, Jonathan (2008) 'How can the poor afford microfinance?' *Financial Access Initiative, Wagner Graduate School,* New York University, New York.

Musona, D. and G. Coetzee (2001) 'Drop-Outs among Selected Zambian Microfinance Institutions: Causes and Potential Impact on Product Design', *MicroSave-Africa Research Report, Nairobi.*

Okten, C. and U.O. Osili (2004) 'Social Networks and Credit Access in Indonesia', *World Development* 32(7): 1225-1246.

Pitt, M.M. and S.R. Khandker (1998) 'The Impact of Group-Based Credit Programs on Poor Households in Bangladesh: Does the Gender of Participants Matter?', *Journal of political economy* 106(5): 958-996.

Rahman, M.T. and H.T. Khan (2013) 'The Effectiveness of the Microcredit Programme in Bangladesh', *Local Economy* 28(1): 85-98.

Ravallion, M. (2001) 'The Mystery of the Vanishing Benefits: An Introduction to Impact Evaluation', *the World Bank economic review* 15(1): 115-140.

Rena, P. (2008) 'Women's Enterprise Development in Eritrea through Microfinance'.

Rena, P., D. Kefela and T. Ghirmai (2007) 'Poverty and Microfinance in Eritrea-A Discourse'.

Sebstad, J., C. Neill, C. Barnes and G. Chen (1995) 'Assessing the Impacts of Microenterprise Interventions: A Framework for Analysis '. *Management Systems International.*

Sinclair, H. (2012) 'Confessions of a Microfinance Heretic: How Microlensing Lost its Way and Betrayed the Poor'. *Berrett-Koehler Publishers.*

Stewart, R., C. van Rooyen, K. Dickson, M. Majoro and T. de Wet (2010) 'What is the Impact of Microfinance on Poor People?: A Systematic Review of Evidence from Sub-Saharan Africa'.

Tarozzi, A., J. Desai and K. Johnson (2013) 'On the Impact of Microcredit: Evidence from a Randomized Intervention in Rural Ethiopia'.

Tedeschi, G.A. (2008). 'Overcoming Selection Bias in Microcredit Impact Assessments: A case study from Peru', Journal of Development Studies 44(4): 504-518.

Tedeschi, G.A., D. Karlan and F.A. Initiative (2013) 'Cross Sectional Impact Analysis: Bias from Dropouts', *The Credibility of Microcredit: Studies of Impact and Performance*: 83.

Van Rooyen, C., R. Stewart and T. De Wet (2012) 'The Impact of Microfinance in Sub-Saharan Africa: A Systematic Review of the Evidence', *World Development* 40(11): 2249-2262.

Webb, P., J. Coates and R. Houser (2002) 'Does Microcredit Meet the Needs of all Poor Women? Constraints to Participation among Destitute Women in Bangladesh', Food Policy and Applied Nutrition Program. Discussion Paper 3.

Wooldridge, J.M. (2010) 'Econometric Analysis of Cross Section and Panel Data'. MIT press.

Wright, G.A. (2001) 'Dropouts and Graduates: Lessons from Bangladesh'*, Micro-banking Bulletin* 6: 14-16.

Wydick, B., H.K. Hayes and S.H. Kempf (2011) 'Social Networks, Neighborhood Effects, and Credit Access: Evidence from Rural Guatemala'*, World Development* 39(6): 974-982.

Zaidi, H.H. (2017) 'Impact of Microfinance on Socio-Economic Conditions of the Borrowers: A Case Study of Akhuwat Foundation (Lahore)'*, European Journal of Multidisciplinary Studies* 6(2): 239-248.