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Repayment Performance and the Determinants of the Repayment Rate of Self- Help Groups in Andhra Pradesh, India

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Abstract

Repayment of loans and their determinants studies particularly group repayment has been of interest with many researchers. This research which focused on SHGs (self-help groups) a growing and successful group model in India aimed to contribute to the knowledge base on group lending. SHGs which are informal social groups and are not registered are a conduit through which members receive external loans. The SHGs in Andhra Pradesh have a high repayment rate in external loans particularly the bank-linkage loans standing at 90.6%. The average repayment rate for the external loans (87.8%) is higher than internal loans which have a repayment rate of 57.70%. Internal loans are flexible and allow members to reschedule and as such that is one important explanation for the lower repayment rate and therefore supporting institutions should support SHGs in managing their savings effectively. The econometric results show that peer monitoring through regular meetings and rules assist group members in repaying their loans in time. The size, experience (number of years since first loan), savings, rules, peer monitoring, size squared are significantly correlated to the repayment rate of the SHGs. The SHG model is a complex model therefore the usual determinants of group solidarity, pressure, trust are not significantly correlated to the repayment rate in this analysis although they have expected signs except group solidarity.

Key words*: self-help groups, repayment rate, group lending, determinants, Andhra Pradesh*

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List of Acronyms

AP	Andhra Pradesh
APMAS	Mahila Abhvrudhi Society Andhra Pradesh
ASCA	Accumulating Savings and Credit Association
ATTEND	Average attendance for the last 12 months
CGAP	Consultative Group to Assist the Poor
CIF	Community Investment Fund
CRR	Cumulative Repayment Rate
DCCB	District Central Cooperatives Bank
DRDA	Department Rural and Development Agencies
HCR	Headcount Ratio
IBL	Individual Business Loan
IRV	Individual Rural Volunteer
JLG	Joint Liability Group
MDG	Millennium Development Goals
MFI	Microfinance Institutions
MS	Mandal Samkhayas
NABARD	National Bank for Agricultural and Rural Development
NGO	Non- Governmental Organization
ROSCA	Rotating Savings and Credit Accumulation Association
RRB	Regional Rural Banks
SHG	Self- help Groups
SLF	Slum Level Federation
VO	Village Organization

Chapter One: Introduction

1.1 Background

The United Nations at the turn of the century re-emphasised 'financial inclusion' meaning delivery of financial services to the disadvantaged sections of the society at reasonable rates. Although microfinance has been in existence for over 30 years now, the emphasis is on affordability as the poor have been vulnerable to exorbitant interest rates charged by informal money lenders thereby causing a debt spiral to most of the clients. Microfinance as a type of banking service is mainly provided to the unemployed, low income and poor households to improve their livelihoods.

According to World Bank reports, India, which gained independence in 1947, is considered to be one of the countries in the world which has high magnitude of poverty. Mehta et al., (2011) report that by 2005, 27.5% of the population estimated at 301.7 million people in India were considered to be poor, that is, living below the international poverty line of USD1.25. Nevertheless, there have been reductions in poverty as there are projections that India will reduce the headcount poverty ratio (percentage of population living below poverty line) in 2015 by less than half of the rate in 1990 (Bajpai et al., 2005). Mehta et al., (2011) show that poverty measured in terms of headcount ratio (HCR) declined from 54.9% in 1973-74 to 27.5% in 2004-05 though the rate of decline is deemed slow. India has been supporting policies on poverty alleviation and in particular having in mind the MDG target of halving its population living under the poverty line. Early in 2000, India embraced the idea of financial inclusion and microfinance is one aspect which gained momentum in the country.

There are two main models applied in the microfinance sector in India; the Self-Help Group (SHG) and Microfinance institution (MFI) models. The SHG is one of the successful and widespread means of channelling microfinance. The SHG model is a form of group lending mechanism peculiar to India. The SHG model was formed among a group of women who voluntarily came together to improve their livelihood through savings and for social empowerment. Women save regularly and receive external loans from banks and other credit providers as a group which is on lent to members. Repayment of loans by members is accounted for in the SHG accounts. SHGs are meant to train members to be disciplined in their financial transactions. A major shift in the SHG model was the National Bank for Agricultural and Rural Development (NABARD) bank-linkage programme which has grown tremendously over the years. The government of India through the NABARD realized it can kick-start a financial package by offering subsidized capital and other packages of lending services to the marginalized in society.

The MFI model encompasses a range of organizations ranging from any socially responsible NGOs to profit oriented organizations which provide financial services to the segment of the population which is un-bankable (George and Sara, 2010). The sources of loans are mainly from donors, banks and other institutions. MFIs to their clients provide other financial services like micro-insurance and remittance services among a product range. The MFI model or the Joint Liability Groups (JLGs) are similar to the

Grameen bank model in India. Members are liable for each other's debts. (Harper, 2006)[1]. The MFI model is particularly different from the SHG model in the lending process where members are not required to have savings to receive credit. Individual lending is common in MFI model which is rare in SHG models. The MFI model is formal as compared to the SHG which is informal. MFI meetings are limited to financial transactions, which is different with SHGs which include social agenda. In the SHG model, members account for the transactions of the group savings and loans and therefore they bear high costs unlike in MFI model where book-keeping is the responsibility of the MFI.

The state of the sector report for microfinance in India reports that there was growth in microfinance activities in terms of client outreach. The SHG and MFI achieved a growth rate of 10.8% in 2010-2011 and the SHGs linked to banks increased to 7.5 million, with a growth rate of 4.9% in the number of members that had active borrowings from the banks. (Srinivasan, 2011).This alone shows that microfinance is there to reach undisputable heights in India.

Lenders in microfinance tend to be plagued by lack of information. This in fact causes lending institutions to face the adverse selection problem. This means that they cannot differentiate between risky and non-risky borrowers. Due to the fact that the poor do not have credit history with formal financial institutions, searching for that information is costly to the institutions. One major problem arising out of this situation is the moral hazard problem. Borrowers do not take responsibility for their actions because the lender may not punish them. The moral hazard coupled with the lack of collateral is partly why the credit market fails (Zeller et al., 2006). In a joint liability scheme, the other member has an obligation to pay for the other defaulting member. Zeller et al., (2006) explains that in the joint liability schemes, it is mainly the social cohesion and dynamic incentives which enhance the repayment behaviour and this is turn had a direct impact on the outreach, impact and sustainability of the programmes. The group members self-select into a homogenous group of people of the same economic background and thus they can monitor each other' activities and provide pressure where necessary to other members of the group who may be unable to pay back their loans (Stiglitz, 1990; Ghatak, 1999).

Microfinance programmes in Asia, Africa, South America and other developing continents use the group lending approach to reach the impoverished although varying models are improvised according to the cultural diversity in places. Over the years, more empirical literature has shown that group based lending is superior than individual based lending in improving repayment rates due to the fact that group lending reduces information asymmetries (Hermes and Lensink, 2007). Joint liability mechanism is hidden in SHG models. Members are not forced to pay each other's debts. External lenders expect the group to repay loans in time but there is no joint liability legally enforced. Members face constraints in credit if the group fails to repay external loans. Therefore, joint liability mechanism is enforced within the group if members face the risk of not receiving continued credit opportunities.

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[1] Malcolm Harper (2005) gives a detailed analysis between the two different models, the SHG and the Grameen Bank model

Several theoretical propositions have been modelled to be determinants of the repayment behaviour in group lending. Group interactions amongst borrowers can induce higher repayment rates due to peer pressure and group solidarity (Guttman, 2006). Stiglitz (1990) attempt to show how monitoring reduces moral hazard in the joint liability scheme. Though repayment rate in group lending is generally high because of peer monitoring and peer pressure, the problems of moral hazard cannot entirely be taken care of. Stiglitz, Ghatak and Guinnane (1999) show that monitoring is not costless as peer monitoring entails members knowing information regarding other member's projects and knowing what they utilize the loans for. It has been shown in other studies that though members could use social sanctions against members who default on paying their loans, most of the times, members cannot do anything about it because of the existing social relations that they have. In empirical work, there are contrasting results as to some of the determinants on how they affect group loan repayment so more research is essential to understand how the social mechanism works and especially given that groups operate in different cultural context all over the world.

Repayment performance is one important indicator of outreach, sustainability and growth of microfinance programmes. There are two distinct classifications of repayment performance: default and delinquency. Defaults are irrecoverable loans or bad debts and the period a loan is declared a defaulted loan depends on the lending institution. Conversely, a delinquent loan is one where there is late repayment and rescheduled repayments can be organized (Consultative Group to Assist the Poor (CGAP), 2010). Though delinquency seems to be harmless it has some consequences; slowing rotation of the loan portfolio, delayed earnings, increasing collection costs (visits, analysis, legal costs), decreased operating spreads, loss of credibility in program, recurring repayment problems, and finally threatening long-term institutional viability (CGAP, 2010). Delinquency can in the end lead to default therefore it is essential to manage it before it becomes irrecoverable.

1.2 Problem statement

The question of loan repayment of microcredit loans is still a major issue because the loan recipients are low income earners who are mostly self-employed and do not have collateral in terms of physical assets. The SHG model is an upcoming model in India which is gaining support from the government. It is projected to grow faster than the MFI model which in previous years faced major setbacks. At the point of this study, the MFI model was in a state of revival. The SHG model has been popularized by the fact that it can reach the poor women in isolated areas. Though the SHG model is at the height of expansion there is still risk of loan non repayment due to reluctance to pay and possibly due to circumstances beyond the control of the borrower. Reddy (2006) found that out of the total of 217 Community Investment Fund (CIF) loan recipients, 83% of the SHG members had late repayments and the remaining 17% had completely repaid their loans. Deininger and Liu (2009) in their study about loan repayment behaviour in India found out that repayment rates were low on loans originating from internal sources as compared to external sources. Andhra Pradesh reported highest default among the SHGs in the country and at the end of

June 2011 220,000 groups had defaulted on repayments and had become defunct (Srinivasan, 2011). Groups with default are prone to become defunct and with Andhra Pradesh being the State with the highest rate of bank linkage in the country, but showing the highest levels of default, this is an aspect which needs more research and attention, especially as SHGs access larger bank loans.

Whilst there is clear evidence that repayment in SHGs is a major issue in India, there is little empirical evidence to study what determines this kind of behavior as far as the researcher knows except a World Bank study by Deininger and Liu (2009) and a recent paper about dairy SHGs in Haryana, India (Feroze *et al*, 2011). The study by Deininger and Liu (2009) focused on loan source, groups' provision of public goods in the form of insurance substitutes, and exogenously imposed management practices. The recent paper about SHGs focused on Haryana, a place in Northern India and given the different cultural practices between the North and South, comparisons can be made between the regions. This study hopes to add on to the existing literature by studying other components of group lending determinants like the internal management practices of the SHGs. It is imperative to study this repayment behavior and various determinants in order to improve SHGs operations in Andhra Pradesh.

1.3 Objective of the study

Therefore the objective of this research is to understand the social operations and interactions of members within the SHGs in India in the context of microfinance activities; and related sources of loans and how they perform in terms of repayment. The researcher will focus on group behaviour since the repayment of loans to the external loan providers is not based on individual level but rather on the group as a whole.

1.4 Research questions

1) What is the loan repayment behaviour of the SHGs in Andhra Pradesh?

2) What are the determinants of the repayment behaviour in Andhra Pradesh?

1.4.1 Specific research questions

1) What are the sources of credit and what type of loans do the SHGs get?

2) What is the repayment status of loans obtained from different sources?

3) Do the mechanisms of monitoring and enforcement/ pressure improve group repayment behaviour?

4) Are social ties and trust important in determining repayment performance?

1.5 Justification of the study

This study will try to find out the repayment behaviour of the SHGs in Andhra Pradesh. Understanding the repayment behaviour of borrowers is important because this determines the delinquent and non-delinquent groups. By knowing the repayment rate of SHGs this can be used by lending institutions to classify SHGs according to their credit ratings. Both lending institutions and SHGs need to operate viably through

meeting their daily operating costs by relying on their revenues and timely repayment by the borrowers. Without long term viability in financial performance, some SHGs are at high risk of being dormant. Besides operating viably, SHGs are a tool used to alleviate poverty in India; thus there is a need for expansion to meet more members' needs in other parts of India. It is estimated that there are 60 million poor people in India and these people have not been financially included. The penetration of the microfinance market in India is as low as 3% and there is room for improvement (Arnold et al, 2009).

Understanding the determinants of loan repayment behaviour in groups offers great strides in empirical research on how group based lending can be improved through the initial stages of group formation and how the group functions. The capacity to pay is determined by covariant risks or shocks attributed to the group's location and this can also be studied to see if they partly determine repayment behaviour. As such policy makers should concentrate on some of the shortcomings experienced by group members. For instance, assessing the role of the existing level of social ties, pressure and monitoring systems in the SHGs shed some light on how the group functions. In addition, institutional factors related to loan terms help to redesign the lending programmes to meet SHG needs.

1.6 Structure of the report

The next chapter focuses on the theoretical concepts and empirical evidence of group loan repayment behaviour and the determinants. Chapter Three explores the microfinance in Andhra Pradesh, SHG model, its evolution and the bank-linkage programme. The fourth chapter gives a detailed explanation about the research methodology used in the research. The Fifth Chapter gives descriptive results and the regressed empirical results and discussion. The last Chapter Six concludes with recommendations and further studies suggestions.

Chapter Two: Literature Review

This chapter gives an overview of the theoretical concepts in repayment behaviour involved in group lending and problems of asymmetric information, moral hazard and adverse selection are elaborated on. An exploration of empirical review of studies on determinants of repayment behaviour of microfinance will follow in the last section and the empirical model that will be adopted in this study given will be specified at the end.

2.1 Microfinance

Microfinance is the provision of various financial packages such as insurance, savings, credit and other financial services as need based for the poor people. Previously microfinance was limited to provision of credit to the poor but with time there were new range of products introduced to meet the needs of the poor as credit was found not to be enough. Gonzalez- Vega (1998) defines microfinance as the provision of financial services to the low income- clients including consumers and self- employed who cannot traditionally access banking and other related services. On the other hand, Robinson (2002) also included social intermediation as an important part of the development of microfinance. This entails "organising citizen's groups to voice their aspirations ad raise concerns for consideration by policy makers and develop their self-confidence," (Robinson, 2002). World Bank defines microfinance as provision of small scale financial services to people who lack access to traditional banking services and these loans are usually disbursed to low- income clients for self-employment and often with the simultaneous collection of small amounts of savings (Karlan and Goldberg, 2007). In this study microfinance is a broad term which will encompass loans, savings and insurance and related services provided in a group lending set- up.

Microfinance institutions are defined as institutions which fill in the gap in the financial services sector by providing funds to the low income group and thus help to alleviate poverty and enhance business activities (Nawai, 2010). The lending institutions provide start – up capital and working capital for small projects and in addition, they could also provide funds for non- business activities which could include for education and emergencies. Included in the lending institutions are organizations providing financial services to the poor such as banks, the government agencies and NGOs.

2.2 Group lending and repayment literature

In microfinance problems of asymmetric information arise such as adverse selection and moral hazard mostly in individual based lending practices. Economic theory explores some of the methods which can improve repayment behaviour in group lending such as screening, monitoring and enforcement. The lending institutions, on the other hand, also employ their own incentive based mechanisms to induce borrowers to repay.

The theoretical structure of lending in microfinance and the problems associated is explained by the principal agent problem. The lender in this case is the principal and the borrower is the agent. The principal agency problem arises in three ways, firstly the lender cannot observe the borrowers' characteristics and

secondly, the efforts he puts once he has received the loan and thirdly he/ she cannot tell the returns that the borrower gets from the investments that he or she would have made.

2.2.1 Moral hazard

According to Morduch and Armendariz (2005), the moral hazard problem can be ex ante or ex post. The ex- ante moral hazard "relates to the idea that unobservable actions or efforts are taken by borrowers after the loan has been disbursed but before project returns are realized". This is more related to how the borrower uses the loan. The ex post moral hazard is referred to the "enforcement problem" or to a situation where the lender cannot observe the borrower's profits. The lender is not in a position to know whether the borrower made profits or losses and even if he/she knows he/ she cannot enforce the borrower to repay the loan. The borrower can decide to default on the payment. Formal lenders find it difficult and costly to accurately determine the likelihood of default and monitor closely how the borrowers use funds and what techniques they use for the project implementation. This is aggravated by weak legal systems, lack of source collateral and the view that the government loans are political patronage (Karlan, 2007). Unlike formal lenders, informal lenders have a closer relationship with the borrowers and the formation of SHGs is a way of helping to enforce borrowers to repay the loans as members know about other members' assets and can enforce repayment. There are different ways that members can enforce repayment: social sanctions or group solidarity which can also be determined by the social ties amongst the group members.

In group lending, moral hazard is mitigated by giving responsibility to the other group members to monitor each other's activities since the principal does not have prior information about the borrower, and what kind of effort he/ she would put on the project and what kind of returns they would have realized. Varian (1990) analysed how borrowers mutually monitor each other's projects to ensure the success of financed projects and how monitoring reduces some of the barriers and information asymmetry between the lender and the borrower. Borrowers may state that they will use the loan for a certain productive project and yet the lender cannot easily monitor what the loan is being used for. The SHGs also have to hold regular meetings to keep abreast of the other members' projects. This can help reduce problems of non – repayment. According to Stiglitz (1990), loan repayment performance can improve the welfare of the borrower because monitoring costs are transferred from the bank to other members of the group and therefore risk associated with default is reduced. Costs of monitoring are also reduced as the MFIs give that greater responsibility to the leader of the group to make sure that all other members can also use the loans for the supposed or intended use. This is termed peer monitoring by Stiglitz (1990). Since members of the same group already have some kind of information about each other, the risk associated with default is already reduced. Stiglitz (1990) also shows how group lending can increase the choice of safer projects by inducing a borrower to encourage a partner to choose a safer project. Members in the same group can assist their peers to choose projects where they can realize profits so that they can repay their loans.

Apart from monitoring by other group members' moral hazard problems can be reduced by regular monitoring and visitations by loan officers and this enables them to know their clients very well and know in time when some of their clients are having difficulties. This serves a purpose of detecting troubled members and risky borrowers in the group. Visitations by loan officers from MFIs can induce the group members to trust and keep up with their repayment (Field and Pande, 2008).

Besley and Coates (1995) show how social sanctions can be used within the group lending set-up to enforce repayment amongst borrowers. Joint liability contracts can affect the willingness to repay in the group through peer pressure. If another group member is unable to pay his debt, other group members will put pressure on that delinquent member which can lead to the improvement in the repayment behaviour. This is because group members can use social cohesion to those group members and maybe regarded as social outcasts. In that case, the borrower cannot strategically default if the social sanctions are more important than keeping the returns to the project. Arghion (1999) also supports the same assertion and in addition, shows monitoring as a way of improving repayment in groups. In reality, some of these ways may not work. Ghatak and Guinnane (1999) show that monitoring and enforcing contracts is costly to the borrowers. Social sanctions can be applied but not perfectly. On the other hand, enforcing the contracts on the part of the lender is even more costly therefore completely getting rid of the problem of moral hazard is difficult. The use of social sanctions is not an effective way of deterring delinquent borrowers. In empirical studies, this has been found to work to a certain extend though because some borrowers in a group may consider the kind of relationship that existed before they joined the group and it also depends on the area where the study has been carried out. Wydick (1999) found that the effect of social pressure is only modest and is limited to mitigating moral hazard in rural settings rather than urban areas.

Lending to groups involves a fundamental dilemma: It may insure the credit against involuntary defaults, but individual borrowers' reliance on fellow borrowers to repay the loan gives the former an incentive to free ride. If the success of an individual project is not sufficiently verifiable by other group members, the dominant strategy for each individual is to shirk and hold others liable for their own default. Taking note of these free riding problems, lending institutions schemes usually incorporate a number of safeguards, the most prominent of which is that borrower groups be self-selected. This is the case in many SHGs, the expectation being that close social ties enhance peer pressure and group solidarity.

2.2.2 Adverse selection

The adverse selection problem arises before the lending institution lay out the contract agreements between them and the borrower. The lenders do not have information about the borrowers therefore they cannot differentiate between risky and safe borrowers. Thus it becomes difficult for a bank to be able to discriminate against risky borrowers. This in turn causes lenders to charge higher interest rates and pushes safe borrowers out of the market in individual lending contracts. Ascertaining the borrower's risky behaviour is important in the screening process during group formation. Group lending provides a

mechanism in which borrowers screen each other at the group formation stage and risky borrowers form their own group and are charged higher interest rates. Safer borrowers also self-select and face lower interest rates. Given homogeneous risk-matching, group lending mitigates the adverse selection problem (Ghatak, 1999). Ghatak (1999) concluded that borrowers self-select into groups through the local information that they have about each other.

Group homogeneity refers to sharing common socio-economic characteristics amongst the group members such as same age, same education and others. Group homogeneity works in favour of the group members and improves repayment if all members have same projects that derive cash flows and members demand almost the same loan sizes. However, this could also work against the repayment performance of the group if members are affected by covariant shocks such as floods or decrease in prices. In that case members' do not have the capability to repay their loans. Shocks affect the group's capability to pay though the group members may be willing to repay their loans. Shocks include family emergencies and other unexpected events that may occur and that could affect the repayment performance of the whole group. Shocks are most likely to cause higher defaults in a group setting.

Repayment performance in a group is affected by the loan cycles. A loan cycle involves application for the loans, waiting for the disbursement of the loans, the actual disbursement of the loans, the repayment period of the loans until paid in full. In theory it is expected that as the loan cycles increase repayment rates are expected to improve because of the greater social ties and cohesion amongst the group members (Ahlin, 2007).

2.3 Incentive based repayment performance

Borrowers can default strategically as the cost of default might be low because they have lower or no collateral requirement and most lenders do not have a legal system that enforces the loan contracts. Lending institutions can use dynamic incentives such as progressive lending to improve the repayment performance. Progressive lending is the practice of promising to give larger loans to the group and thus those who would want to get larger loans would have to first repay their current loans so that they can receive larger loans (Morduch and Armendariz, 2005). Godquin (2004) defines "Dynamic incentives as the threat of not refinancing a borrower who defaults on a debt obligation. The incentive power of dynamic incentive is enhanced if the lenders allocates larger loans over time to borrowers with a good repayment performance." The importance of dynamic incentives is acknowledged to a much lesser extent. In general, most lenders aim at forming long-term relationships with their client groups. Follow-up loans are usually made subject to whether previous loans have been repaid. Abbink et al., (2006) found out that follow-up loans provide incentives to pay. Reddy (2003) reported that most lending institutions in Andhra Pradesh use progressive lending as a way to encourage group members to repay. Deininger and Liu (2009) also found that SHG which were overdue on their loans could not receive further loans.

SHGs repayment rate can thus be improved through screening, monitoring and enforcement and improve welfare of borrowers (Ghatak, 1999; Stigltz, 1990; Besley and Coates, 1995). The problem of asymmetric information can thus be partly overcome in group lending.

2.3 Empirical evidence

There is a wide variety of literature on determinants of loan repayment behaviour. Loan repayment behaviour determinants can be categorized into four according to Nawai (2010) individual/borrower's characteristics, firm factors, and loan factors and institutional/lender's factors. Olomola (2000) classified them according to lender characteristics, loan characteristics and borrower characteristics. He further defined other extraneous variables although he could not identify them to include them in the regression analysis. From the theoretical point of view and empirical analysis, Paxton et al (2000) concludes that the repayment process of the group is affected by a number of characteristics such as the domino effect, group solidarity, peer pressure, group member homogeneity and the variations in group member repayment through different loan cycles. The following empirical literature gives an outline of the willingness to pay and the capacity/ ability to pay by the group.

Shocks affect the capability of the group to repay their loans unless if they are idiosyncratic risks then members in the group can pay for each other using group solidarity. Surprisingly, in the Sharma and Zeller (1997) study they found a negative association between default and shocks and the possible explanation for that result is that there could have been incomplete information on the shocks reported by the groups and the severity of the shocks is not known.

Another determinant which affects the capability of the group to pay is the location conditions where they are based. Khandker, Khalily & Khan (1994) in their Grameen bank research about determinants of repayment found that economic conditions in borrower's area had an effect on their repayment behaviour. The poor road network, rural electrification and other economic conditions were positively correlated with low repayment rates. Economic conditions may be beyond the control of the group members and adverse shocks or economic conditions in the area affect the repayment performance though the group members are willing to repay.

The initial formation of groups involves a lot of deliberations by members to join a group or not to. Members look at different aspects like education and the kind of projects they may be involved in and a lot of other factors. Godquin (2004) found that group homogeneity variables such as (same education and same age,) proved to have no significant impact on repayment performance of the group as in the study of Wydick (1999). Paxton et al (2000) used the homogeneity index measuring the socio-economic variables (income, age, gender, ethnicity, economic activities the group members were involved in, living in the same neighbourhood) pertaining to the whole group as this was assumed to be important in playing part in the repayment behaviour of the whole group. They found a positive relationship indicating that the more homogenous a group is the more problems they would face in repayment. Karsarjyan et al., (2007) used the

income variable to measure group homogeneity and found a negative association between the repayment performances. They conclude that group members use the benefit of collective action rather than to avoid enforcement.

Al-Azzam (2007) used education as one of the control variables and found that groups which had more educated people had lower repayment rates than those with lower education. This can be explained by the fact that those with higher education had access to higher loans. Olmola (2000) found positive relationship between the group repayment and those who had primary education and a negative relationship supporting the result above. Olomola explains this by the migration of educated members than their counterparts. In theory, education is a means of providing human capital which can be directly affecting the project's success and therefore the repayment performance both for the individual and the group as a whole.

Repayment performance also depends on the individual borrower characteristics. Sometimes borrowers may behave strategically in order to default or not. Strategic default in a group maybe due to what is called the domino effect. The domino effect is defined as case whereby other group members who would have repaid promptly default because the other group members have defaulted. Besley and Coate (1995) show this phenomenon in their paper under joint liability system. In practice, it has been shown that in SHGs it is hardly that other members in a group are held liable for the repayment of the other members. Paxton et al (2000) found a positive association between repayment problems and the domino effect and a negative relationship between the domino effect and the repayment as other members in the group refused to cover up for their other group members who ran into problems. Most lenders would stop the group form receiving future loans.

If one member cannot pay back, the group can either use peer pressure (Besley and Coates, 1995) or group solidarity (Paxton et al., 2000). The group repayment performance can thus be improved either way. Group solidarity refers to the group members working together to repay outstanding loans by the delinquent members and this usually works well when group members have self –selected themselves and there is mutual trust amongst the members. The group members are well aware and understand the financial difficulties faced by the other members. Zeller (1998) recognized that of loans that were in arrears 9% of the loans were paid by other members whilst 61% of loans were paid by the delinquents themselves. In the paper by Al-Azzam (2007), he found that the group solidarity or co-operation variable had a positive influence on the repayment performance of the whole group. Members understand each other's problems and are willing to help other members in trouble.

Repayment performance can also be affected by the matching problem but this happens overtime and is more related to the different loan cycles (Paxton et al, 2000). During the first loan cycle members are likely to get identical loans. Overtime, during subsequent loan cycles, members' needs could be different as the conditions under which borrowers may need to borrow vary due to their economic circumstances. Since there is a high cost of monitoring other members' activities, a collective fatigue may emerge as groups get

tired of that responsibility. In empirical work, there are conflicting results as to the influence of the loan cycles. Paxton et al., (2000) found a negative relationship between loan cycle and the repayment performance. On the other hand, Sharma and Zeller (1997) found an ambiguous result. Paxton et al., (2000) identified several reasons why the loan cycles tend to have a negative relationship with the repayment performance over time. As the lenders offer loans over a longer period of time they tend to relax in terms of supervision and monitoring clients. In addition, group members may collude to default on a loan as the loan size increases over time.

Closely related to the loan cycles is the age of the borrowing group. Social ties amongst the group members over a longer period of time is important for information sharing, building of trust amongst members and over a period of time social capital is built in a group (Abbink et al., 2006). In the former study, the coefficient of the age of the borrowing group at the due date had a positive and significant coefficient (Abbink et al., 2006). This conforms to theory that the social ties and other benefits of the group, such as information-sharing, increase with the age of the group. The results also show that MFIs allocate larger loans to borrowers as the age of their borrowing group increases. This can be justified by the use of dynamic incentives, as the number of allocated loans is likely to grow with the age of the group. Deininger and Liu (2009) also show the same results. However they go on to include age square variable showing a negative association which means that repayment performance may increase but also could decrease after a certain period of time possibly due to larger loan sizes. On the contrary, social ties inside the group, proxied by the age of the group had a significant and unexpected negative impact on the repayment rate (Godquin, 2002). A decreasing power of social penalties can also explain this feature: as members know each other better they are more reluctant to control and sanction.

Free-riding incentives may depend crucially on the size of the borrowing groups. Larger groups through the insurance effect are counteracted by less cooperation and more free riding. Ghatak and Guinnane (1999) argue that despite the insurance effect of larger groups, smaller groups are to be preferred for their better in-group coordination and reduced level of free riding. Group size is related to costs of monitoring and communication and coordination of group meetings. As the group size increases it may be too costly for other group members to monitor how other members are utilizing their loans and follow up on repayment and possibly offer solutions when other group members are in trouble. Sharma and Zeller (1997) found a positive co-efficient which means that increasing group size increases repayment performance. Zeller (1998) results show that larger groups significantly increased the likelihood to repay loans than smaller ones. His explanation is that large groups take advantage of larger economies of scale. He did not include the group size squared to find the optimal size because larger groups advantages can be diluted as internal coordination, monitoring costs can increase and thus cause moral hazard problems and free rider problems. Godquin (2002) results show that larger groups had a better performance because of intra- group insurance. Deininger and Liu (2009) share the same sentiments; with a negative association of repayment performance and a positive size squared.

Groups that receive proper training or are under good leadership tend to have high repayment rates as compared to their counterparts. This is because training prepares the group members to deal with problems when they arise and good leaders know how to solve complex problems. Some groups are supported by the NGOs whilst others get support from the government and therefore the groups 'repayment performance can be determined by what kind of support they get. Closely linked to the training and good leadership is the group's ability to maintain good books of accounts and if they employ a bookkeeper or a cash bearer as the term used in India. Paxton et al., (2000) found that leadership and training had a positive influence on the repayment performance of the group.

Living in the urban areas has got greater advantages than staying in rural areas as most of the services are easily accessible and members of the group can easily have their meetings and most urban dwellers depend on projects related to trade and other easily revolving cash projects. Groups based in rural areas mainly depend on the agricultural sector and cannot access many basic services and thus are more likely to default in payment. Paxton et al., (2000) found that urban dwellers had a positive effect on the repayment behaviour as expected. Wydick (1999) takes another point of view of these location settings. He concludes that different location settings are influenced by the type of enforcement that may occur and, repayment in urban areas is improved through intra- group insurance via more intense monitoring whilst the rural counterparts direct monitoring is difficult so they tend to apply more sanctions.

Portfolio diversity is important as it pools risk in the group. Having a lot of sources of credit diversifies the risk associated with non-repayment. Paxton et al., (2000) found a positive influence on the repayment performance which is expected. Loans from other sources can be used to repay other loans. Delinger and Liu (2009) used loan characteristics as part of the determinants of loan repayment performance. They found that loan size had a positive influence on repayment. Sharma and Zeller (1997) found a positive and significant effect of the loan value on the repayment rate and a negative insignificant effect of the value of the loan squared. This is because the greater the loan size the greater the probability of reluctant default. In contrast to this result, Roslan et al., (2009) found a negative association which means that the smaller the size of the loan the higher the default rate. A possible explanation given is that the loans were insufficient. Al-Azzam (2007) found that loan size and its square were insignificant.

Occupation in which members of the group are involved offers some diversity and therefore the less covariant the incomes are. A higher variability of members' primary occupations is expected to result in high repayment rates. Sharma and Zeller (1997) found that there was unwilling default on average on groups which had agriculture as their principal occupation. Zeller (1998) used both a variable upland possessed by members to measure diversity and intra group risk pooling. A positive association and a negative squared upland variable indicated that there is an optimal point of diversification and intra- group risk pooling in a group which can improve the repayment performance of the whole group.

Members of a group can collude and be reluctant to repay because of the relationship status in the group. Sharma and Zeller (1997) used relatives as variable to measure how many members in the group were related to each other. Relatives have got a better understanding of each other and flow of information is likely to be efficient and reliable and this is likely to cause less moral hazard problems. Monitoring and enforcement problems are diluted however because of cultural values. In most of the societies, it is difficult to impose sanctions on the relatives and therefore some relatives may end up colluding. In a study by Sharma and Zeller (1997) they found a positive and significant association between default and relatives which meant that the effects of monitoring and enforcement and possible collusion were outweighing the negative association of family members. In contrast, Al-Azzam (2007) found a negative association between repayment and relative. Karsarjyan et al., (2007) found no significant association between family and repayment performance.

Women are thought to be responsible and women undertake less risky projects than their male counterparts therefore the rate of default is much lower. Men like to venture into risky projects and they are more informed of market opportunities. The rate of default was higher for groups with a higher proportion of males than females (Sharma and Zeller, (1997). Roslan et al., (2009) found that women had higher repayment rates than males which support the idea that women are hard workers and have more financial discipline than their male counterparts. Godquin (2002) also concluded that women had the ability and willingness to repay their loans because of their cultural standing in society.

According to Zeller (1998) repayment performance of the group is determined by the initial process of the formation of the groups. The process influences the structure and therefore conducts and performance, along with other exogenous variables such as the community and characteristics of the credit programmes. Groups that are formed on their own versus those formed by NGOs or government have support systems as there is intervention from outside. The manner in which the group was formed could make a difference on the repayment performance. Groups formed on their own have rules and regulations that they follow rather than groups which have outside intervention. Sharma and Zeller, (1997) found that groups formed on their own have a lower delinquency rate. In sharp contrast, Zeller (1998) did not find any significant difference between groups formed by initiation from an external agent or those formed by a member.

Godquin (2002) also concluded that social intermediation variables such as access to health services and dynamic variables which was (proxy credit rationing) were important in determining repayment behaviour. Wydick (1999) found that social ties amongst the group members had no association with the repayment performance of the group whilst the peer monitoring variables such as knowledge of the members' weekly sales, if members engage in the same line of business had a significant effect on repayment performance. Karsarjyan et al., (2007) used trust as proxy for social ties and found a positive and significant association which indicated that group members who trust each other have a better repayment performance than those

who do not. Social cohesion was also tested by Zeller (1998) on the repayment performance and as expected this led to improvement in repayments.

Chapter Three: Overview of microfinance in Andhra Pradesh

This chapter explores the SHG model, its history and where it is now and what is it is and the bank-linkage programme which is the main external source of credit for the SHGs.

3.1 Study Area

Andhra Pradesh is a South-eastern coastal state of India and fifth largest in terms of population and the capital of the state is Hyderabad. Previously, the southern states of India experienced a higher magnitude of impoverished rural societies and in particular Andhra Pradesh. As such the state became a hub of financial inclusion in the form of MFIs and the SHG models. Consequently, Andhra Pradesh experienced the fastest growth in microfinance services as compared to the other states in India (Shylendra, 2006). Part of the success and growth of microfinance in Andhra Pradesh is related to a large number of MFIs operating in the state and mushrooming of SHGs in all districts of AP. This is the state with the highest number of SHGs and also the number of bank-linked SHGs as well. In 2011 alone, there were nearly 367,000 SHGs currently linked to banks and that is more than half of the SHGs in the southern states combined (Srinivasan, 2011). Although the state has the highest growth rates overall, lately in 2011, the growth rate is slowing down despite the average loan size increasing (Srinivasan, 2011). This could possibly be due to a crisis experienced in the state where a large number of MFI clients had multiple lending and there was high default among the clients. The AP had the highest outreach in terms of clients as it had about 40% of the sector being serviced by private players (Shylendra, 2006). In October 2010, a new legislation was introduced meant to protect the impoverished from unscrupulous microfinance players who charged usurious interest rates and had coercive means of recovery for loans. The SHG model which is promoted by the government apparently became more important in AP after the crisis.

AP has 23 districts with a population of 76 million people of which 75% live in the 26500 rural villages. There are about 465 000 women SHGs in Andhra Pradesh covering nearly 6.17 million poor women. Andhra Pradesh alone has about half of SHGs organized in the country. (Reddy, 2008)

3.2 History of the SHG movement

SHG movement started in the early 1980s with some women coming together to save regularly. The concept of SHGs in India came from the informal lending mechanism of Rotating Savings and Credit Associations (ROSCAs). The difference between the two is that ROSCAS are more informal and friends or relatives loan each other reciprocally over a certain period of time (Morduch and Armendariz, 2005). Each member contributes a certain amount every month to the group in the form of savings. There is no interest charged as each member waits for their turn to be allocated from the "pot". Contrary to the ROSCA, the SHGs though informal are organized and include a group of people who meet regularly and keep records or accounting books for their services such as savings and loans. Self- help groups in India consist of members between 10 to 20 who self- select each other and are of the same socio-economic stature (Reddy, 2003). The group cannot have more than 20 members and it can have all male, female or can be a mixed

group but usually majority of SHGs in India are made up women. They also have rules and regulations and make decisions collectively. Tankha (2002) defines them as groups that manage and lend their accumulated savings and externally leveraged funds to their group members. The SHGs offer both financial and non-financial services to its members and these groups formation are facilitated by NGOs and government. In addition, the group can get loans from banks as evidenced by the bank-linkage programme in India pioneered by National Bank for Agriculture and Rural Development (NABARD). NABARD was formed in 1983 as the apex bank for agriculture and rural development and it had the task of finding ways and means to strengthen the credit delivery system to the unbanked poor and to bring about an improvement in recoveries of loans given under the credit programmes. In other words, an SHG is a ROSCA which is well defined and turned into Accumulating Savings and Credit Association (ASCA), (Bouman, 1995).

Fernandez (2007) describes the movement of the SHGs in India in two distinct phases; phase 1, 1987 to 1992 and phase 2 from 1992 onwards when the SHGs became bank-linked. The first phase was mainly the support of the SHG movement into making it into a formidable force prior to it receiving credit from external sources. During this phase, it was mainly NABARD which provided funds to NGOs for capacity building in these NGOs.

3.3 Structure of SHG

The SHG is a self-managing group and governs its own operations through the rules and regulations that the members formulate on their own. Members in group make decisions together and a majority voting process is used. Each group in Andhra Pradesh elects 2 leaders, one first and second leader and these are given these authoritative positions not to dominate the group but to lead other members and represent other members in other external meetings. Rotation of leaders is encouraged in SHGs but this is not happening in most SHGs because other members do not have leadership qualities and enough confidence to take up this role. Therefore, some groups go up to 3 years without changing leadership (Reddy, 2011).

Each SHG keeps books of records which may include individual passbooks of each member containing information about the member's savings, loans disbursements and repayment status; loan ledger, group's savings passbook; loan passbook from the bank, loan ledger, and minute books. The SHGs all have different combination of books depending on who supports them. Some SHGs employ a book keeper to keep up to date the information in their books and pay a monthly salary. Other SHGs have members who have been trained to do the book keeping therefore they do not need an external bookkeeper.

SHGs are also linked and supported by different external agencies. Though they mainly handle aspects pertaining to the financial management and day to day operations, they receive capacity building trainings to enhance the proper functioning of these informal institutions.

Federations/slum level federations (SLFs) – Federations are associations of SHGs that were created to fill in some of the functions that SHGs are not able to carry out. The federations are formed at mandal level in urban areas and two leaders from each SHG represent their group. According to a report by APMAS (2003) federations have been in existence since the 1990s and were promoted by NGOs and Department Rural and Development Agencies (DRDA) to deal with issues beyond SHGs. Membership in federations is usually between 15 to 20 SHGs and the interaction between the members of different SHGs allows members to share and solve problems, for example conflict resolution as shown in Figure 2 below. Figure 2 below shows the interlinkages and the flow of information of the SHGs members with the secondary institutions- SLFs and MS. Federations were also created to ensure default management in groups and become a social and economic tool in which members of the SHG can benefit from.

Village Organizations (VOs)- they are mainly found in rural areas where the SHGs combine at village level. The primary focus is on capacity building and they are a source of credit for the SHGs. Similarly to a federation, a VO also performs the same functions which are to enhance the development of the SHG, strengthen the members and make them aware and involved in social activities. Mandal Samkhayas (MS) which are directly linked to VOs/SLFs are secondary institutions which enhance the functioning of the VOs through financial sustainability and related projects and training and the flow of information flows as shown in Figure 2.
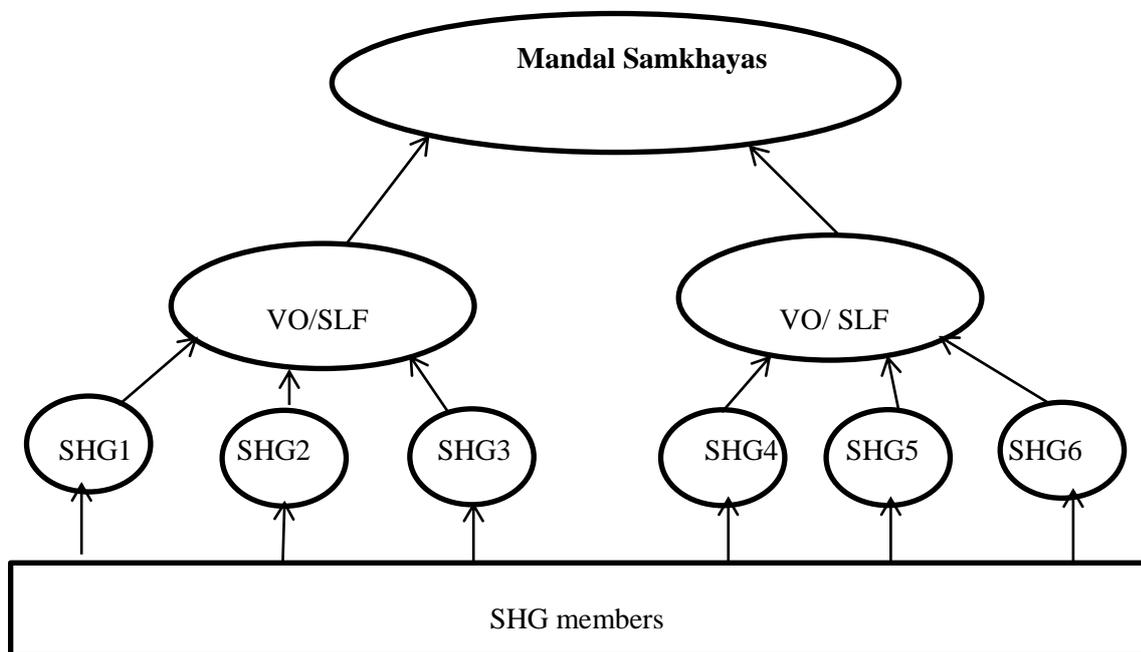
Figure 1 The general SHG organizational structure with secondary institutions

NGOs- a number of NGOs be it local, government and international are involved in various forms and mainly for capacity building in SHGs. This is meant to strengthen the group process and management. APMAS is one such organization which strengthens the capacity of women SHGs mainly in the state of AP and they are expanding their services to other states. They also deal directly with VOs, SLFs and work

in collaboration with other institutions like DRDA. This is the organization in which the research framework was sampled from. All the SHGs in this study were linked to APMAS and some of them concurrently receiving support from DRDA.

3.4 Functions of SHGs

The SHG model is an inter-linkage of various aspects all of which are intertwined and can produce a viable institution. Education, information, social or economic empowerment are strengthened through the SHG. That is why there is the focus on capacity building by various support agencies involved with SHGs.

3.4.1 Financial intermediary

One of the main functions of the SHG is to act as a financial intermediary between its members and external providers of finance. Originally, the SHG was a platform for women to encourage savings among themselves but later on due to financial inclusion in India, SHGs have more responsibility. The SHG is a conduit through which microfinance is availed to the SHG members who are the poor in the society. There are various sources of funding which a SHG can access and the three common ones are banks, VOs, and Federations.

3.4.2 Social intermediary

The SHG has become a voice for the suppressed women in society. Various SHGs are involved in social activities in their places of habitation. For example, SHG members are getting involved in such issues as marriage and dowry, child marriages, domestic violence and sexual harassment among others. The level of involvement has increased as the women feel they are part of society and are confident enough to tackle such problems. Apart from mediating in family society issues, some SHGs are engaged in developmental community activities such as addressing water problems in their areas through government initiated services. Some members in SHGs mentioned that they are also involved in charitable events in their local community to help the disadvantaged. Women have also been empowered socially through the availability of funds to educate themselves, their children or other household members. Apart from the formal education that they get, SHG members also receive training in leadership for the successful operations of the SHG.

3.4.4 Economic empowerment

The biggest notable achievement of SHGs is the economic empowerment, the kind of transformation that is seen in the women who have joined SHGs as compared to those who have not. Studies done on impact analysis reveal that generally, the women's asset base has increased and employment generation activities are on the rise.

3.4.5 Political aspect

There is notable improvement in the awareness of political processes in the society and the SHG being one of the means where women are rightly positioned to learn about this. Women in SHGs are taking part in politics as representatives locally. In a study done in India on the lights and shades of SHGs Sinha et al., (2006), they found that women running for local political offices were about 25% and there was even higher incidence in AP which has an average of 30%. The elected women have become decision makers and the study reports that women no longer depend on their male counterparts for the decision-making process.

3.5 SHG Bank Linkage Programme
The SHG bank linkage programme started in 1992 with NABARD being the pioneer. They started off with 500 SHGs in 1992 with the intention of providing financial access to the vulnerable members of the society (NABARD, 2011). The Micro-Finance initiative of NABARD has passed through various stages like pilot testing (1992-95), mainstreaming (1996-98) and expansion (1998 onwards) and has assumed the shape of a micro finance movement in the country by linking around 2.924 million SHGs and 40.95 million poor households with the formal banking system by March 2007. Currently NABARD (2011) reports that around 97 million rural households twice as much as the 2007 figure have access to regular savings through 7.462 million SHGs linked to different banks. As much as 81.7% of the groups linked are women groups and India boasts of this achievement in empowering the women in society. Figure 3 below shows the most popular linkages model being applied by most banks to the SHGs. Members save in the SHGs and their savings are kept in the bank. With the general linkage, there was no link between the members and the bank as group members decided the interest rate for their savings but lately, the bank suggests the interest rates to be prescribed to group members for borrowing.

Through the past 2 decades, the government of India partnered with NABARD along with other banks; regional, rural cooperative banks and commercial banks in availing bank loans to the SHGs. NABARD reports that there are 4000 partners in this bank-linkage programme (NABARD, 2011). In AP alone there are 367 420 currently bank linked SHGs (NABARD, 2011).
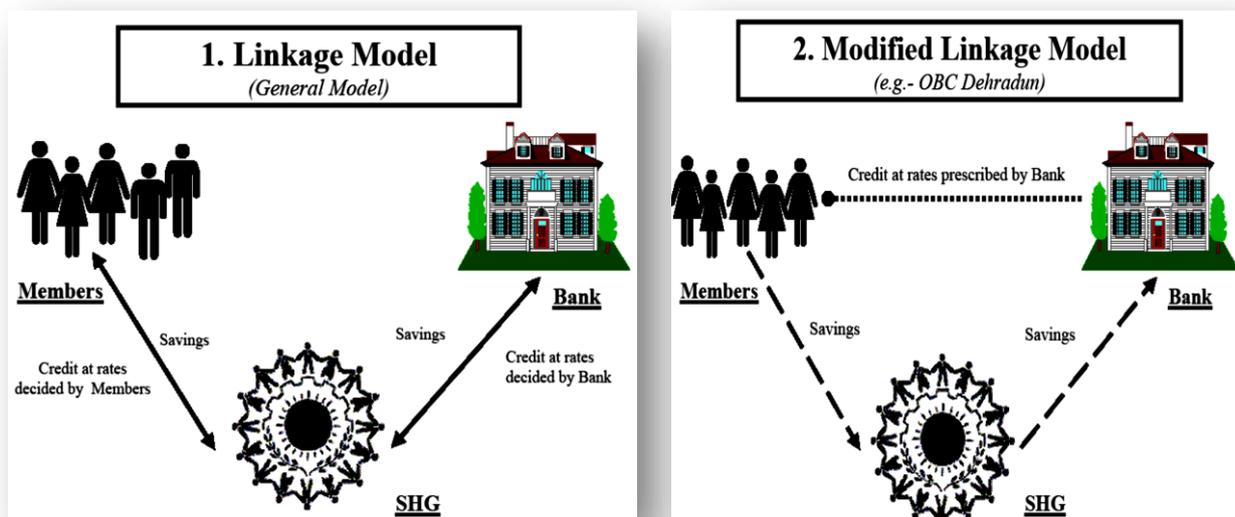
Figure 2 Bank Linkage programme2 linkage programme

NABARD throughout the years has played a part in refinancing banks. Initially, NABARD meant to encourage the other banks to actively participate in the bank linkage programme and over the last 20 years, the banks have gained confidence and realised the mutual benefit of lending to SHGs. The apex bank is still playing its major role in refinance and support for other services such as capacity building and training. NABARD also supports Self-help Promoting Agencies such as NGOs, banks, Farmer's clubs and Individual Rural volunteer (IRV) in extending grant support to organize and nurture the SHGs. Consequently, the SHG model is growing at a fast pace and becoming the predominant form of microfinance intervention in India.

2 Source: APMAS (2011)

Chapter Four: Research methodology

This chapter will give an outline on how the research was carried out, the research methods used and the econometric model applied to the data for the analysis.

3.1 Sampling Framework and Study area

According to the provisional census3 2011 India is home to slightly above 1.2 billion people who live in 35 different states with 640 districts and 5924 sub districts. There are 7936 towns and 640 867 villages in India. The research was conducted in the state of Andhra Pradesh a South Eastern state of India. AP which has 23 districts is the fifth largest state with a population of nearly 85million people. Purposive sampling was used to choose three districts in the state; 1) Hyderabad, 2) Chittoor 3) Nizambad. The sample size for the study was 130 SHGs. To have a comparable study 60 SHGs from rural and 70 urban areas were considered. For the purpose of the analysis 119 SHGs are used because some of the questionnaires had incomplete information or the SHGs had just received loans therefore the repayment rate could not be computed.
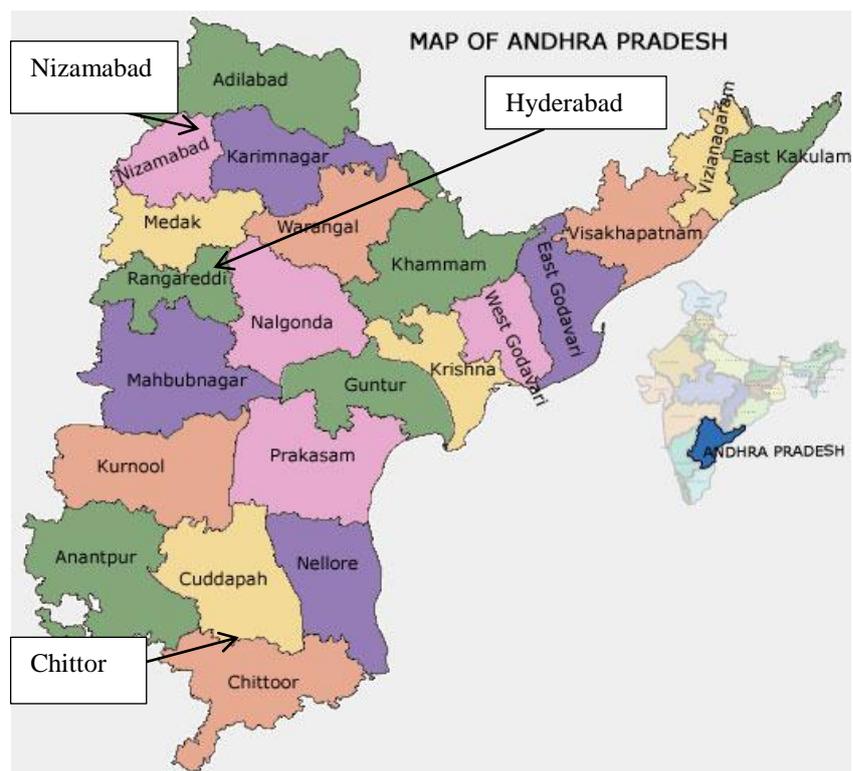
Figure 3 Map of Andhra Pradesh

All SHGs were sampled from those groups supported by APMAS. There is trade-off between uniformity and differentiation in the data which could have an impact on the results.. The districts, mandals and towns were chosen purposively taking into account time, cost and convenience for the researcher and availability of the interviewers who were the community building officers (CB0s). At the mandal and town level, SHGs were grouped into different village levels or slum level federations. APMAS and the rural district council keep a record of VOs and SLFs and list of the names of the SHGs together with the current leaders and their contact details and the loans that the SHGs currently hold. Stratified random sampling was used to choose the VOs and SLFs to choose a representative sample. The VOs and SLFs which had received

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3 The provisional census gives provisional population totals and can be found on
http://www.thehindu.com/multimedia/archive/00517/India_Census_2011___517160a.pdf

loans were grouped into categories of the percentage of SHGs which had been active for the last 2 years. Once the SLFs and VOs were chosen, the SHGs were also classified according to those which had been bank linked at least once. From each SLFs or VOs, the random sampling was proportional according to the number of SHGs which were in that group. One VO could have groups in different villages.

Rural sampling

Chittoor is to the extreme south of the state of AP and has 66 mandals in which 71 561SHGs are currently functioning or involved in projects. According to the government of India4, there are 1783 Village organizations which link the SHGs. In Chittoor, APMAS works in 5 mandals and only two mandals were purposively chosen for the purpose of this study; Gangavaram and Palamaner. Nine VOs were visited in which the Palamaner area 6 VOs were visited and 3 VOs in Gangavaram. Stratified random was used to choose this sample of VOs using the data obtained from APMAS on a list of the VOs that are in the two working areas. A random sample was drawn from each VO to choose the SHGs. Nizamabad is to the north of the state and has 42440 SHGs and 1024 VOs. In Nizamabad, 5 mandals (Kamareddy, Machareddy, Domakonda, Sadasivanagar and Bikoor) were visited and a total of 9 VOs were visited. The mandals/ towns chosen in the sample were purposively chosen taking into account the accessibility (distance and time) and availability of staff to help in data collection.

Urban sampling

Hyderabad is divided into12 municipalities[5] and 16 mandals some of which were formerly in Rangareddy and Medak districts. All the municipal areas were merged into Greater Hyderabad Municipal Corporation. Three municipal towns were chosen for the data collection namely Chaminar, LB Nagar and Uppal were APMAS is currently working. There are 56 SLFs that APMAS has direct contact with of which there are 1098 SHGs in these SLFs. Stratified random sampling was used to choose the sample of bank-linked SLFs in the selected municipal towns and from each SLF, SHGS were randomly selected. Random sampling with replacement was used sometimes because in some cases, the SHGs did not currently have a loan. In the urban areas, stratified sampling using bank linkages had to be used because most of the SHGs are not yet bank-linked and therefore it was possible they did not have active loans.

The Table 1 below shows a detailed analysis of the sampling matrix in which purposive, random and stratified random sampling methods were used.

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4 http://www.rd.ap.gov.in/velugu/veluguactions
5 http://www.ghmc.gov.in/greaterhyd.asp

Table 1 Sampling matrix

State	Andhra Pradesh										Purposive sample
District	Hyderabad			Chittoor		Nizamabad					Purposive sample
Mandal/ town	Uppal	LB Nagar	Chaminar	Gangavaram	Palamaner	Kamareddy	Machareddy	Domakonda	Sadasivanagar	Bikoor	Purposive sample
Village organizations /SLFs	6	6	5	3	6	1	1	3	1	3	Stratified random sample
SHGs	24	24	22	13	17	6	6	6	6	6	Simple random sampling

3.2 Data Collection Methods

The aim of this research was to find out about loan repayment behaviour by SHGs and the determinants of loan repayment behaviour in the state of Andhra Pradesh. In order to answer these research questions two main methods of data collection were used in this research.

The study was carried out between November 2011 and January 2012 in which the data was collected for a period of 1 and half months spanning from mid- November to end of December 2011.The study used both primary and secondary data. In order to get a sample of the population, secondary data was used from APMAS and DRDA to get information about the SHGs which were bank –linked and had active loans at least from an external source. Secondary data was also obtained from the books of accounts of the SHGs to ascertain the loans, overdue loans, repayment schedule; savings and source of loans and other financial statements and characteristics of groups like age, size and experience in borrowing of the group. A structured questionnaire was designed to obtain information about the group characteristics and the views about certain factors like peer pressure, group solidarity and other information related to the group. See Questionnaire in Appendix C. Apart from the structured questionnaire provided to the group, the researcher also used focused group discussion to get a general view about the SHGs and information such as peer selection, peer pressure, group solidarity monitoring and social ties. For the interview and questionnaire, Telugu was used since it is the main language of the state.

3.3 Empirical Model

A Tobit is applied to study the determinants of group loan repayment behaviour where the loan repayment behaviour is the dependant variable and some factors considered from the empirical and theoretical frameworks are used.

Repayment rate

Data was collected on each member's repayment to the SHG. Information regarding loan disbursed, date of disbursement, loans outstanding, length of loan and frequency of repayment was obtained from the books of the SHGs and the members as well. Members had loans from different sources, from the internal source, VO, SLF, Individual Business Loan (IBL), bulk finance or bank loans. Therefore, repayment rate was obtained for each SHG and also for the different loans. Each SHG had at most 4 active loans and almost all the SHGs had a bank loan because of the sampling frame. SHGs apply for loans at different times therefore the cumulative repayment rate was used in this case because of different dates of loans and it is more applicable in this case to determine repayment performance of the SHGs. The CRR gives a sense of overall delinquency in an SHG. The cumulative repayment rate is calculated as

CRR= amount received (current and past due) less prepayments

      Total amount due this period + amount past due from previous periods

3.3.1 Empirical and Theoretical framework
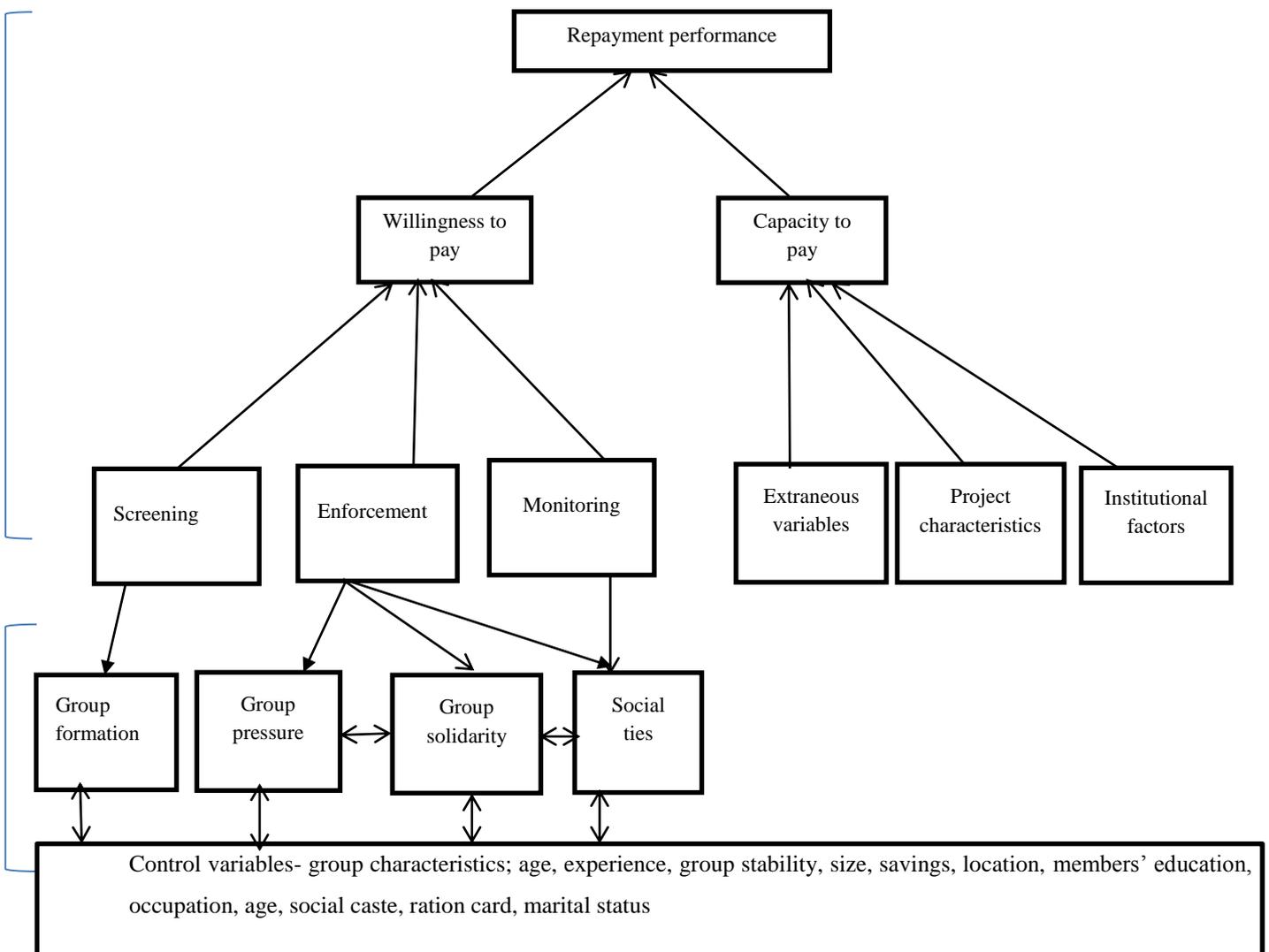
Figure 1 Empirical and Theoretical model

Figure 1gives a simplified framework of the link between theoretical and empirical factors which affect the group repayment rate. The reality is that there is more complexity as there are interlinkages between the variables. The variables are classified according to theoretical classifications and the empirical variables are determined as shown in figure 1. Therefore the empirical model is specified as:

Repayment behaviour= function (group characteristics, peer pressure, peer monitoring, institutional characteristics, extraneous variables, project characteristics, peer selection, social ties, group solidarity).

Independent variables

The determinants to be used this study are obtained from theory. The hypothesis for the factors and priori signs will be explained below and shown in Table 2.

Peer monitoring is a crucial aspect in group repayment as members have to keep up to date with the other members' business activities and repayment rate of loans. In this study three variables are used as proxy for monitoring; frequency of meetings, attendance and rules and regulations. Positive signs are expected as shown in the Table 2 below. This is because the more frequent the meetings the higher the monitoring and therefore the expectation is that members will repay their loans in time. This is also expected of the attendance as those members who attend the meetings can be monitored on their repayment. Rules and regulations act as guideline for the group's functioning and therefore groups which follow rules and regulations monitor each other's activities and repayment.

Group pressure is expected to be positively correlated to repayment rate because groups which exert pressure on members who are not able to repay are likely to achieve a higher repayment rate as compared to their counterparts who are reluctant. Another proxy for pressure is the presence of a penalty within the group. Groups which have a penalty mechanism are likely to have higher repayment rates because members' want to avoid penalty payments. On the other hands, the mechanism to enforce repayment loans maybe weaker and members can take advantage of that to repay loans late.

Social ties are an important factor in repaying loans in groups. The proxies are relatives and trust in this study. The relative variable has different empirical signs so far. A negative sign is expected when the relatives in a group may cause other group members to shy away from exerting pressure on them when they face repayment problems and concurrently, relatives can be a good means for monitoring and sharing information and reduces problems of non-repayment. Trust on the other hand, is expected to be positively correlated to the repayment in this case because group members who trust each other are likely to repay in time due to the fact that they always want to maintain the good relationship among themselves.

Group homogeneity may work in favour or against the group's repayment rate. Group homogeneity can affect the repayment positively if group members use the cohesiveness and oneness to work together and conversely homogeneity can work against the group in cases the group cannot use intra-insurance to cover for each other repayment problems. Homogeneity consists of the members' characteristics related to the age difference of the youngest and oldest members, members' occupations, members' education, members' caste, members' marital status and members' economic status (ration card). The four categorical variables marital status, occupation, ration card, education measured as an index using the Blau diversity index measuring the degree of homogeneity from 0 to 1. Cluster analysis is used to put the groups in different classifications to come up with one measure for homogeneity.

Shocks are extraneous factors that can affect the members' ability to repay their loans in time and in turn affect the whole group's repayment rate. A negative association is expected as groups which are likely to experience shocks will unlikely be able to repay. *Age* which is the number of years the group has been in existence has an a priori negative sign. This is the same with *experience* which is the number of years in which the group started receiving loans. In empirical literature, some positive signs have also been found. The increasing number of years members have been together may bring disharmonies among members because members have different needs which require varying loan sizes overtime. Members are also likely to lose interest in other member's activities probably because they trust them or they become less interested in monitoring them.

Size has been postulated to have a negative or positive sign. A positive sign implies that the larger the group size the higher the repayment rate and this is explained by the fact that as there are more members in a group the more they are expected to help each other in repayment problems and also pool resources together given the fact that they are not a homogenous group economically. In contrast, a negative association implies that the larger the group size the lower repayment rate of the group because of problems of monitoring and coordinating information across the group members. There are always set-offs effects between these underlying factors.

Savings are the finances contributed by members every month and belong to the members. Savings demonstrate financial discipline to the external loan providers and though they are not officially collateral, they show members commitment to the group's finances. In this study, savings were used by group members to repay external outstanding loans. A positive association is expected because the higher the savings the expectation is that there is financial discipline among members.

Location is an important factor as it affects the members repayment through other factors related to the place. Urban areas are places of development and groups in urban areas are at an added advantage conversely to their rural counterparts who have limited access to resources. Therefore urban SHGs are expected to have a higher repayment rate than rural SHGs.

Institutional factors differentiate the sources of the loans and their characteristics. Groups in the study have different loans which might be external or internal loans and therefore the repayment rate is likely to differ according to the source of the loans. The factors like loan amount, interest, length of loan are expected to be negatively correlated to the repayment rate of the loans. The higher the loan amount and the interest rate, the more expensive the loan will be and therefore the higher the expectation that members will have lower repayment rates. An interesting factor in India is a presence of pavaladhi. This is a subsidy on the interest which is given to SHGs. The expectation is that groups which have received pavaladhi will have lower costs of the loans and therefore will repay their loans in time as compared to groups which have to borne all the costs of interests by themselves.

The institutional variables related to the loans contribute to the repayment rate of the SHGs CRR because they have different terms of repayment, repayment schedules, interest rates and length. In this study, these were not considered because of the few observations and the fact that there were not enough instruments given that these variables have endogeneity problems.

Table 2 Variables uses in the analysis

Concept	Indicator	Variable	Expected sign
Repayment behaviour	Loans repaid and overdue	CRR measuring delinquency from 0 to 100	
Monitoring	Frequency of meetings Group meetings held in the past 6 months What determines the conduct between the group members	Number of times they have meetings Percentage of members who attended meetings for the last 6 months Rules and regulations Dummy 1 Evidence of a written code in the group 0 otherwise	+ + +
Group pressure/ peer pressure	-if members are willing to put pressure -Do members feel obliged to pay other members' debts, -presence of a mechanism/ legal internal code to punish defaulting member	scale on group pressure	+
Social ties	-presence of related members -Groups' members rely or trust each other, -whether group members trust the book keeper -whether group members interact socially outside meetings -do group members feel committed to the SHG Do group members feel belonging in the society	Dummy if there are relatives=1 and 0 otherwise Trust scale	+/- +
Group solidarity	-if members come together to help each other -If other members are willing to help defaulting members	Scale on group solidarity	+
Group homogeneity	-same age, education, marital status, occupation of group members ,number of social castes, ration card	A homogeneity index of Same age, same education, same caste, same, occupation, ration card, marital status	+/-
Extraneous factors	Community shocks	Dummy 1 if Occurrence of a shock in the community in the past 12 months 0	-

		otherwise	
Institutional factors	Characteristics of internal or external loans	Loan Amount Interest Length/ duration of loan Presence of pavaladhi (interest subsidy)	- - - +
Control variables	-Number of years group in existence -Number of years group has been borrowing -Number of members -Savings contributed by each member -location	Age of group Borrowing experience SIZE Size of the group SAVINGS Savings of the group location	- - - + -

3.3.2 Chow tests/ chi square test and t tests

One of the aims of this study was to examine the differences between the delinquent and non- delinquent groups to determine whether there are any underlying factors which may affect the repayment rate of these two groups. The t tests, Mann Whitney Tests and the chow tests are used for comparison of the different groups of analysis in this study. The t tests assume normality of the data and equal variances. The Mann Whitney U test does not assume normality of errors. The *fprank* command in Stata tests the hypothesis that two independent groups are sampled from the same population using the robust rank-order test which is a useful alternative of the Mann-Whitney-Wilcoxon test for non-normal populations with unequal variances. This test assumes neither normality, nor equal variances. The null hypothesis in the t tests and Mann Whitney tests is that there is no difference between any two groups compared.

SHGs have mainly two types of loans; internal and external loans. The internal loans are the loans extended to members from the savings whilst external loans can be from any external lending institution. The two types of loans are largely different so the repayment rate is likely to be different. At the point of studying the SHGs, some groups had internal loans whilst others did not have. It is important to determine whether there are any significant groups between groups which had internal loans and those which did not have using the Chow test. The chow test is used to determine whether the independent variables have different impacts on the two groups or the variables are the same and the intercept is different. To let the intercepts differ, in the constrained/full model a dummy variable concerning the source of loan being internal is added to the model.

The Bartlett test and the Levene test are used to test for equal variances among the 2 sub-groups: the groups with and without internal loans. The Bartlet's test is sensitive to non-normal data therefore the alternative is the Levene test which is non-parametric test. If the p values of these two tests is less than critical value normally 0.05, then the null hypothesis of equal variances is rejected.

3.4 The estimation method
Dependent variable

The measure to be used for the econometric analysis is CRR. This value will start from 100 for the groups which have full repayment and decline to zero in other cases. Delinquency means that loans have not been paid in time or when they are due which is different from default where the loans are not paid at all. Groups which have 100% repayment rate are non-delinquent and groups which have repayment rate less than 100% are delinquent. This measure is preferred because it gives more information about the group repayment behaviour as compared to the probit which classifies the delinquent borrowers into one group. We can observe characteristics of SHGs which are both delinquent or not. The βs are more efficient in the Tobit model than the probit because in the Tobit the value of y* when y*>0 is known whilst in the probit y*>0 is only known. However, according to Greene (2003), if the specification of the Tobit model is correct, then the probit estimators should be consistent for $\frac{1}{\alpha}(\beta)$ from the Tobit model.

The ordinary least squares method is not appropriate for this kind of data as it will produce inconsistent and biased results (Green, 2003). OLS will give omitted variable bias and it assumes constant partial effects which is not true for censored observations.

3.4.1 Tobit model

The Tobit model named after Tobin (1958) is also called the censored regression model. According to Wooldridge (2002), in a censored regression model the dependant variable is partly continuous but has positive probability mass at one or more points. The repayment rate is censored with an upper boundary 100. The Tobit measures the probability of delinquency. Feroze *et al*., (2011); Deininger and Liu (2009); Shamar and Zeller (1997) used the Tobit model in analysing delinquency in group based lending.

CRR is the dependant variable and a vector of *X* (explanatory) variables are included in the model. The simple model is specified as

CRR=100 implies complete repayment in time (non-delinquent).
CRR< 100 implies late repayment in loans (delinquency)

CRR=f(X) where X is a vector of explanatory/ independent variables (see Table 2 for a list of the explanatory variables)

$$CRR_i^* = \beta_{1i} + \beta_{2i}X + \varepsilon_i$$

Where $CRR_i = \begin{cases} CRR^* \ if \ CRR^* < 100 \\ 100 \ if \ CRR^* = 100 \end{cases}$

The βs are unknown parameters to be estimated. CRR_i denotes repayment rate for SHG, *CRR* is a censored variable* that takes positive value and ε_i is random error term capturing the unobservable effects

at the SHG level. Assuming that $\varepsilon_i\ follows N\left(0,\delta_\varepsilon^2\right)$, the method of maximum likelihood is applied. The likelihood function is expressed as

$$\sum_{CRR=100} \log \varphi(-\frac{X_i\beta}{\sigma}) + \sum_{CRR<100} \log\left(\frac{1}{\sigma}\phi\left(\frac{CRR_i - X_i\beta}{\sigma}\right)\right)$$

Where the first term is the sum of the probabilities for the censored observations and the second term is the sum of the log of densities for the uncensored observations (Davidson and McKinnon, 1999). This takes care of the fact that the dependant variable has a distribution of discreet and continuous random variables.

3.4.2 Specification tests
In this analysis the maximum likelihood approach is used for the estimation method. Specification tests are important in maxim likelihood to make sure that unbiased and consistent estimates are obtained for the parameter estimates.

Multicollinearity tests

Before estimation methods, the independent variables have to be tested for collinearity. Multi collinearity is when 2 or more predictor variables are highly correlated. This is an important test because in regression analysis variables that are collinearly correlated may produce large or small standard errors though it may not affect the whole model. The correlate command is applied in Stata to determine the relationship between the variables. The correlation co-efficient is used to test the correlation between any two variables. The correlation co-efficient ranges from 0 to 1 and if the correlation is more than 0.8 it is considered to be highly correlated and the other variable should be dropped from the analysis.

Heteroskedasticity and Normality Tests
The ideal assumption of homoscedasticity means that the errors terms are equal across the whole population. Conversely, with heteroskedasticity different sub-groups may have different variabilities which in regression methods may cause the standards errors to be large or small therefore affecting the statistical significance of the parameters to be estimated. Other reasons of heteroskedasticity may be related to the measurement error in the responses. Heteroskedasticity can be tested using the Breusch Pagan test or visual inspection of the residuals of the error term. The null hypothesis is constant/ equal variance. The Breusch Pagan test follows a chi square with k degrees of freedom. A large chi-square would indicate that heteroskedasticity is present.

The assumptions for the data consist of normality which means that the sample is well modelled from a normal data set and inferences can be made about the whole population. The null hypothesis for normality is that the data fits a normal distribution. In this analysis the residual plot was used to test for normality. The Figure 9 in the Appendix B shows that the normality assumption is violated.

Graphical plots of the Q-Q plot and P-P plot were also done for individual variables to test for normality. The data shows non-normality therefore the Tobit specification which takes into account heteroskedasticity and non- normality is also used. The *symmetrically censored least squares* (SCLS) was proposed by Powel (1986) in order to estimate censored data with heteroskedastic and non-normal error terms. The normal Tobit and the SCLS will be presented in the results section.

Endogeneity tests

The repayment rate is expected to be influenced by a range of specific variables related to the loan source specific characteristics and the SHG specific characteristics. The perception in econometrics is that variables which are predetermined and are correlated to the errors terms in the regression cause endogeneity problems and therefore interpretation in this analysis is merely correlations and not causality. In this analysis, there are possible variables which maybe correlated to the error term. The variables which are deemed to be exogenous in this case are group characteristics which have been determined in the beginning and are not subject to change. Suspected variables tested for endogeneity are pressure, trust and group solidarity.

The Smith Blundell test of exogeneity is used in Tobit model to test for endogeneity in three suspected variables; trust, group solidarity and pressure. This is carried out on the normal Tobit regression. The null hypothesis is that all the variables are exogenous. The Smith-Blundell test statistic is evaluated with respect to a Chi-squared distribution in the number of potentially endogenous variables, and the associated p-value either rejects or not the null hypothesis. If the null hypothesis is not rejected, then the estimated regression equation is a correct formulation.

Chapter Five: Results and Discussion

This chapter is a description about the data from the sample concerning the SHGs and the loans using different tools of analysing data such as means, percentages and standard deviations. An exploration is also done using t- tests and chow tests to determine the validity of some assertions made about the data. The econometric model and some discussions will follow at the end with careful considerations made about the limited data and interpretations of variables used in the analysis.

5.1 General description about the SHGs

The average members in a group are 12 and the minimum number of people in a group is 8 whilst the maximum is 20. The majority size of the SHGs is 10 members with 45% constituency. This is because the organizations supporting the SHGs and particularly government are keen on having SHGs adopt the policy of 10 members in each group. The average age of the groups is 5.7 years with a standard deviation of 3.6 years and there is a wide discrepancy between the groups. Some groups started only a year ago whilst some groups started 17 years ago. It is the same with experience, which is the number of years the group started receiving any external loans. There is high correlation between these two variables (0.90). All the SHGs save monthly ranging from 50 to 100 Rupees by each member every month. The total average savings for the groups was found to be 49 650 Rupees and there is a wide variation with the lowest savings for a group being 4800 Rupees. As a group is formed members start contribute savings to the groups.

5.2 Description of loans with SHGs

In this study, there were mainly 5 types of loans that the SHGs had categorized into internal loans and external loans. The internal loans are the loans that the SHGs lend to their members from its savings. With internal loans groups make the rules about repayment. All the groups which had internal loans gave out internal loans on a need based service and the interest rate was 24% per year of the principal amount. The repayment period for the internal loans differed with each group ranging from monthly repayments of 10 months to 36 months, quarterly instalments, half yearly, yearly or one bulk payment.

External loans consisted of Bank loans, VO loans, SLF loans and IBL loans. SLF and VO loans repayment period is either 10 or 20 months monthly repayments depending on the amount and the number of linkage the group is in. The bank loans terms of repayment differed with the banks and the number of linkages or times that a group has received the loan from the bank. The repayment is always monthly and starts from a period of 12 to 60 months and the interest rate is between 12% and 13.75% per year. Only 5 groups had IBL loans which were to be repaid in monthly instalments for a period of 60 months with interest of 12% annually. The IBL loans are given to the group to give to individuals within the group with small enterprises for working capital.

The SHGs had minimum 1 loan and maximum of 3 loans and only two groups had 4 loans. The multiple loans sources comprise of internal loans and external loans and SHGs deliberately chose to have multiple

loans to meet their needs. The majority of the SHGs (42%) as shown in Table 3 had 2 loans whilst those which had single loans were only 33%.

Table 3 Summary statistics of SHG loans

Loans	SHGs	Percentage	Cum percentage
1	39	33	33
2	50	42	75
3 or 4	30	25	100
Total	119	100	

The number of groups which had internal loans out of the 119 groups were 78 (58%). Of the groups which had internal loans, 5 groups had internal loans only whilst 65 had 2 loans or more. 113 groups had a bank loan. Some of the groups which do not have bank loans had just received a loan during the data collection period and therefore the repayment rate could not be calculated. It is mostly common that the SHGs receive bank loan as the bank-linkage programme is at the height of being popularized.

5.3 Source of Loans and repayment

Groups had different multiple loans at the same time. The number of loans for each source is given in the Table 4. The highest total number and amount of loans are bank loans with 113 followed by internal loans. Of all the internal and external loans, 34% were paid in time. This measure of delinquency differentiates those loans which were paid in time and those that were not paid in time at the time of the study. The breakdown number of delinquent loans as well as the average delinquency rate of each loan source is also calculated is given below in the table. The other loans (42.5%) and internal loans (51.7%) have the lowest delinquency rate whilst the external loans, the bank loans (79.7%) and VO/ SLF loans have lower delinquency. This is based on the total value of the loans over the sampled SHGs.

Table 4 Characteristics of Loans

Source of loan	Bank	VO loans	Internal loans	SLF loans	Other loans	Total
Number of Loans	113	44	78	8	6	249
Total Value of Loans (million Rupees)[6]	24.4	2.322	4.58	0.0995	0.466	31.8
No. Loans repaid in time	57	11	9	5	3	85

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[6] The exchange rate between the Rupee and euro was between 64 to 69 per 1 euros (between November 2011 and January 2012)

Principal Value non-delinq.loans in million Rupees	10	0.385	0.199	0.0 57	0.240	10.90
Delinquent Loans	49	30	64	2	3	148
Average % of delinq.	79.7	76.8	51.7	54.4	42.5	
Principal Value of delinq loans in million Rupees	11.9	1.697	3.998	0.032	0.226	17. 8

Value in ₹million

Repayment of Loans

Figure 4 shows the spread of the main sources of loans with the SHGs in this study as well as the overall CRR. The bank CRR clearly shows that the repayment rate is censored to the right. There is a wide variation of the repayment rate of the internal loans.
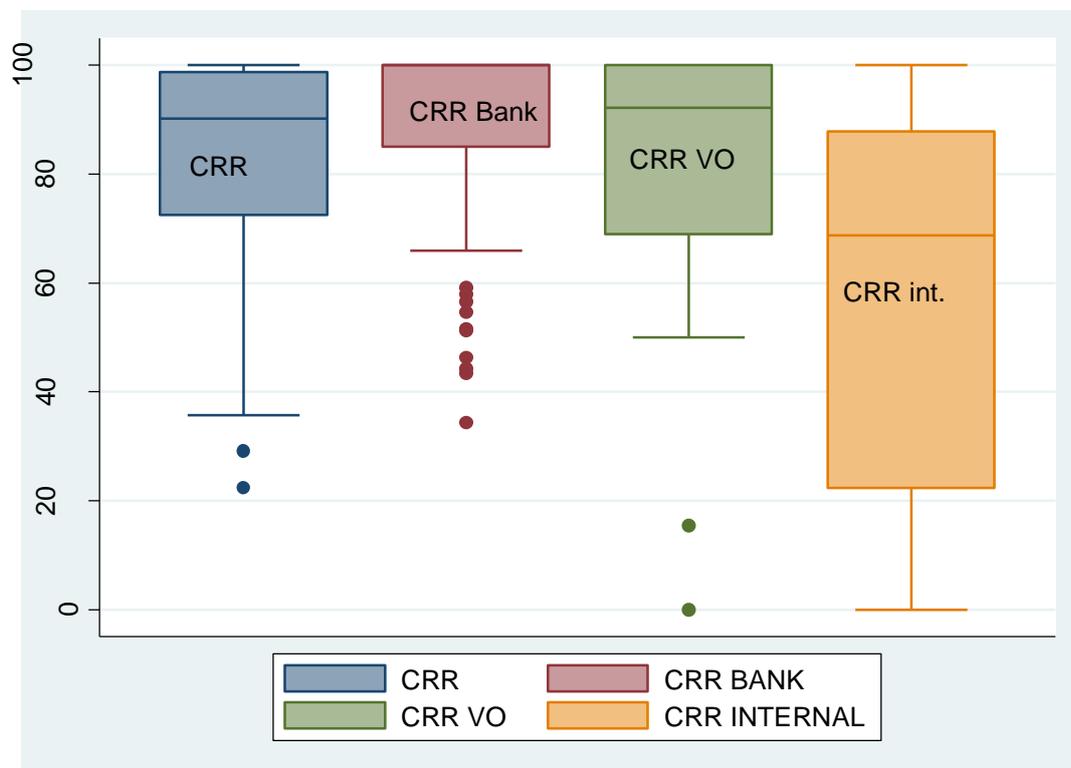
Figure 4 Box Plot of CRR; bank CRR, VO CRR, Internal CRR

There are outliers in the overall CRR, bank CRR and the VO CRR, with more observations skewed to the right. The figure also depicts lower repayment rates of internal loans with a lot of the observations less than the median value of CRR.

Average repayment rates of the different sources of loans are shown in Figure 5 and the bank loans has the highest mean CRR (90.6%) as compared to any other source. This is not surprising as other studies have shown that bank loans are repaid in time more often than any other source (Deininger and Liu, 2009; APMAS, 2011). On average, all the other external loan sources have higher repayment rates and the internal loans have a very low repayment rate of 57.7%. At times the CRR for the internal loans is 0% as shown in Figure 4. This is probably explained by the fact that with internal loans there is a lot of flexibility in the repayment and sometimes groups reschedule although there is a norm to repay the loans in a certain time period. External loans have fixed time periods of repayment and mostly are repaid on a monthly basis which requires members to repay in time. On the contrary, internal loans are paid on monthly, quarterly, half yearly basis or one bulk payment at the end ranging from small amounts to larger amounts.
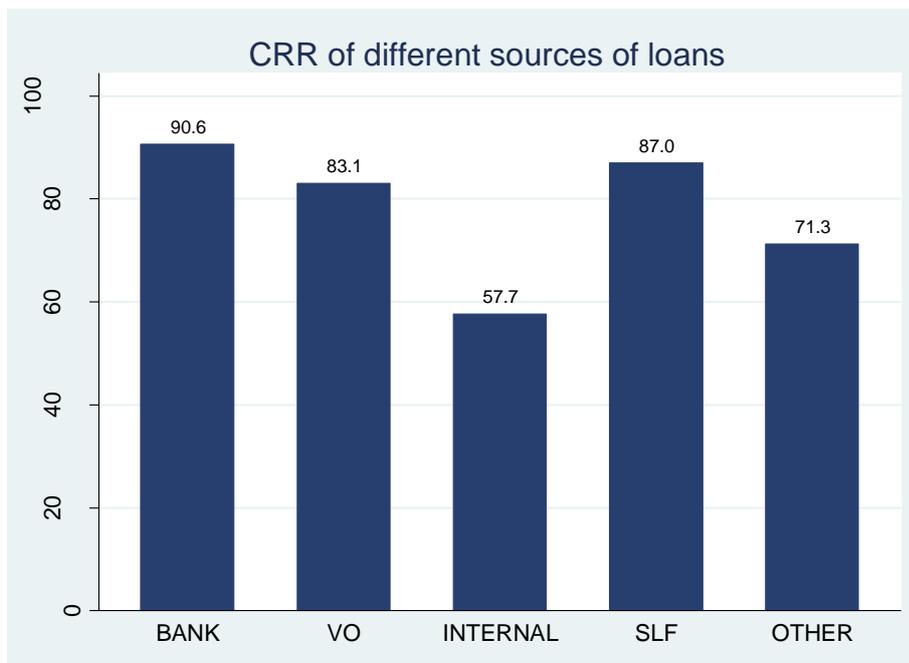
Figure 5 Repayment rates (CRR) of loans

Repayment rates: Internal versus External

Below is a detailed analysis of the grouped loans, internal versus external loans with the amount, mean, standard deviation and frequencies. The number of internal loans in this analysis is 78 loans and 8 internal loans were recently given out whilst external loans are 171. The Figure 6 below shows a graphical comparison between the internal loans and external loans CRRs. The CRR of the internal loans (57.7%) is very low compared to the CRR of external loans (87.8%) and there is a wide variation of the CRR internal loans. This could be explained by the fact that groups have different loan sizes and norms regarding the repayment of internal loans.
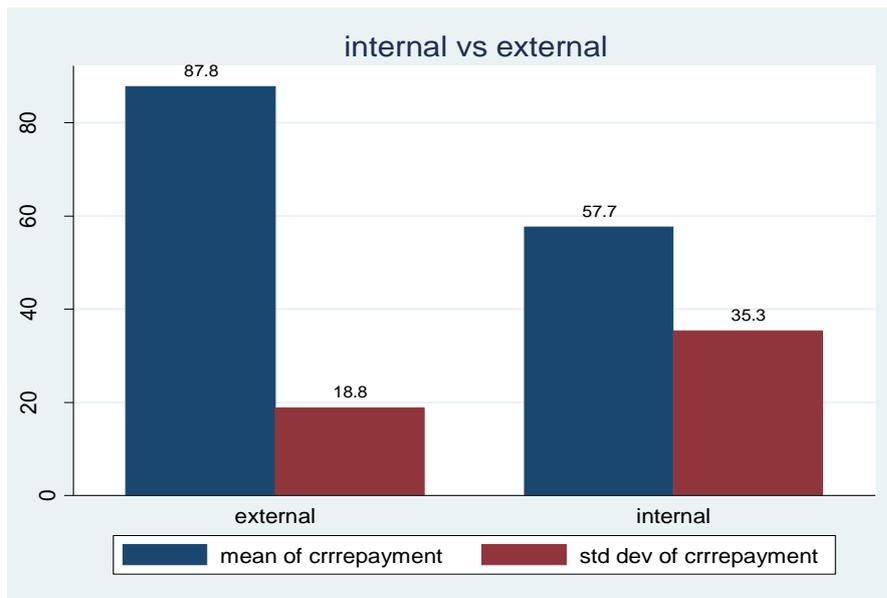
Figure 6 Comparison of CRR internal versus external loans

5.4 Comparison of Delinquent and Non- Denlinquent groups

A comparison using the t test and a chi square test on the dummy is used to analyse the difference between the delinquent and non- delinquent shown in the Table 6 below. The test statistics suggest that age, experience, savings, average attendance, location and number of loans, the presence of a VO loan, the presence of the Internal loans are significant implying that the means from these two sub groups are not equal. Groups which are older and have been receiving loans for a longer time are more delinquent as compared to younger groups, which implies older groups face higher repayment problems. This could be related to the larger loan sizes that the groups which are older receive and the increasing problem of repaying larger instalment sizes. Groups which have larger savings surprisingly are more delinquent. This could be partly linked to the fact that groups which are older have larger savings than the younger groups. SHGs facing repayment problems have lower attendance than SHGs with 100% repayment rate which make sense since attendance by members is part of the monitoring process taking place in group meetings. Another variable of interest is the number of loans that an SHG has. Results show that groups which have more loans face more repayment problems. The same result as with the internal loans was obtained. Groups which had internal loans were delinquent suggesting that there is a link between non-repayment of internal loans and overall group repayment performance. Related to the delinquent groups versus the non-delinquent groups is also the VO loan which showed a significant difference. Groups which had VO loans are located in the rural areas which mean that there are underlying factors affecting the repayment rate.

Table 5 Comparison of delinquent and non-delinquent groups

Variable	Delinq.	Non-delinq.	T statistic	U statistic	Mann Whitney U P value
N	94	25			
size	11.82	11.56	0.45	0.74	0.45526
age	6.14	4.24	2.39**	2.37	0.017**
experience	4.79	2.77	2.87***	3.06	0.002***
savings	52,433	39,196	2.21	2.38	0.017**
trust	4.00	4.00	0.03	-0.08	0.930
attendance	83.16	90.30	- 2.6***	-2.96	0.003***
pressure	2.57	2.44	0.46	0.454	0.650
homogeneity	5.39	5.16	0.40	0.483	0.629
solidarity	4.46	4.20	1.66	1.325	0.185
No of loans	2.14	1.16	6.49***	6.127	0.000***
Frequency of meetings	1.48	1.48	- 0.01	-0.002	0.998
loansize					

Dummy variables			Pearson chi square test	P value	Fisher's exact
location	0.43	0.76	8.83***	0.003	0.003***
shocks	0.05	0.08	0.2564	0.613	0.637
relatives	0.48	0.48	0.0012	0.973	1
penalty	0.31	0.28	0.0941	0.759	0.812
Rules and regulations	0.76	0.88	1.79	0.18	0.276
Bank loan	0.91	1.00	2.281	0.131	0.201
VO loan	0.45	0.04	14.16***	0.000	0.000***
SHG loan	0.71	0.12	28.64***	0.000	0.000***

***significant at 1% level ** Significant at 5% level * Significant at 1% level

5.5 Comparison of SHGs with/ without internal loans

The significant result concerning the source of loans from the comparison of the delinquent and non-delinquent groups was rather interesting especially for the groups with SHG loans (internal loans) versus groups which did not have SHG loans and particularly the variation in the SHG loans suggests that there must be some underlying factors which distinguish between these two sub –groups. A one way ANOVA was done to determine whether there is any difference in the variance of these two groups and the chow test was used to test whether there was any need to separate the two sub groups and have different regressions. The significant F value 4.49 (p value 0.01) shows that the means are not equal for both the categorical classifications number of loans and internal versus external. The Bartlett's test was used to test

for equal variances. The assumption of equal variances is violated as shown by the high chi square value (8.95 Prob>chi2 = 0.003). It means that the groups have different variances and there is probable heteroskedasticity in the data. The Levene's test of equal variances a non-parametric test, also conforms to the Bartlett's test as shown by a p values less than 0.01.

Chow tests/ chi square test and t tests
It is clear that the there is a difference between the groups which have internal loans and those which do not have from the ANOVA results. The t value is -4.29 and highly significant (0.000) meaning that there is a significant difference between the SHGs with internal loans and those without. This is a partial F test confirming the major difference between the two groups. Two different Chow tests were carried out to test the intercept and the variables give different results. When the constant is included in the equality tests (equivalent to the Chow test) the chi square statistic of 50.2 (Prob > chi2 = 0.00) is quite high therefore we reject the hypothesis that the groups with and without internal loans are the same. When the constant are allowed to differ while other co-efficients are the same, the chi2 (15) = 29.65 with a Prob > chi2 = 0.0132 shows that there is a significant difference between the co- efficients between the groups.

Considering the different tests above, the intercept between the two groups are different and there are compositional difference using the Stata chi square test/ Chow test. Therefore, there are both effects although in some variables there are no differences. Concluding from the tests done using the one way Anova/ Levene tests, there is unequal variance between the groups which have internal loans and those which do not have. This also is confirmed in the test for heteroskedasticity for the data in which the null hypothesis of constant variance is firmly rejected (Appendix B).

5.6 Econometric results
Tests for heteroskedasticity and normality were both rejected. The appendix C shows the normality test using the residual test. The chi2 (1) value of 8.13 with a probability 0.0043 shows that the null hypothesis of constant variance is rejected so there is heteroskedasticity in the data. Therefore the results of Tobit robust errors are presented and the SCLS in Table 6. The overall repayment performance of the SHGs is considered in this case because institutions measure overall repayment performance of the group and the fact that members in the group depend on each other's repayment performance for progressive lending including internal loans.

Table 6 Regression Results: comparison of SCLS, Tobit (robust) and Tobit (clustered)

	SCLS (1) CRR	Tobit Robust (2) CRR
location	13.71***	18.32***
	(3.13)	(3.45)
size	-9.501**	-12.80**
	(-2.17)	(-2.05)
experience	-1.614**	-1.663**

	(-2.16)	(-2.00)
savings	0.000148**	0.000131
	(2.33)	(1.66)
Shocks	4.690	6.315
	(0.87)	(0.83)
Trust	-1.500	-2.897
	(-0.65)	(-0.83)
Attendance	0.136	0.241
	(0.91)	(1.32)
Relatives	2.757	2.837
	(0.97)	(0.76)
Pressure	-1.047	-1.536
	(-0.80)	(-0.91)
Penalty	-0.232	1.385
	(-0.07)	(0.33)
Rules and regulations	8.847**	10.44**
	(2.00)	(1.99)
Homogeneity	-0.0780	-0.0816
	(-0.14)	(-0.12)
Group solidarity	0.804	-0.209
	(0.29)	(-0.06)
Frequency of meetings	2.838*	3.917**
	(1.79)	(2.08)
Size squared	0.325**	0.448*
	(2.14)	(1.95)
_cons	123.0***	144.9***
	(3.26)	(2.91)
sigma		
_cons		17.78***
		(10.86)
N	115	115
pseudo R^2		0.060
F		5.296
p		0.000

***significant at 1% level ** Significant at 5% level * Significant at 1% level
Source: survey results

Repayment performance is initially determined by the process of group formation. This process influences the structure of the group and therefore the ultimate conduct and performance along with other exogenously determined factors. The self-selection is considered as the first step toward the curb of non-repayment problems. The mutual knowledge between borrowers as well as their desire to repay makes them more attentive of the members' choice (Guttmann, 2006). Roslan et al., (2006) consider that the self-selection and the monitoring exercised by the group members between each other are among the main elements that contribute to the success of programs. In this analysis, self-selection was completely dropped from the analysis because all the group members self-selected each other in the group therefore it did not make sense to include as there was no variability. The monitoring variables included the frequency of meetings and the attendance for the last six months and the frequency of meetings is significant (10% level) with a positive correlation whilst attendance is not significantly correlated to the repayment rate but has the expected sign. This is because the more frequent meetings they have, the more members are accountable for the loan repayment.

All the groups which were interviewed kept records and what was not explored was the quality of records. Some groups had internal book-keepers whilst others had an external book-keeper. Almost all the groups had an update on the records and this improves transparency and may improve the repayment rate of groups. All the groups interviewed had some different rules and regulations initiated at the group formation stage and these are important because it shows commitment to the group's operational structure. The last significant regressor, rules and regulations, is a dummy whose value is one if the group has any internal agreements and rules of conduct, in written form. The difference between the groups is that some felt that rules and regulations were not being followed generally although they set them to guide their group's operations. Because such rules can increase transparency and therefore reduce intra-group friction and costs of coordination, a positive sign is expected and the result conforms to the theoretical postulations. During the data collection process, almost all members were aware of the rules and regulations within the group.

Dummy variable for the location is included to control for some socio-economic differences as there are likely to be major differences between the rural and urban groups in terms of the composition and the likely occupations that they are involved in. A positive sign and significant result at 1% level is found as expected in this case meaning that urban groups are likely to have higher repayment rates than the rural groups. This probably can be explained by the more risky projects undertaken by the rural women and lack of accessibility to market opportunities and infrastructure.

Size is exogenously determined although it could be considered endogenous because of the fact that sometimes the group sizes have decreased over time because of members that leave due to repayment difficulties. In the analysis the reasons stated as why group members drop were related to relocation, and a minor percentage mentioned that it was due to repayment problems. There are conflicting results regarding the expected sign of the size of the group in several empirical studies. Size squared is included to find out the optimal size group. Size can be an advantage in that it can increase economies in scope, scale, and risk management can be realized by the group. There can be diversification of risks depending on the composition of the group. In other instances increase in number of members can cause disharmony as it becomes difficult to coordinate and manage group activities. It can work against social cohesion. In this analysis size is significant at 5% level and has a negative sign meaning that groups with more members are likely to have lower repayment rates than groups with fewer members. Size squared has a positive sign and significant at 5% level. These results are the same as obtained by Deininger and Liu (2010).

Age and experience are found to be correlated (>0.9) which is expected in this case because once a group is formed it will start receiving loans between 6 months and 2 years after its formation depending on who supports it with its capacity building. Although the time that a group starts receiving loans may involve credit worthiness determination, it is mainly about maintenance of savings on a sustained basis. Experience is negatively associated with the repayment rate in this analysis. This is expected because of the fact that

groups which have been in existence for longer times receive larger loan amounts which have longer repayment periods. Group members usually are flexible in repaying the larger loans and there is also an interesting finding that as the groups has been in existence for a while, the member's loan needs differ. Other members had larger loans than other members. This plays a part in repaying loans among group members.

The ability to maintain savings may be a good sign that a group has financial discipline and not necessarily ability to repay. A significant positive sign was found. Savings are also likely to improve the repayment rate of the group because if members are unable to repay they may use the savings to pay for late repayers in the group. Savings also can act as collateral in the case where groups access external loans. For example in banks, if a group fails to repay in time, the savings are debited to the loan account.

All the other variables are not significantly correlated to the repayment rate although they all have the expected signs except group solidarity. Shocks are exogenously determined because they do not have any associations with the group process but in this case there was no large variation of occurrence of shocks except in one of the villages of the Chittoor district.

The other insignificant variables are most likely to be endogenously determined. The Tobit test for exogeneity shows that all variables are exogenous as the null hypothesis is not rejected at the 5% or 10% level of significance. However, according to economic theory there are still some possibilities that these variables could be endogenous. Although the test of endogeneity was rejected, results have been interpreted with caution since other variables like attendance and penalty could be also endogenously determined. Penalty is a part of the rules and regulations a group has and there is that possibility that groups could develop a penalty system after they experienced delinquency problems in the group. It could be endogenous or not. Variables like trust, group solidarity, average attendance, pressure are likely to be correlated to the error terms in the regression model because they may be omitted variables which are not measured directly related to the repayment problems and such variables are subject to measurement bias. There is also the possibility that groups which exhibit some of the positive characteristics are the same groups which may develop some solidarity or trust but the underlying factors behind that may not be known. There is also the simultaneity problem associated with some of the variables like the attendance. If groups are doing badly, then attendance will fall but if groups are doing well attendance is high.

Chapter 6: Conclusions and Recommendations for Future research

6.1 Conclusions

Several theoretical propositions have been postulated over the past years concerning the group repayment performance. As such a lot of empirical literature is widely available to explain the repayment performance of group based lending and testing a number of theoretical assertions developed. Whilst this maybe the case, the literature is from various regions of the world which apply different group based model and financing. This study is one such study which aims to contribute to the wide literature available with particular emphasis on the group repayment performance of SHGs a model which is gaining momentum in India.

The objective of the study was to gain an in depth knowledge of the social, economic aspects of the SHGs in the context of the repayment of their loans. The focus of the study was the social interactions and how this influences the repayment rate. From the descriptive results obtained, SHGs are a model for financial inclusion (microfinance) which are informal but have gained support from government and other capacity building institutions. Their importance in poverty alleviation programs cannot be undermined. Of particular importance is the bank- linkage programme a programme pioneered by the government's NABARD which every SHG is encouraged to apply for. All groups are usually formed at the initiative of different organizations which involve NGOs or the government but group members self-select each other.

The results from the groups' shows that groups repay loans in time that are from external sources than the internal sources. From a policy point of view, this is ideal as it supports the notion of credit revolving in loan portfolios and this in turn encourages outreach in client base. This is also ideal to the group members as MFIs and lending institutions use dynamic incentives to encourage repayment. Results show that groups which had been in existence for a long time have been bank linked at least three times and they receive larger loans. With the internal loans, and from a group point of view, the flexibility involved in repaying loans gives room for members to adjust their credit portfolios. However, from capacity building institution's point of view, there is concern that too much flexibility does not encourage financial discipline among members and could cause bad debts in the end. Supporting institutions should find a way to encourage SHGs to manage their savings effectively to avoid bad debts. Group members take ownership and manage their savings but the credit should revolve.

The fact that group members having multiple sources of finance are subject to repayment problems is an emerging topic in SHG financing in India. The analysis in this survey has shown that groups which have multiple sourcing of funding have lower repayment rates as compared to their counterparts. The expectation is that multiple sources of funding offer group insurance and increases the capacity of

members to repay. In this case multiple lending could be a risk factor increasing repayment challenges in group lending. This is also related to members in the group who may face repayment challneges.

In the joint liability groups, much emphasis is placed on the peer monitoring, pressure/ enforcement, trust and screening as major determinants of repayment performance. In this case, from the analysis these factors are unimportant in the repayment performance of the groups except peer monitoring. The SHG model is a highly specialised model which operates on the social cohesion of the members. Joint liability is within the group and is based on a long term basis because members cannot receive loans unless the group repays. This is different from joint liability groups where members have an obligation and make an agreement with external lenders. Initially, the group members chose each other according to the place of habitation, how long they have lived in that neighbourhood and how long they have known each other and also according to how friendly they consider someone to be. The self- selection process ensures that high risk members are never selected in a group and already there is a level of trust and cohesion among the members. From a policy point of view, this is good as it ensures that group members are in a position to monitor each other and at the same time monitoring costs are reduced for both the loan provider and the members. The results highlight that monitoring through regular meetings and rules ensure higher repayment rates and reduce delinquency. Peer monitoring through frequency of meetings is important for keeping up to date on group process. Groups which hold more meetings per month are better re-payers than those which hold less meetings. Groups holding weekly meetings monitor their savings and loans and are in better way to monitor other member's activities.

6.2 Recommendations for future research

A future focus could be an in depth study of savings and the repayment of internal loans. The results from the current study show a wide variation in repayment between SHGs and it is more important to understand the mechanism of internal lending. This study focused on APMAS SHGs and the implication is that there is less differentiation. This is also partly related to support from institutions. The SHG is highly dependent on various institutions through the trainings/ support in community projects and this may affect their repayment rate. In the study, the only variable of interest related to this was whether the groups had at any point consulted and of the external organizations for solving repayment problems and all the other groups had not done so. It would be interesting for future studies and for policy to determine how these external organizations possibly affect the repayment performance of the groups. Sometimes the practices by the SHGs have been exogenously mandated to them by these organizations but if SHGs enjoy the freedom to execute rules and regulations, then the institutions may not have much impact on the SHGs.

In this study, the focus was on the current group process and it did not explore the group formation process and also the existence of certain conducts/ at the initial stages. This is particularly important for cases

where some of the conduct / group characteristics maybe influenced by the repayment rate of the group and thus cause some endogeneity problems in the analysis. It is important to look at this in future studies.

The SHG is a self-governing group and leadership is another important component to look at and how it affects the repayment performance of the group. In the SHGs they are encouraged to rotate groups over a period of one year. This could have an impact on the functioning of the group.

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Appendices

Appendix A: Bank linkage programme in the southern states

State	Commercial bank		Regional bank		Co-operative bank		Total	
	No of SHGS	Amount	No of SHGS	Amount	No of SHGs	Amount	No of SHGs	Amount
AP	268392	469557.22	89870	136045.33	9158	15316.32	367420	6209.887
Karnataka	35111	57332.31	286.7	37710.84	26614	32392.28	90342	137435.43
Kerulla	46244	53430.73	5449	6364.71	21068	17973.18	72761	77768.62
Lakshadweep	14	6.5	NA	NA	NA	NA	14	65
Tamil Nadu	134581	208005.37	7009	7889.24	49879	39727.57	191469	255622.18
Poducherry	3100	6320.52	916	1556.44	NA	NA	4016	7876.96
Total	487442	804652.65	131861	189566.56	106719	105409.35	726022	1099628.56

Appendix B: Description of variables used in the analysis

Table 7 Descriptive statistics of variables used in the analysis

	Mean	Std dev	Variance	skewedness	kurtosis	Min	Max	observations
LOC	0.50	0.50	0.25	0.02	1.00	0	1.00	119.00
SIZE	11.76	2.53	6.38	1.19	4.09	8.00	20.00	119.00
AGE	5.74	3.59	12.89	1.08	3.23	1.00	17.00	119.00
EXP	4.37	3.22	10.42	1.08	3.27	0.10	14.00	118.00
SAVINGS	49,652.20	27,068.70	7.33 E8	0.99	3.92	4,800.00	147 760	119.00
TRUST	4.00	0.56	0 .308	- 0.91	4.36	1.80	5.00	119.00
ATTEND	84.67	12.36	152.70	- 1.32	5.41	33.00	100.00	118.00
REL	0.48	0.50	0.25	0.07	1.00	0	1.00	118.00
PRESSURE	2.54	1.23	1.52	0.16	1.79	1.00	5.00	119.00
PENALTY	1.69	0.46	0.21	- 0.85	1.72	0	1.00	118.00
RULES	1.22	0.42	0.17	1.36	2.86	0	1.00	118.00
HOM	5.34	2.61	6.82	- 0.10	2.06	1.00	10.00	119.00
SOL	4.40	0.69	0.48	- 0.88	3.15	2.00	5.00	119.00
FREQ	1.48	1.10	1.22	1.86	4.45	1.00	4.00	119.00

Variables used in the analysis and their expected signs

Variable	Continuous	Expected sign	Regression Sign
SIZE	Continuous	-	-
EXP	Continuous	-	-
SAVINGS	Continuous	+	+
FREQ	Continuous	+	+
ATTEND	Continuous	+	+
PRESSURE	Continuous	+/-	-
TRUST	Continuous	+	+
HOM	Continuous	+/-	-
SOL	Continuous	+	-
PENALTY	Dummy 1 yes 0 otherwise	+	+
REL	Dummy 1 yes 0 otherwise	+/-	+
RULES	Dummy yes 0 otherwise	+	+
LOCATION	Dummy 1 urban 0 rural	+	+

**All the variables except group solidarity have different signs from the expected ones which have been postulated in theory.

Graphical Test for heteroskedasticity and normality in the data
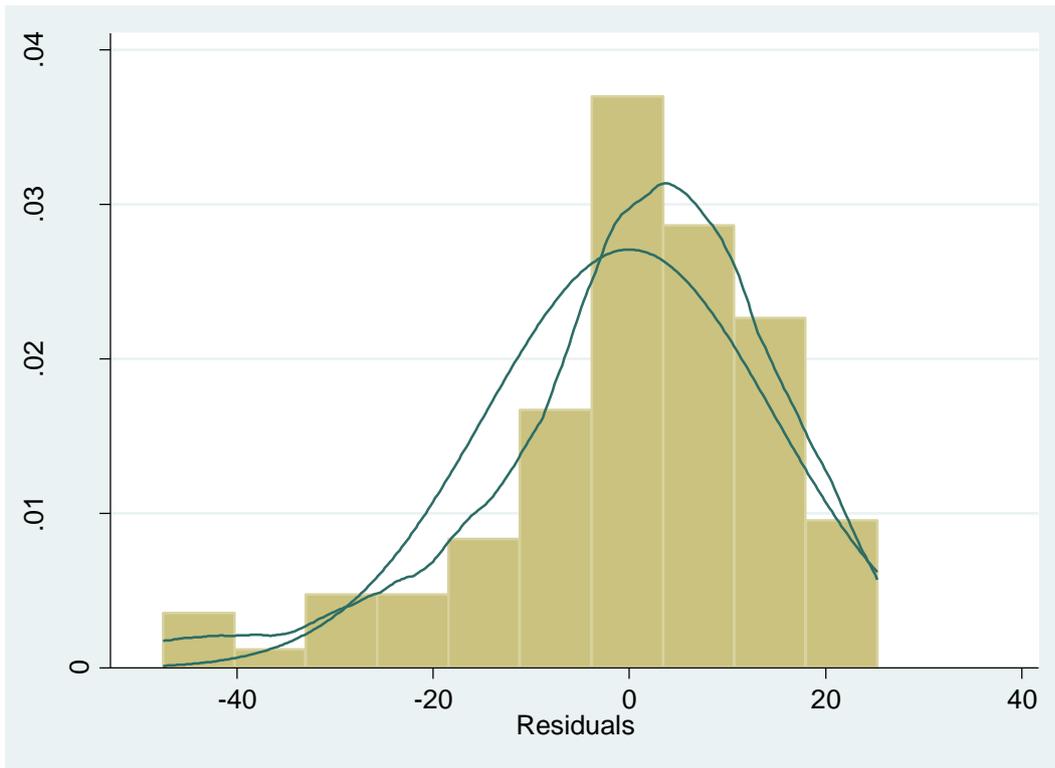
Residual Test for heteroskedasticity and normality

Appendix C: Questionnaires used in the interview
Repayment Performance and the Determinants of the Repayment delinquency of Self- Help Groups in Andhra Pradesh, India

Questionnaire number………………

My name is Fungayi Mawire. I am a Masters student studying Management, Economics and Consumer Studies at Wageningen University in the Netherlands. I am carrying out a research about how borrowers of microfinance in the state of Andhra Pradesh relate socially and function and the loan repayment behaviour of the group. The information obtained from this survey is important as it can be used to improve both the welfare of the loan recipients (SHG) and the lending institutions; therefore your co-operation in filling out this questionnaire truthfully will be greatly appreciated. The information obtained from this research is entirely for academic purposes therefore your confidentiality is assured.

I would like to ask you questions generally about your group and how you relate in the group and outside the group.

ENUMARATOR   :
DATE   :
NB Questions to be answered by the leader of the group/members. For some questions the bookkeeper may provide the necessary information. Also, some data can be filled from SHG books.

GENERAL QUESTIONS			
	1)The name of the group 2)Name of the VO/SLF 3)Location of the group		…………………………………………… ……………….. …………………………………………… ……………….. …………………………………………… ………………… …………………………………………… ………………… …………………………………………… ……………… 1) urban 2) rural
1.0	How many members are in your self-help group?		
1.1	What are the requirements to become a member in this group?		

1.2	How does one become a member of this group?			**1**.Born into the group **2**. Required to join **3**. Invited **4**. Others specify………………………………… ……………	
1.3	Why did you join the SHG?				
1.4	Are there any members who have left the SHG in the past 12 months?			1 yes*	2 no
1.4.1	If yes how many have left?				
1.4.2	Do you know the reasons why they left the group?			**1** migration **2** loan non-repayment **3** they are not able to follow the norms **4**. they switch off to the other SHGs **5**. Other reasons……………	
1.5	In which year was this group formed? How old is your SHG? (years in existence)				
1.6	Who originally formed the group?			**1**.government- municipality **2**. Government –DRDA/IKP **3**. NGO- name:……………………… **4**. SHG federation **5**. Local leader **6**. Community members **7**. Other please specify…………………………… ………………………………………… ………………………………………… ………………………………	
1.7	What is the frequency (norm) of meetings in your self-help group?			**1**. weekly **2**. every 2 weeks **3**. Once in a month **4**. Other please specify……………………………… …………………………………………	

			…………………………………………… …………………………………………… …………….	
1.8	On average how many members attend the meeting? (Practice)*(average attendance in the past 6 meeting from the books of the SHG)*			
1.9	In the last meeting you held how many members were present at the meeting? *From the books of accounts*			
2.0	In the past 12 months was there any <u>natural disaster</u> or <u>shock</u> which happened in your <u>community</u>? *Community level shocks for example outbreak diseases, drought, floods etc RURAL*		1 yes **	2 no
2.1	**if yes please state the shocks……………………….. RURAL		1……………………………………………………… 2……………………………………………………… 3………………………………………………………	
GROUP HOMOGENEITY?				

2.2	How many members are involved in these types of primary economic activities*? Primary here means that the members are mainly involved in these type of activities as a source of livelihood*		1 Trade	
			2 Agriculture	
			3 husbandry	
			4 dairy milk	
			5 petty business	
			6 stitching	
			7 salaried	

				8 sari business	
				9 home maker	
				10 other specify…………………………… …………………………………………… …………………………………………… …………………………………………… …………………………………………… ……… ……………………………	
2.3	What is the age (years) of the youngest member of your group? *Birth years*				
2.4	What is the age (years) of the oldest member of your group? *Birth years*				
2.5	Thinking about the members in your group, can you mention the number of members who are in this level of education? *Can be checked from the profile of the members from the books*			1. no schooling (*never attended school*)	
				2. primary level (*Grade 1 to grade 14*)	
				3. secondary level	
				4. college level (*Poly technic*)	
				5. more than college level (*Undergraduate and post graduate*)	
2.6	How many castes are represented in your self-help group?			1 one	
				2. two	
				3. three	
				4. four	
				5 more than 5	

2.7	Can you please mention which is the dominant caste in your group? *(information can be filled by the investigator by talking to the APMAS local staff or the leaders of the SHG federations)*			…………………………………………… …..
2.8	How many social categories are represented in your group?			1 one 2 two 3 three 4 four 5 More than 5
2.9	Looking at your group members, how many families are represented in your group *This is about relatives and could be more applicable to RURAL*			1 Sisters ☐ 2 Mother in law and daughter in law ☐ 3 Nieces and aunts ☐ 4 Don't know ☐ 5 Other please specify ☐
3.0	How many members are in this category?			Married ☐ Single/ unmarried ☐ Widowed ☐ Divorced ☐ other ☐
3.1	How many members in your group hold a white ration card?			1 one 2 two 3 three

			4 four 5 more than 5

	GROUP SOLIDARITY		

3.2	In my group, people come together to <u>help</u> each other *Help is defined as offering assistance for example marketing of individual products as a collective group, other examples from field test*	1.Strongly disagree 2.disagree 3 Neither agree nor disagree 4. agree 5. strongly agree	1 2 3 4 5
3.3	What are the rules and regulations governing your operations?		1 penalties imposed if member defaults 2 penalty imposed if member is late for meeting 3 penalty imposed if member absents from meeting without any prior excuse 4 date of meetings 5 repayment schedules 6 savings 7 Others please mention?... ....
3.4	Generally, are these rules and regulations being followed in your group?		1 yes 2 no
3.5	When there is a decision (for example the allocation of loans to group members) to be made in the group, how does this usually come about? An alternate question would be: How do you make decisions in the group?		1.Decision is imposed from outside 2.The leader decides and informs others 3. Leader asks group members what they think and then decides 4.The group members hold a discussion and decide together 5. Other please specify…………………………… ………………………………………… ………………………………………… ………………………………………… ……………

	SOCIAL TIES		

3.6	During your group meeting, do you share with other members, information about social services or social issues or going on in the community?		1 yes 2 no
3.6.1	If yes what are those social issues?		………………………………………… ……………………

3.6.2	If no why don't you discuss?		
3.7	Is there anything you would want to change about your group meetings?		
3.8	What are the two most important things for being in a self-help group for you?		1.……. 2.………
3.9	What are the most important problems or difficulties for being in a self-help group for you?		1.…… 2.…………

<table>
<tr><td colspan="4" align="center">PEER PRESSURE</td></tr>
</table>

	Use this scale to answer the following questions *Hypothetical questions*		1. Not at all 2. A little bit 3. A bit 4. Pretty much 5. Very much

4.0	Generally do you think that members who are in default should be followed up on?		1	2	3	4	5
4.1	Are members willing to put pressure on members who are unable to pay their loans in time?		1	2	3	4	5
4.2	Do you think that other members in the group feel obliged to pay other member's debts?		1	2	3	4	5
4.3	Do you have a mechanism/ legal code to punish defaulting members?		1 yes please state it…………… ……………… ……………… ……………… …………..	2 No

<table>
<tr><td colspan="4" align="center">TRUST</td></tr>
</table>

4.4	In the last 12 months, outside the group meetings have you joined together with other <u>members from the SHG</u> to address a problem or common issue?		1.Yes; └──┘ times 2. No
	The following questions are to be asked to group members and from what they will be saying using the scale above researcher puts the correct answer		1. Not at all 2. A little bit 3. A bit 4. Pretty much 5. Very much
4.5	In general, how much do you think members in		1 2 3 4 5

	your group trust each other?					
4.6	We believe that the book-keeper is able to accomplish her/ his task?		1	2	3	4	5
4.6.1	The self-help group gives members a platform for social interactions? *(members discuss how self-groups has enabled them to be involved in societal issues)*		1	2	3	4	5
4.6.2	The self-help group gives members a sense of belonging in the society (*women feel that they have a place in society other than their household responsibility*)		1	2	3	4	5
4.6.3	Do you feel that you are committed to the continual operation of the Self-help group in the future? (*whether members are committed to the self-help groups*)		1	2	3	4	5

<table>
<tr><td colspan="7" align="center">CREDIT</td></tr>
</table>

4.7	What are each member's savings in SHG & SHG federations?		
4.8	How often do members save in your SHG?		1. weekly 2. Every two weeks 3. monthly 4. Other specify…………………………… …………………………………… …………………
4.9	When did you start receiving loans/ credit? (*Years*)		
5.0	Do you receive any interest subsidy (Pavalavaddi) from the government or have you ever received since you started receiving loans?		1 yes 2 no

<table>
<tr><td colspan="6" align="center">INSTITUTIONAL FACTORS (Collect Data related to only Active Loans that SHG has)</td></tr>
</table>

5. 1	**SHG external loans**	**Loan 1**	**Loan2**	**Loan 3**	**Loan 4**
	Purpose of loan				
	Source of loan				
	Amount of loan				
	Interest of loan				
	Length of loan				

	Frequency of repayment				
	Date of Loan				
	Due date of repayment				
	Amount paid at due date				
	Amount/balance remaining or not paid				
	Number of Overdue months				
	Total/cumulative amount				
	Number of times that you have received a loan from the above source?				
5.2	During the repayment of the current loan cycles (eg loan 1, 2, 3 etc), has any member of your group missed their weekly/monthly repayment?			1 yes * 2 no 3 don't know
5.2.1	*if yes how many members?			
5.3	In your opinion why have these members had difficulty in repaying?			1 bad harvest 2loss of livestock 3Large family expense 4 sickness 5 out of town/neighbourhood 6 no particular reason 7 don't know 8 other reasons state please……………………………… ………………………………………… ………………………………………… ………………………………………… ………………………………………… ………………………………………… …………………………..

				1 family 2 husband 3 group members 4 friends 5 Don't know 6 other …………………………………… ……
5.4	Do you know who <u>helped</u> the members who had difficulty in repaying? *Helped means that they offered some money to help the member to repay*			
5.5	Has the group ever paid for one of its members who had difficulty in repaying?			1 yes* 2 no, we simply paid our part and left one of the group loans in arrears 3 no we all stopped paying 4 other state please………………………………… ………………
5.5.1	*if yes how did the other members cover for the members who could not pay?			1 common fund/ savings 2 each member contributed 3 group leader paid 4 one member paid 5 Other …………………………………… …………………………………… ……………………………………
5.6	How does your group react if one of its members cannot repay?			1 we pay for her and then exclude her from the group 2 we pay for her and then force her but force her to repay 3 We pay for her but we never get our money back 4 we pay for her and she remains a member of our group 5 we pay for her out of compassion and hope that one day she can repay us 6 we make her pay a penalty and she repays the loan herself 7 other
5.7	Has your group approached others for example federation to resolve repayment problem within your group?			1 yes and the authority helped us 2 yes but the authority didn't do anything 3 no 4 don't know
5.8	In general, what type of problems does a member in arrears face in your group?			1 none 2 she is excluded from the group 3 she is forced to repay by other members of the group 4 she loses her reputation at the neighbourhood/ town level (ashamed) 5 other
5.9	In general what are the consequences for your group if you have arrears with external loans?			1 members with arrears are replaced by other members 2 the members with arrears are kicked

| | | | | out of the group, but not replaced
3 the arrears are eventually repaid and the group continues to receive credit
4 the group does not receive more credit
Other…………………………………
…………………………………………
…………………………………………
…………………………………………
……………… |

If you have any questions or any other additional information please feel free to share………
……
…….
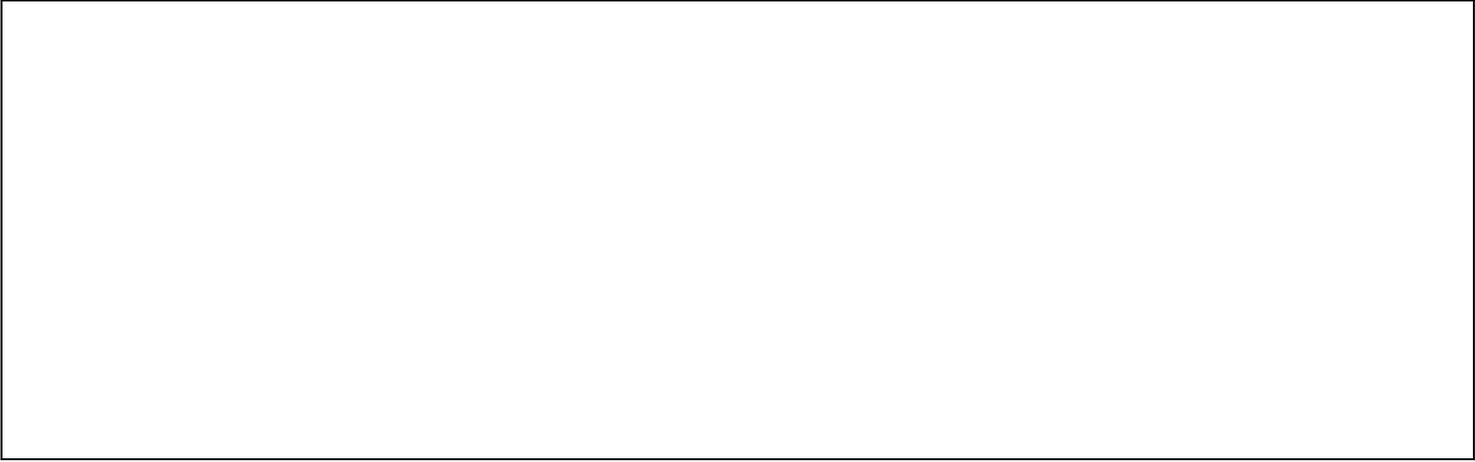
1 Loan Repayment Terms: Monthly/Quarterly/Lump sum

2 Interest Rate on loans to members:

Loans given from internal funds	% pa
Loan from Federation funds	% pa
Loan from SHG-Bank linkage funds	% pa

3 Monthly Repayment pattern **4 Pattern of internal lending**

Regular- Principal + interest		Need Based - many members	
Regular- Principal in part +int.		Need Based - few members	
Regular interest only		Equal distribution	
Irregular		Repeated loans to few members	

External (VO/MMS/Bank/other MFIs) Loan details (as on _____)

S#	Loan Date	Loan amount received	Loan Outstanding	Installment #	Source of loan funds (VO/MS/Bank/ other MFIs)
1					
2					
3					
4					
5					
6	Total				

Balance Sheet as on _____

Liabilities	Amount	Assets	Amount
Total Savings		Members' Loan Outstanding	
Revolving Loan Fund		Fixed Deposits in Banks	
Other Grants			
Borrowings – VO/Samakya			
Bank Loan			
		Cash in bank	
Accumulated Profit/(Loss)		Cash in hand	
Total		**Total**	

A Study on Self Helps Groups in India

Format-: Loan Sheet   *Schedule No._____*
    1. Name of the SHG:_____   2. Village:_____   3. Block/Mandal:_____   4. District_____   5.
State_____

S. No.	Name & designation	loan date	Loan Disbursed	Loan Outstanding	Repayment frequency	No. of Installments	Purpose of loan
1							
2							
3							
4							
5							
6							
7							