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Effects of Group Lending on Accessibility of Micro Credit Facilities among Low Income Households in Keiyo South District

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Abstract
Formal credit market or financial sector seems to be *inefficient* in its current form to provide credit to the poor households despite it providing wide range of financial services, particularly credit, in Kenya. There is, therefore, a need to address this problem so as to improve *access* to credit thereby improving the living *standards* of the households. The current paper aim at assessing the effect of group lending on micro credit accessibility among the low income households living in rural and sub-urban regions of Keiyo south district. Game theory is applied in study to intuit how group borrowers play the microfinance game with the microfinance institution. This study adopted an explanatory and exploratory design. This study was conducted in Keiyo South District in Kenya; the target population was members of Women Organizations. Data for the study was obtained using structured questionnaires. Analysis of data was done using descriptive statistics specifically mean and standard deviation. Multiple regression analysis was used to test hypothesis. Study findings indicated that joint liability and more group diversity enhances accessibility of credit in group lending. However, group size does not determine accessibility of credit in group lending.
Key words: group members' education, group diversity, group size, joint liability and accessibility of micro credit

Introduction

Access to credit plays a significant role in the lives of the poor households, particularly those that are plagued by financial shocks like illness and funerals. This role is central to contemporary debates surrounding strategies for poverty reduction and economic development. The majority of the people in Kenya live in informal settlements and/or rural areas where poverty is still rife. Wilson (2006) points out that some survive below the minimum poverty level, usually the equivalent of US $1 per day. This makes these people to be exposed to even minor shocks which have detrimental effects on them (Johnson and Rogaly, 1997). It is, therefore, difficult for the poor households to survive in the long run. According to Gin é and Karlan (2006), the different features of group and individual lending schemes have not yet been studied in detail despite being a question of first order importance. Currently, the households find it difficult to access credit from the formal credit market due to the asymmetric information problem associated with adverse selection and moral hazard (Karlan and Zinman 2008). This problem restricts access to credit and discourages the market from servicing the poor households who are regarded as unprofitable and risky. Improving access to credit and removing the constraints that have deterred the households from accessing credit can assist them to cushion themselves against the effects of financial shocks, thus reducing their vulnerability, poverty, and improving their living standards in general (Cassar et al, 2007). The poor households, therefore, resort to group lending as an insurance mechanism of sorting between risky and non-risky members and to enforce and monitor contracts and regular payments. Studies show that the persistence of social interactions among informal groups as a way of improving social capital and deepening friendships and the benefits of contributing money together give the households a head start in their financial status (Whiteford and McGrath, 2000).

One innovation to extend credit to the poor that simultaneously addresses the asymmetric information problem and enforcement concerns lies in group lending; lending to self-selected groups of entrepreneurs who are jointly liable for a loan. Groups form voluntarily, and, while loans are made to individual in the group, all members of the group are held responsible for loan repayment by the entire group. (Karlan 2011) stressed group lending's informational and enforcement advantages over individual lending. Since group members are jointly liable for loan repayment, group lending can achieve better screening to dilute adverse selection, induces peer monitoring to contend moral hazard and provides group members with incentives to enforce loan repayments (Ghatak, 2000).

Numerous theoretical papers have addressed the positive effects of group lending mechanisms. Ghatak (2000) show that group lending achieves self−selection of borrowers and acts as a screening device. Armend áriz de Aghion and Gollier (2000) find that even if borrowers do not know each other's type, group lending may be feasible due to lower interest rates as a result of cross subsidization of borrowers. Laffont and N'Guessan (2000) conclude that social connections facilitate the monitoring and enforcement of joint liability loan contracts. This result has been confirmed in an empirical study by Karlan (2007). Furthermore, Armend áriz de Aghion and Morduch(2000) point to a fall in transaction costs when instead of individual visits of clients group meetings are held. In addition, the contact with banks to which poor borrowers typically are not used to is facilitated. However, certain drawbacks of group lending exist. Gin é and Karlan (2006) state that the demand for credit within a group may change over time, forcing clients with small loans to be liable for larger loans of their peers. Furthermore, the growth of group lending programs may slow down when new borrowers with looser social ties enter and, consequently, the group lending technology loses some of its power.
If group members do not have complete information about each other, then group lending may not lead to any improvements in loan repayment rates. This has also been shown in Laffont and N'Guessan (2000) that the burden of moral hazard problem

between a borrowing member and the lender falls on the monitoring members who are responsible for repaying the loan of the defaulting member. They show that with an increasing cost of monitoring, a monitor can impose higher penalties on the borrowing member in the case of default, giving the borrowing member an incentive to choose a safer project.

In spite of the dynamic formal credit market or financial sector which provides a wide range of financial services, particularly credit, in Kenya, the sector seems to be inefficient in its current form to provide credit to the poor households (Faulu, 2010). Only 1.5 percent of SMEs receive loans from commercial banks in Kenya (International Centre for Economic Growth 2009). It is unclear, how the rest, who form the majority, meet their working and investment needs (Kimuyu and Omiti, 2000). Perhaps this is not surprising in light of the magnitude of barriers that they face in accessing credit. Lack of tangible security by SMEs, the limited capacity, outreach and linkages by financial intermediaries and a hostile legal and regulatory framework for financial services are the main constraints (Government of Kenya 2005). Yet there is little information as to how the few SMEs that access formal credit manage to do so in light of this very difficult environment**.**
There is, therefore, a need to address this problem so as to improve access to credit thereby improving the living standards of the households. The inability of the poor to meet the collateral requirements stipulated by banks and the inherently high cost by banks to screen and monitor the actions of the poor and to enforce loan contracts may all contribute to the exclusion of the poor from the credit market. One innovation for extending credit to the poor lies in group lending − lending to a self-selected group of borrowers.

The question would then be the extent to which micro-credit has been utilized and whether or not has it empowered the low income household. Unfortunately, many studies stress the financial aspects of micro-credit ignoring the social aspects which affect access and utilization of small loans such as; the borrowers; poverty, perceptions and attitudes, the outcome of using micro-loan on the household wellbeing and gender relations in credit utilization. Important to note is that, knowledge of group lending as a mechanism to credit accessibility in both rural and urban households remains only partial and contestable. Consequently, a sociological analysis of group lending programs remains an important field of study: to point out whether the group lending had contributed to access to credit facilities and poverty alleviation. The above plethora issues and many others were very pertinent to me and inspirational to carry out this study. Therefore, this study seek to address the impact of group lending on accessibility of micro credit facilities among low income households in rural and sub-urban regions of Keiyo South District.

Empirical Review
Extent to which group-based lending can minimize the asymmetry of information problem depends among other things on the optimal group size. Certain programs using VB models in Latin American and West African countries use larger group sizes to the detriment of their efficiency. In certain Burkina Faso programs Paxton (1996), and MkNelly and Kevane (2002) observed that large sized groups usually face free riding problems, where some group members hide behind the large group to dodge monitoring and other responsibilities.
Free-riding incentives may depend crucially on the size of the borrowing groups. In practice, it is unclear how far group size affects repayment rates. FINCA, the organization which pioneered the *village banking* concept, lends to large borrower groups of between 10 and 50 members, and boasts repayment rates of 96%. On the other hand, Grameen prefers smaller groups with typically only five members, in order to keep free-riding and in-group coordination problems under control. In the academic literature, both positions have their advocates. Ghatak and Guinnane (1999) argue that despite the insurance effect of larger groups, smaller groups are to be preferred for their better in-group co-ordination and reduced level of free-riding. On the other hand, Buckley (1996) empirically finds that groups with ten or more members still can work effectively.

Ahlin, & Townsend, (2007) constructed a stylised MFI scenario. To study free-riding behaviour connected to group lending, they modeled a situation in which repayment depends on group solidarity alone. To implement dynamic incentives, follow-up loans are subject to full repayment in the past. In their experiment each member of a group of n players invests in an individual risky project. Whether the project succeeds is known only to the individual investor. Subjects decide individually whether or not to contribute to the group repayment. However, only those with successful projects are able to contribute. The experiment ends if too few contribute, that is, if the group as a whole cannot fulfil its repayment obligation. They focused on three instrumental variables identified as crucial for MFI success: (1) The group size, which we set to $n = 2$, $n = 4$, and $n = 8$ in three conditions, (2) the dynamic incentive structure, and (3) the intensity of social ties between group members.

They observed a high and robust performance of group lending institutions in all their treatments. In fact repayment rates are generally higher than those achievable by individual lending. While individual contribution rates decrease slightly with larger groups, the impact of free-riding is alleviated by the greater dispersion of risks. They clearly identified the importance of dynamic incentives. Towards the end of the experiment repayment rates decrease substantially.

H_{O1}: *group size has no significant effect on accessibility of micro credit.*
Joint Liability on Accessibility of Micro Credit
There are two major factors involved in the joint liability for a lender to consider understanding and overcoming the adverse selection. Firstly is to find the *type of group* i.e. whether the group belongs to high risk or lower risk. Secondly the *formation of the group* whether risk is heterogeneous or risk is homogeneous among group members. The interest rates charged would

be depending on the riskiness of the group. Higher the group riskiness higher interest rates are charged. Hence the safe members would be inclined towards the formation of the group with the safe members than with the risky members in order to prevent from paying the installments of defaulting members. This leads to the risky individual to form the group with the risky individual and hence the interest rates charged is higher. Laffont (2003) paper finds that provision of the communication and information flow between the group members would lead to the optimum levels of rental paid by the banks to the members at the same time would be able to successfully overcome the adverse selection problems and provides right interest rates to group loans. However in the absence of the information flow due to lack of social collusiveness would lead to the performance which will be no different from the performance of an individual loan scheme.

Ahlin& Townsend (2007) paper explain Joint liability has been better functioning when the group members who are highly familiar and also ready to punish the member on default. However not every culture would have the same phenomena and hence the group credit with joint liability will be successful only in the communities who would be interested in punish rather than looking at the individual preference**.** The joint liability scheme also fails when group members find that the other members are defaulting irrespective of monitoring. Then the rest of the members would also default as they would be rejected the further loan irrespective of present performance. At the same time in the cases of the presence of the insurance for the loan portfolio would also encourage the clients to involve in the higher risk projects and less concerned towards the repayment of the loans as described by Karlan (2005).

The low risk project members would be forming the group with the low risk members as due to the high conformity of certain cash flows in the projects and hence the regular repayments whereas in the case of the risky members the probability of failure of the projects is high and hence the group members have high risk in repayment of the instalments. However in the case of risky projects, returns are high and hence the successful member would be ready to pay higher repayments. Hence there is clear formation of the same risk customers in the same group. This would help in providing the lower risk groups with lower interest rates and higher risk group with higher interest rates as detailed by Ghatak (1999). Ghatak (2000) adds a point that the formation of the groups on the basis of homogeneous risk is also said as the positive assortative matching**.**

Majority of the funding agencies have continuously used termination threat i.e. on partial or total default of the instalment payment by a group member or members would lead to further loan provision to all the members of the group. The second channel of management of the enforcement of the repayment is by group characteristics establishment as provided by Wenner (1995): Social and cultural cohesion formed in the group provides the peer pressure on an individual to repay the installments without default. The leadership of the group leader also impact upon the repayments. As they help in the commitment in the surplus resources by all the members in case of default scenario. Finally the group size also impacts the leadership and the social and cultural cohesion of the total group.

The collusion between the group members may lead to the negative impact on the performance of the loan and hence lender could be at a risk of losing the portfolio. However the lender would be able to make optimum level of returns only when the group credit is provided and the information flow is between the members. At the same time the members need to monitor and enforce the commitment to each member. Hence the group credit would perform better over the individual credit scheme as due to the group skills in monitoring and enforcement in repayments as described by Laffont& Rey (2003).

H_{O1}*: joint liability has no significant effect on accessibility of micro credit.*

Group Diversity on Accessibility of Micro Credit

It is well documented that a group's composition can affect its borrowing strength, but the exact nature of diversity's impact remains the subject of debate (see Mannix& Neale, 2005). The most frequently mentioned negative outcome of diversity broadly defined is interpersonal conflict which leads to default in paying the loan and this makes the lender to deny loan to the group (see De Dreu&Weingart, 2003). More specifically, various types of heterogeneity can reduce the quantity and quality of group communication (Maznevski, 1994; Zenger & Lawrence, 1989) as well as predict decreases in group cohesion and morale, outcomes that in turn lead members to seek alternative groups or to simply drop out (Jackson, 1992; McCain, O'Reilly, & Pfeifer, 1983; O'Reilly, Caldwell, & Barnett, 1989). The potential negative impact of diversity is not limited to morale in obtaining loan but can also be seen in a group's actual loan repayment (Ancona& Caldwell, 1992; DeBiasio, 1986; Mullen & Copper, 1994).

However, as Moreland, Levine, and Wingert (1996) have pointed out, deleterious effects on loan repayments are most likely under certain circumstances, such as, when the decision requires convergent thinking or when heterogeneity also leads to variability in group members' abilities.

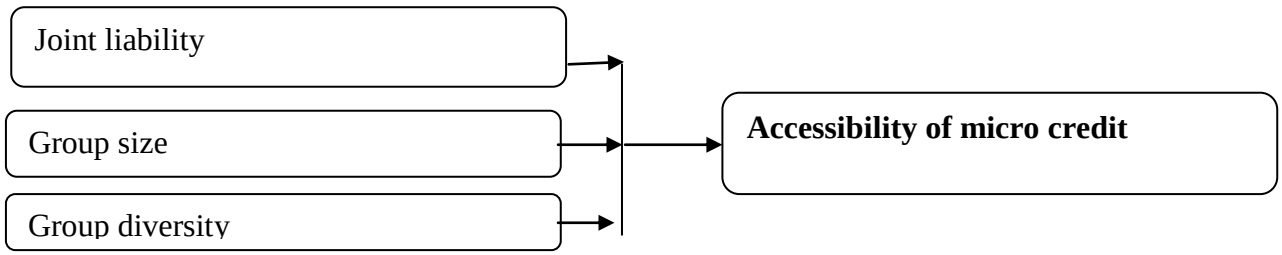
Sharma and Zeller (1998) analyze the repayment rates of 128 credit groups belonging to three group-based credit programs in Bangladesh: the Association for Social Advancement (ASA), the Bangladesh Rural Advancement Committee (BRAC), and the RangpurDinajpur Rural Service (RDRS). They studied group size, size of loans, degree of loan rationing, enterprise mix within groups, demographic characteristics, social ties and status, and occurrence of idiosyncratic shocks. It is concluded that if basic principles of prudential banking are adhered to, repayment rates can be good even in poor and remote communities.

The important thing for financial institutions is to tailor services such that it becomes worthwhile for the poor to establish a profitable long-term association. In addition, more freedom to members in the process of group formation is recommended. Micro-finance programs provide poor people with small loans given to jointly liable self-selected groups. Follow-up loans provide incentives to repay. Abbink et al. (2006) show the influence of those features on strategic default. They investigate group size and social ties effects and observe robust high repayment rates. Group lending out-performs individual lending. Self-selected groups show high but less stable contributions. Gomez and Santor (2003) present evidence in favor of the positive effects of informational and relational social capital on group loan repayment.

Ahlin and Townsend‟s (2007's estimation results support the group self-selection models in the wealthier central region near Bangkok, and the models emphasi-zing the importance of social sanctions in the poorer, northeastern Thailand. Yet the fact that they find strong social ties within borrowing groups to be negatively corre-lated with group repayment causes them to challenge the idea that group lending works through its ability to harness all types of existing social capital.
Abbink et al. (2006) carry out a conventional lab experiment in which students in the social sciences at the University of Erfurt participate in a microfinance game. Their results show that social ties within groups induce higher, but less stable, group loan repayment and that the performance of borrowing groups with initially weak social ties may grow with experience together in group loan repayment. Gine ́et al. (2005) find evidence that group lending may actually induce moral hazard (through risk-taking and free-riding) rather than reduce it; though group self-selection counteracts some of these problems.
H_{O1}: group diversity has no significant effect on accessibility of micro credit.

Theoretical Frameworks
Game theory is applied to intuit how group borrowers play the microfinance game with the microfinance institution. From a theoretical perspective, the initial positive results from the group lending experience are puzzling. The group lending mechanism described by Yunus (1998) is vulnerable to moral hazard problems. In particular, free-riding by individual group members and collusive behavior by the whole group against the financial institution. The group-based borrowers played the lending game according to the rules set out by the microfinance institution. However, as play ensued, groups become savvier on how to play the game to their advantage. Therefore, while group liability is used to harness the cooperative relationship among the members of the group to the advantage of the microfinance institution, in time, these same cooperative relationships are used to collude against the bank. That is, groups begin to make riskier investments to increase their expected payout. This eventually results in reduced loan repayment rates and a consequent change in the lending practices of the microfinance institution. Specifically, once players know the expected payoffs from their investment choices, the optimal investment strategy for the group is to make at least one risky investment for which the probability of loan repayment is less than one. And, once the group engages in a risky investment strategy, they are more likely to continue to choose risky investments for the balance of the game.

Conceptual Framework
Joint liabilities refer to when two or more persons are liable in respect of the same liability, in most common law legal systems they may either be:jointly liable, orseverally liable, orjointly and severally liable. Group size refers to number of members within a group. Group members' education refer to education possessed members of the group such as education level, skills and training on loans. Group diversity refers to group having gender diversity, ethnicity diversity and age diversity.



Source: Research Study (2014)

Figure 1Conceptual Framework

METHODOLOGY

This study adopted an explanatory and exploratory design. This is because the research is a cause-effect relationship. This design is best for investigating the effect group lending on accessibility of credit.This study was conducted in Keiyo South District in Kenya; the target populations were members of Women Organization from 779 groups. The study used Nassiuma, (2000) sample size formula to get 179 groups. Random sampling was used in this study to select groups and subsequently the members. From sample random sampling was done to select the participating group. Three members were then randomly selected from the identified groups. The primary data for the study was obtained using structured questionnaires.

Data Analysis

Analysis of data was done using descriptive statistics specifically mean and standard deviation. Inferential statistics were Pearson correlation coefficient and multiple regression analysis. The multiple regression models was explained as follows.

$y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \varepsilon$ 1

Where;

y- This is accessibility of credit.

α -This is the constant of an equation.

X_1 = join liability

X_2 = group size

X_3 = group diversity

$\beta_{1, \beta 2, \beta 3, \beta 4, -}$ These are the coefficient of regression for independent variables.

ε – This is random error term.

Findings

Study results in table 1 reveals that joint liability was positively correlated to accessibility of credit (Pearson product-moment correlation = -.388), this correlation between joint liability and accessibility of credit was indicated to be significant at 0.01 (confidence interval), hence we infer that there is positive significant relationship between joint liability and accessibility of credit. In addition,group size was revealed to be positively correlated to accessibility of credit (Pearson product-moment Correlation = 0.761), this relationship was strong and significant at 0.01 confidence interval. Moreover,group diversity was also positively correlated to accessibility of credit (Pearson product-moment Correlation = 0.705), this relationship was also strong and significant at 0.01 confidence level.

Table 1 Correlation Results

	Mean	Std. Deviation	accessibility of credit	joint liability	group size	group diversity
accessibility of credit	2.16	0.729	1			
joint liability	3.52	0.677	0.388**	1		
group size	3.89	0.506	.761**	0.032	1	
group diversity	3.85	0.557	-.705**	0.139	.576**	1

Hypothesis testing

Study findings in table 2 revealed that 22 percent variation of accessibility of credit is explained by joint liability, group size and group diversity as supported by R^2 = 0.22. Durbin Watson test showed that there was no autocorrelation among the variable as indicated by Durbin Watson value =0.713 which was less than 2 thumb rule. Study results in table 2 revealed that F value 13.039, with p value = 0.000 significant at 0.05, this implies that the joint prediction of aforementioned independent variables of accessibility of credit is significant. This shows that the model can be used in future to predict accessibility of credit. Moreover, findings showed non-existence of multicollinearity.

The results also showed that joint liability had a significant effect on accessibility of credit (β_1= 0.175, ρ>0.05) thus the hypothesis was not accepted.This infers that there is an increase in accessibility of credit by 0.175 units with an increase in joint liability. In conformity with the findings of the study,Ahlin& Townsend (2007) state that joint liability works best when group members are highly familiar and ready to punish the members on default. However, joint liability is ineffective when groups are defaulting despite monitoring. In such a case, default on loan repayment would reduce the chances of further loan provision. Similarly,Wenner (1995) found out that group characteristics such as social and cultural cohesion in the group provides the peer pressure on an individual to repay the instalments without default.

Furthermore, the findings showed that group size had significant effect on accessibility of credit (β_2 = 0.088, ρ<0.05). Thus the hypothesis was rejected. This indicates that there is an increase in accessibility of credit by 0.088 units with an increase in group size. Cognate to the results,Ahlin, & Townsend, (2007) echo that repayments rates for groups is higher compared to those achievable by individual lenders. Similarly,Abbink et al. (2006) observe that being in a group increases the chances of accessing credit since groups have observed high repayment rates. However,Paxton *et al* (1996) observed that large sized groups are faced with free riding problems whereby some members some members hide behind the group to dodge monitoring. In so doing, the high and robust repayment rate is deterred due to lack of coordination and free-riding.

Finally, the study showed that group diversity had significant and positive effect on accessibility of credit (β_3 = 0.385, ρ<0.05). Therefore, the study rejected the hypothesis. This indicates that there is an increase in accessibility of credit by 0.385 units with an increase in group diversity. Contrary to the findings,Ahlin and Townsend"s (2007) confirm that through group diversity, all types of existing social capital are harnessed thereby creating strong social ties which is detrimental to accessibility of credit due to low repayment. Similarly,De Dreu&Weingart, (2003) are also in disagreement with the findings of the study since they mention that group diversity is associated with interpersonal conflict which leads to default in paying the loan and this makes the lender to deny loan to the group.

Table 2 multiple regression results

	Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
	B	Std. Error	Beta	T	Sig.	Tolerance	VIF
(Constant)	2.944	1.844		1.596	0.112		
joint liability	2.371	0.786	0.175	3.019	0.003	0.837	1.194
group size	-0.35	0.214	-0.088	-1.632	0.104	0.967	1.034
group diversity	1.963	0.271	0.385	7.237	0.000	0.997	1.003
R Square	0.22						
Adjusted R Square	0.203						
Durbin-Watson	0.713						
F	13.039						
Sig.	.000b						

a Dependent Variable: accessibility of credit

Conclusion

There is overwhelming evidence from the study showing that joint liability has a positive and significant influence on accessibility of credit. Particularly, the interest rates on loans are charged according to riskiness. As such, low risk members are inclined to form groups with low risk project members due to conformity with regular repayments. In the case of risky members, the probability of the failure of the project is usually high thus group members have high risk in repayment of the instalments. For risky projects, returns are usually high hence successful members are ready to pay higher repayments. This infers that low risk members are likely to access credit compared to high risk members since they conform to regular repayment.

The findings of the study have also established that the group size is positively associated with accessibility of credit. Consequently, the repayment period for group lenders is desirable compared to individual lenders. Therefore, group lenders are likely to access credit. Nonetheless, large sized groups are impaired by free riding problems whereby certain members dodge responsibilities and monitoring leading to low repayment rates.

Finally, group diversity is also associated with increased accessibility of credit. Precisely, group diversity harnesses all types of existing social capital thereby enhancing group loan repayment. However, strong social ties creates the problem of low loan repayment which reduces accessibility of credit. Furthermore, there is also interpersonal conflict associated with group diversity which leads to default in loan repayment thereby reducing the access to credit.

Recommendations

The findings of the study have established that joint liability impacts positively on accessibility of credit. There is therefore need for clear formation of the same risk customers in the same group. In the case of risky projects, returns are usually high hence the need for higher repayments. In so doing, lower risk groups would be provided with low interest rates while higher risk group would be provided with higher interest rates. The results of this study have also delivered insights on the effect of group size on accessibility of credit. As a result, there is need for smaller groups in order to curtail free-riding and in-group coordination problems. The problem of free-riding can also be controlled by greater dispersion of risks within the group. It is also preferable to borrow as a group rather than as an individual since repayments rates in groups is higher. This way accessibility of credit will be enhanced. Since group diversity is key in enhancing access to credit, there is need to enhance social cohesion so as to reduce interpersonal conflict which is a cause of low access to credit. Interpersonal conflict can also be controlled through enhancing more freedom to members in the process of group formation. Also, there is need to provide groups with follow up loans since such loans offer the incentives to repay. For further research,including moderator factors and looking forward to direct or indirect relationship towards access to credit can also be made by scholars in future. Furthermore, conducting a replication study in another District is also needed so as to come up with conclusive results of the impact of group size, group diversity and joint liability on access to credit.

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