School of Economics and Finance
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Market Segmentation, Social Capital and Welfare–Outreach in Microfinance: A Case Study of Indonesia

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DECLARATION

To the best of my knowledge and belief this PhD thesis contains no material previously published by any other person except where due acknowledgment has been made.

This PhD thesis contains no material which has been accepted for the award of any other degree or diploma in any university.

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ABSTRACT

This PhD thesis is a study of microfinance in relation to market segmentation, social capital, operational contradictions, and the welfare impact of microfinance on the rural poor in parts of Central Java, Indonesia. Four important aspects of microfinance are examined. Firstly, we investigate the institutional characteristics of microfinance clients and institutions, and confirm that heterogeneous clients and institutions lead to market segmentation in microfinance. Such market segmentation arises in relation to various motives of the poor and obstacles faced by them in utilising microfinance services. There are evidences that poor people are not homogeneous individuals in terms of access to finance. While some can access the microfinance services of microbanks, many others face socioeconomic constraints in utilising such services. Microfinance markets thus tend to segmented because, on one hand, the poor are only capable of accessing semi-formal and informal MFIs, due to their low levels of income and education, and limited networks. On the other hand, because of having sufficient incomes and assets, the non-poor prefer to utilise microbanks, due to larger loans provided and low interest rates.

The various motivations of the poor in utilising loans lead MFIs to face information and enforcement problems, due to the interchangeability of loan usages. The differing capacities of MFIs to overcome such problems then contribute to the presence of market segmentation in microfinance. Although microbanks have financial resources to lend, they are unable to gather information about the creditworthiness of the poor. Microbanks also lack efficient ways of enforcing loan repayments, due to being operationally distant from the social networks of the poor. As a result, microbanks prefer to penetrate up-market segments by setting loan contracts in favour of non-poor clients. They are unwilling to increase loan supply to the poor because doing so can worsen their loan portfolio. In contrast, semi-formal and informal MFIs, such as cooperatives and moneylenders, are more capable of overcoming informational and enforcement problems of lending to the poor, due to living and working in villages. These MFIs can maintain profitability, while serving poor clients by linking loans to the social networks of the poor.

Secondly, the impact of social capital on microfinance is substantially investigated. This study emphasises that social capital enhances the access of poor people to microfinance. For instance, maintaining kinship relationships can enhance access of the poor to formal finance through the role of relatives as loan references in applying for microbank loans. Maintaining friendship and business networks can reduce informational constraints of accessing microbanks, as the poor can gather knowledge of banking procedures from friends and business associates. From the lender's

perspective, MFIs that consider social capital as important in lending decisions tend to have higher rates of loan repayments.

Thirdly, this study rigorously examines the trade-off between profitability and the outreach of MFIs to serve the poor. It finds that a focus on profitability potentially undermines the outreach of formal MFIs (e.g., microbanks). In contrast, semi-formal and informal MFIs are capable of maintaining profitable operations in conjunction with serving the poor. These MFIs can maintain profitability while serving the poor by linking microfinance to the social networks of the poor. Fourthly and finally, this study examines whether access to microfinance services contributes to the welfare of the poor. Specifically, access to microfinance services is found to have the potential to improve the level of children's education, and increase the degree of confidence in dealing with other people. Access to microfinance services can also reduce the probability of the poor experiencing household financial distresses. Overall, the present study recognises that microfinance has the potential to improve the welfare of the poor.

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CHAPTER ONE
INTRODUCTION

1.1 THE SIGNIFICANCE OF THE STUDY

Microfinance has gained worldwide support and has become a prominent strategy for fighting poverty in developing countries. The United Nations, for instance, declared 2005 as the International Year of Microcredit, suggesting that a significant increase in global access to microfinance could lead to the achievement of the Millennium Development Goals (MDGs) by 2015 (Dehejia et al. 2005). Further support for employing microfinance strategies to alleviate poverty was provided by Dr Muhammad Yunus, the founder of the Grameen Bank, who received the Nobel Peace Prize in 2006 (Hermes and Lensink 2007).

The microfinance movement is not a recent phenomenon. It emerged in the 1960s, when developing nations actively engaged in agricultural modernisation through delivering microcredit-subsidised programs to poor farmers. However, the results of such subsidised credit schemes were disappointing. They contributed to agricultural production, but failed to increase the income of poor farmers. Several studies have revealed massive defaults in subsidised credit programs across developing countries (Morduch 1999a; Hulme and Mosley 1996a; Adam and Vogel 1986). Considering such failures, by the mid-1980s the 'Ohio School', as they came to be known, was promoting a demand-side approach in which microfinance services were to be client-responsive and not supply-driven. In this approach, poor people are seen as economic units, and decisions to utilise microfinance services depend on their internal characteristics, such as being small-scale and having uncertain production and consumption (Moll 2005). For the poor, the utilisation of microfinance services is not only to support production but also consumption. In this approach, mobilising savings should be seen as equally important as providing loans to the poor. Microfinance is thus seen as having the dual function of ensuring loan repayments in the absence of collateral, and as providing sources of funds for lending mobilisation (Hulme and Mosley 1996a).

It has been widely recognised that the microfinance industry comprises various clients and institutional providers. Microfinance clients are heterogeneous with respect to income, occupation, education level, asset ownership, gender, age and the like. Poor people also have various motives for utilising microfinance. While some utilise microfinance services to support production, others may seek to finance consumption, child education, emergency expenditures (e.g., medication), and many social activities, such as religious ceremonies and funerals. Microfinance

institutions (MFIs) are also heterogeneous and include formal (e.g., microbanks), semi-formal (cooperatives) and informal (moneylenders) providers. A large number of microcredit programs of governments and NGOs also provide microfinance services to the poor. These MFIs, however, have different operational scale, geographical coverage, business skills, and objectives in providing financial services to clients. Formal MFIs such as microbanks often have a single objective of achieving profitability. Having business acumen and operational scale, microbanks tend to have a greater geographical coverage than cooperatives and moneylenders. However, microbanks are less capable of serving the poor, compared to semi-formal and informal MFIs. Because of being operationally distant from the social networks of clients, microbanks face informational and enforcement problems in lending to the poor. In contrast, cooperatives and moneylenders can provide small loans to the poor. Using informal approaches, these MFIs can link their business operations with the social networks of the poor to overcome informational and enforcement problems. However, moneylenders' effort of linking loans to the social networks of poor people increases interest rates. As a result, high rates of loan interest impose higher costs of borrowing on the poor. Loans from moneylenders are also often utilised for consumption rather than productive purposes, and thus very likely fail to increase the income of the poor (Hulme and Mosley 1996, p.76). This indicates that the utilisation of social capital by moneylenders to increase loan repayments tends to result in little welfare impacts on the poor.

According to the literature, microfinance markets are segmented in the sense that diverse MFIs charge different interest rates on their financial services (Hoff et al. 1993, p.36; Hoff and Stiglitz 1997). It is said that market segmentations in microfinance stem from the presence of informational and enforcement problems. In response to such problems, microbanks often set lower rates of loan interest to avoid adverse selection problems. This is the case as at higher levels of loan interest, "good borrowers" are crowded out from credit markets, while only "bad borrowers" have incentives to borrow. As a result, microbanks prefer to provide larger loans with low interest rates to non-poor borrowers. In contrast, cooperatives and moneylenders can provide small loans to poor borrowers through linking loans with the social networks of the poor. Unlike microbanks, these MFIs tend to charge higher rates of interest because they need to expend more resources to maintain close networks with poor clients. In this regard, the present study examines *Hypothesis* H_1, that heterogeneous clients and institutions lead to market segmentation in microfinance.

In order to comprehend *Hypothesis* H_1, this study closely examines, in the Indonesian context, various motives and constraints of the poor in utilising microfinance services *(Sub-hypothesis* H_{1A}*)*. This study argues that

heterogeneous motives for utilising loans can lead to market segmentation in microfinance through causing MFIs to face informational problems. For instance, because the use of loans is 'interchangeable' or 'fungible', whether loans are utilised according to lending contracts is difficult to monitor. As a result, the costs of monitoring small loans are significantly high, particularly when lending contracts involve a large number of poor borrowers in dispersed locations. Market segmentation in the microfinance industry is also associated with the fact that poor people do not have the same access to finance. While some poor people can access microbank loans, many others are only capable of utilising loans from relatives, friends, cooperatives and moneylenders. The poor often fail to obtain microbank loans due to low levels of education, income and assets, and a lack of networking access to formal finance. In this regard, this study closely examines the extent to which the poor's ability to access microfinance in Indonesia, in particular in parts of Java, is limited by social and kinship networks, low levels of eduction, income and assets.

From the supply side, market segmentation in the microfinance industry is associated with differing capacities of MFIs to cope with informational and enforcement problems in lending to the poor. The present study will thus investigate the extent to which the ability of MFIs to deliver microfinance services is limited by geographical boundary, operational scale and scope, and their capacity to link business operations with the social networks of the poor *(Sub-hypothesis H_{1B})*. Even though formal MFIs, such as microbanks, have greater operational scale and scope, business acumen and financial resources to lend, they lack effective way of gathering information about the creditworthiness of the poor, and also fail to enforce them to repay their loans. In contrast, semi-formal and informal MFIs, such as cooperatives, moneylenders and ROSCAs, are more capable of serving the poor than that of microbanks. These MFIs can overcome informational and enforcement problems of lending to the poor due to living and working in villages (Armendariz de Aghion and Morduch 2005, p.47). However, they are unlikely to serve the non-poor demanding larger loans, due to limited financial resources. As a result, microfinance markets tend to be segmented as, on one hand, microbanks prefer to penetrate up-market segment, and on the other hand, other MFIs, such as cooperatives, moneylenders have a focus on servicing low-market segments comprising (very) poor clients.

Over the last decade, several researchers have examined the extent to which social capital affects the performance of group lending, such as under the Grameen Bank model (see Karlan 2007; Armendariz de Aghion and Morduch 2005; Wydick 1999, 2001; Besley and Coate 1995). It is said that group lending can generate peer pressure and sanctions, providing incentives for group members to repay their loans (Armendariz de Aghion and Morduch 2005, p.90). However, this study takes a different approach in

analysing the role of social capital in microfinance. Here, social capital is not analysed within a framework of group lending, but through the lending methods of MFIs to individual borrowers. The present study thus examines *Hypothesis* H_2, that social capital plays an important role in microfinance practices across different MFIs in Indonesia.

A critical form of social capital in lending methods to individuals stems from the financial practices of moneylenders. According to Stiglitz (1993), Hoff and Stiglitz (1997) and Zeller (1998), moneylenders can minimise loan defaults through integrating loans into the social networks of the poor. Utilising informal approaches, moneylenders can develop close friendships with poor borrowers. As such, they seek to overcome the informational and enforcement problems of providing non-collateral loans to the poor. In the case of microbanks in Indonesia, Robinson (2001, p.330) points out that the village units of *Bank Rakyat Indonesia* (BRI-units) and *Badan Kredit Kecamatan* (BKKs) can minimise loan defaults by connecting lending contracts to the social networks of poor clients. This is achieved in two ways. The first is through a lending contract that requires poor borrowers to have a loan witnesses or reference from among community leaders and relatives. The second is through encouraging lending officers to have frequent visits to the homes and workplaces of poor borrowers. It is believed that face-to-face contacts with poor borrowers can help in gathering information about their creditworthiness (Robinson 2001, P.239). Close friendships with poor borrowers can also create reciprocal obligations, through which they are encouraged to repay their loans. Thus in this study, MFIs that consider the importance of social capital in lending decisions are hypothesised to have high rates of loan repayment *(Sub-hypothesis* H_{2C}*)*.

Previous studies have paid less attention to the role of social capital in facilitating access of the poor to microfinance. They have mostly investigated the benefits of utilising social capital from the perspective of MFIs*,* for example the minimising of loan defaults. In contrast, this study seeks to examine the extent that social capital in the form of friendships and kinship networks enhances access of the poor to microfinance. In the case of non-commercial loans, we examine lending behaviour among relatives, neighbours and friends, a practice that remains common for the rural poor in Indonesia. This reciprocal lending is the way the poor cope with a lack of access to formal finance. The benefit of reciprocal loans for the poor is that they carry no or very low interest rates, and are often given without collateral. Socially close lenders (e.g., relatives and friends) provide loans to the poor without physical collateral, as they consider the norms of reciprocity and loyalty to be embedded in friendship and kinship relationships within a rural society (see Polanyi 1944, p.49). Poor borrowers have incentives to repay because loan defaults can lead them to face moral punishment, such as being the subject of gossip and social exclusion. If

social capital (e.g., mutual trust, friendship and reciprocity) is considered as important, lending and borrowing among relatives, neighbours and friends would not be strongly affected by specific characteristics of borrowers and lenders, such as income, gender and occupation*(Sub-hypothesis H_{2A})*.

Several studies have found that ownership of income and assets (e.g., farmland) can help the poor to overcome credit rationing from formal MFIs, such as microbanks (Mushinski and Pickering 2006; Duong and Izumida 2002; Zeller at al. 1997). As well as the ownership of physical and human capital, this study incorporates includes the role played by social capital in facilitating the poor's access to formal finance. Here, the emphasis is given to the extent to which maintaining kinship relationships, and social and business networks can help the poor to overcome credit rationing from microbanks. Thus the present study hypothesises that maintaining kinship relationships, and social and business networks (e.g., farmer associations) can enhance the access of the poor to formal finance *(Sub-hypothesis H_{2B})*. Relatives, friends and business associates can help the poor to access formal loans by providing them information about borrowing procedures of microbanks. They can also enhance access to microbank loans through their roles as loan co-signatories or witnesses.

Since the early 1990s, microfinance scholars have emphasised the importance of the commercial practices of microfinance operations. This can be achieved by transforming microfinance NGOs into banking-type microfinance institutions, such as the successful metamorphosis of PRODEM into Banco Solidario (BancoSol), in Bolivia in 1992 (Ledgerwood and White 2006). The success of the BRI-unit system in Indonesia also empirically supports the functioning of the commercial approach to microfinance (e.g., Robinson 2001; Dhonaghue 2004; Charitonenko et al. 2004). Microfinance commercialisation has also gained support from international donors such as the World Bank and the Asian Development Bank. Indeed, this approach has become a mainstream development of the microfinance industry across countries. For instance, by 2000 about 39 microfinance NGOs had been transformed into commercial microbanks in Colombia, Dominican Republic, Mexico, El Salvador, Peru, Cambodia, India, Mongolia, Nepal, Pakistan, the Philippines, Kenya and South Africa (Fernando 2003, p.4).

However, the recent debate on microfinance has centred on whether a trade-off exists between the achievement of profitability and the outreach capability of MFIs to the poor. Proponents of commercialisation believe that the profitability objective of MFIs can be achieved in conjunction with the social mission of serving the poor. Operational profitability is said to be a prerequisite for MFIs to expand their capacity of serving the poor (Christen 2001; Drake and Rhyne 2002; Charitonenko and Afwan 2003; Charitonenko et al. 2004). In contrast, Woller et al. (1999), Rankin (2006), and Zeller and Johansen (2006) argue that the commercialisation approach

can undermine the social mission of MFIs. In this regard, the present study seeks to fill a gap between the two contrasting positions.

The above trade-off is considered in this study for two reasons. The first is that a profitability focus can lead MFIs, particularly microbanks, away from their social missions. When they seek profitability, commercial MFIs tend to focus on serving the 'non-poor', while '(very) poor' clients are excluded. These MFIs are unwilling to provide small loans to poor clients because the operational costs of managing small loans are high, while the returns are often low and uncertain. The second reason is linked to the heterogeneous characteristics of MFIs, and whether the profitability approach of microfinance practices is incompatible with meeting the needs of poor people for various financial services (Zeller 2001). Being a commercial entity, the focus of microbanks is to provide loans for productive activities, disregarding the needs of the poor for loans for consumption purposes. As such, the profitability focus is said to lead MFIs away from achieving social outreach that serves the poor. Social outreach means that the objective of MFIs is not to simply maximise financial profit, but also to provide social benefits to poor people.

To examine whether a trade-off exists between profitability and outreach objectives, this study hypothesises that commercialisation practices of MFIs increase financial performance, but reduce outreach that serves the poor *(Hypothesis H_3)*. In the context of formal MFIs, this study examines the extent to which the concern of formal MFIs with profitability leads to a focus on non-poor clients at the expense of the (very) poor client *(Sub-hypothesis H_{3A})*. However, having small-scale operations, and being operationally close to the social networks of the poor, semi-formal and informal MFIs, such as cooperatives and moneylenders, are hypothesised to be more capable of serving (very) poor clients *(Sub-hypothesis H_{3B})*.

The extent to which microfinance can contribute to poverty alleviation is debatable. Pessimistic views argue that microfinance alone is unlikely to alleviate poverty. As Coleman (1999) points out, access to loans does not significantly contribute to the income of poor clients, while it has a greater income impact on non-poor people. A study of the Grameen Bank in Bangladesh by Islam (2007) also reveals that poor clients fail to improve their welfare. In contrast, the optimistic views propose a positive impact of microfinance on the welfare of poor people. Holvoet (2004) and Zeller et al. (1997) claim that microfinance services can lead to an increase in the level of child education and the nutrition of poor people. Considering such contradictory views, the present study seeks to investigate *Hypothesis H_4*, that microfinance contributes to the improvement of the welfare of poor people. In this study poverty is broadly defined as a deprivation of not only physical and human capital but also social capital (see Sen 1992). Thus, access to microfinance is hypothesised to impact on children's education,

the frequency of facing household financial crises, and self-confidence in dealing with other people.

Access to microfinance services is hypothesised to increase the likelihood of having children with higher levels of education *(Sub-hypothesis H_{4A})*. An increase in income resulting from loans, for instance, can lead to a greater capability of the poor to finance child education. Furthermore, the incidence of financial problems indicates that the poor are highly vulnerable toward external disturbances, such as sickness and natural disasters. As loans can help to finance emergency expenditures (e.g., medications), this study hypothesises that access to microfinance services gives rise to the capacity of the poor to cope with household financial problems *(Sub-hypothesis H_{4B})*. For instance, access to loans can help the poor to smooth consumption in response to the urgent needs for cash due to sickness, death and harvest failures.

Apart from the monetary aspects, poverty arises as the result of deprivation of social capital such as kinship and friendship networks, and community organisations (ADB 2006). Such deprivation can be because low levels of education, income, and skills cause the poor to lack self-confidence in participating in community organisations. In this regard, the present study hypothesises that access to microfinance services enhances the self-confidence of poor people in dealing with other people *(Sub-hypothesis H_{4C})*. Feeling confident is critical, as it provide a basis for the poor to maintain and expand friendships, networks and other socialities.

1.2 OBJECTIVE OF THE STUDY

The research location of this study is the Boyolali District of the Central Java Province in Indonesia. The central thesis of the present study is that microfinance is a complex phenomenon that links financial intermediaries to the socioeconomic activities of poor clients. According to Hoff and Stiglitz (1993), MFIs do not have the same capacity to overcome informational and enforcement problems in lending to poor clients. Consequently, microfinance markets are segmented as diver MFIs charge different interest rates to their clients. Social capital thus matters in microfinance practices as MFIs utilise social networks to overcome informational and enforcement problems of lending.

Moreover, operational contradictions occur in microfinance as the profitability focus of MFIs can reduce their ability to serve the poor. The microfinance services of MFIs also do not have the same welfare impacts on the poor. Although formal MFIs (e.g., microbanks) are less capable of serving the (very) poor, their financial services tend to have greater welfare impacts than informal MFIs, such as moneylenders. In this regard, four important aspects of microfinance are examined in this study: (1) the link between heterogenous characteristics of clients and institutions to the market segmentation in microfinance; (2) the functioning of social capital in

microfinance practices; (3) the profitability–outreach nexus, and (4) the welfare impact of microfinance on poor people.

More specifically, the present study has four main objectives. The first objective is to examine the extent to which the heterogeneous nature of clients and institutions leads to market segmentation in the microfinance industry *(Hypothesis H_1)*. Heterogeneous clients matter in microfinance practices because they lead lenders to face informational problems in microfinance markets. For instance, because of the inseparable activities of production and consumption, whether loans are utilised by the poor according to lending contracts is difficult to monitor. As a result, lending to the poor causes lenders to face the high costs of differentiating "good" from "bad" borrowers. In this regard, from the demand side, the study will examine *Sub-hypothesis H_{1A}*, that poor people have various motives and constraints in utilising microfinance services. Various motives for utilising loans, for instance, can generate enforcement problems, as MFIs cannot fully observe efforts or actions taken by poor borrowers, after such loans have been granted. Moreover, poor people also face heterogeneous constraints in utilising microfinance services, such as low levels of income, asset and education, a lack of banking knowledge and poor communication skills. However, it remains possible that the poor utilise their social capital (e.g., kinship and friendship networks) to access microfinance services. Considering this, the present study seeks to examine the extent to which kinship, social and business networks, low levels of education, income and assets affect access of the poor to microfinance.

From the supply side, the heterogeneous characteristics of microfinance imply that MFIs do not have the same capacity to overcome informational problems of lending to the poor. Formal MFIs –microbanks for instance– are less flexible in lending to the poor because they should design, monitor and enforce loan contracts, so as to minimise loan defaults, generate sufficient profits, and conform to rules set by owners and regulators (Meyer and Nagarajan, 1999 p.26). Formal MFIs are also very likely to face serious problems in gathering information on the creditworthiness of poor clients as their business operations are socially far from poor people. As a result, we hypothesise that the capacity of MFIs to serve poor people is affected by operational scale, geographical boundaries, and capability of gathering information about the creditworthiness of the poor *(Sub-hypothesis H_{1B})*.

The second objective is to examine the extent to which social capital plays an important role in microfinance *(Hypothesis H_2)*. In the context of non-commercial loans, this study scrutinies the degree to which the norms of friendship, trust and reciprocity underpin the functioning of lending and borrowing among relatives, neighbours, and friends, thus enhancing access of the poor to informal finance *(Sub-hypothesis H_{2A})*. In the context of commercial loans, this study examines the extent that kinship relationships,

and social and business networks increase the access of the poor to formal finance *(sub-hypothesis H_{2B})*. Here, the extent to which the utilisation of social capital can reduce the likelihood of facing credit rationing from formal MFIs is emphasised. From the perspective of lenders, social capital is investigated through its role in affecting the financial performance of MFIs *(Sub-hypothesis H_{2C})*. Using an index of social capital, this study seeks to comprehend whether lending decisions that consider social capital can contribute to loan repayment rates of MFIs.

The third objective is to examine whether a trade-off exists between for-profit orientation and poverty outreach of MFIs. It is claimed that there is a potential synergy between for-profit focus and poverty outreach of MFIs. As the financial business of MFIs becomes profitable, an increase in operational scale can lead to a greater capability of reaching a number of poor people (Christen 2001; Charitonenko et al. 2004). In Indonesia, Charitonenko and Afwan (2003) reveal that the profitability focus of BRI-units expands their capacity to serve small-scale clients. However, the major weakness of this study is that the authors do not rigorously compare the outreach of BRI-units with other MFIs. In this regard, the present study utilises a comparative analysis to explore the trade-off between profitability and outreach across formal, semi-formal and informal MFIs. In doing so, we investigate *Hypothesis H_3*, that commercialisation enhances financial performance, but reduces outreach to the poor. In the context of formal MFIs, this study examines *Sub-hypothesis H_{3A}*, that the concern of formal MFIs (e.g., microbanks) with profitability leads to a focus on non-poor clients at the expense of the (very) poor client.

However, the profitability focus of semi-formal and informal MFIs, such as credit cooperatives and moneylenders, does not reduce their outreach capability. This is the case as these MFIs are operationally close to social networks of the poor, and thus more capable of overcoming informational and enforcement problems in providing small loans to the poor. In this regard, this study will investigate *Sub-hypothesis H_{3B}*, that semi-formal and informal MFIs are more capable of serving the poor, than are formal MFIs.

The fourth objective of this study is to investigate the impact of microfinance services on the welfare of poor people. Here, this study refers to poverty as a deprivation of essential capital items such as a basic education, and basic levels of financial and social capital. Such deprivation is the main cause of poverty because it leads to the dysfunction of basic capability of poor people in these 'basic' areas (Sen 1992; Mukherjee et al. 2002). In this regard, this study examines *Hypothesis H_4*, that microfinance contributes to the improvement of the welfare of the poor. To investigate this hypothesis, the following sub-hypotheses are deeply explored: (1) microfinance impacts on the ability of poor people to improve their children's education *(Sub-hypothesis H_{4A})*; (2) it impacts their ability to cope

with financial difficulties *(Sub-hypothesis H_{4B})*; and (3) it enhances their self-confidence in dealing with other people *(Sub-hypothesis H_{4C})*.

1.3 THE ORGANISATION OF THE THESIS

The reminder of this thesis is organised into seven chapters. Chapter 2 survey the literature to provide a foundation for developing the hypotheses of the study. In Chapter 2 the institutional characteristics of microfinance clients and institutions are explored. The first part of this chapter reviews various definitions of microfinance. In this study microfinance refers to financial provision that supports not only economic but also social activities of poor people. It goes beyond traditional banking services to include informal finance, such as lending from relatives, neighbours, friends, self-help groups and moneylenders. As such, this study recognises the role of MFIs as *social intermediaries* to poor people.

The second part of Chapter 2 explores the heterogenous characteristics of microfinance clients and institutions. The heterogeneousness of clients matters in microfinance as poor people have various motives for and capacities of accessing microfinance services. The ability to access microfinance services also varies among poor people due to geographical constraints, different levels of education, income and asset ownership. As a result, the heterogeneous characteristics of clients lead to market segmentation, in the sense that different MFIs charge variable interest rates for financial services to clients. Market segmentation in microfinance occurs because diverse MFIs have different capacities to deal with informational and enforcement problems in lending to poor people. The present study emphasises, however, that lending on the basis of social collateral such as mutual trust, friendships, and reciprocity can enable MFIs to overcome informational and enforcement problems.

Furthermore, this study critically reviews the extent to which contradictions between profitability and poverty reduction exist across different microfinance practices. This study argues that the mainstream policy of microfinance commercialisation potentially reduces the ability of formal MFIs to serve the poor. Transformation into purely commercial entities can lead formal MFIs to increase the size of loans, yet to become reluctant to serve the poor who seek small-scale loans. In contrast, this study hypothesises that the for-profit focus of semi-formal and informal MFIs (e.g., cooperatives and moneylenders) does not reduce their ability to serve the poor, as they are operationally close to the social networks of the clients. However, access to informal loans has minimal welfare impacts on the poor, as such loans are mainly used to finance household consumption. In contrast, formal MFIs have greater welfare impacts on the poor because their loans are often used for productive purposes.

In the last section of Chapter 2, this study explores the literature on the degree to which social capital enables MFIs to overcome problems in

serving poor people. Informal MFIs, such as moneylenders and rotating savings and credit associations (ROSCAs), can overcome informational problems by integrating loans with social networks of poor clients. For instance, lending from moneylenders has utilise the pre-existing social networks of poor clients, and sought to build close relationships with the clients. Social networks of the poor are vital as they can generate moral pressure and sanctions to loan defaulters, leading to the discipline repayments by clients. However, the utilisation of social capital by informal MFIs can lead to greater costs of lending to the poor. As a result, high interest rates charged on informal loans tends to have a little impact on the welfare of poor borrowers.

Chapter 3 presents the hypotheses of the study. We propose four main hypotheses to be analysed: (1) the heterogeneous characteristics of clients and institutions lead to market segmentation in the microfinance industry (*Hypothesis H_1)*. (2) Social capital is an important factor in microfinance (*Hypothesis H_2)*. (3) Commercialisation of MFIs increases financial performance, but reduces outreach to serve the poor (*Hypothesis H_3)*. (4) Microfinance contributes to the improvement of the welfare of the poor (*Hypothesis H_4)*. In order to closely examine these hypotheses, we develop sub-hypotheses for each main hypothesis. In total, there are eleven sub-hypotheses to be analysed in this study (see Chapter 3 for more detail).

Chapter 3 also outlines the research methodology of the present study, covering the research location, selection of sampling methods and variables, data utilisation, and statistical methods of data analysis. The research location of this study is in the district of Boyolali in the Central Java Province in Indonesia. Following pilot testing, four villages were selected to be the research sites: the villages of *Karangkepoh, Musuk, Sudimoro and Tumang*. The first two villages were selected to represent agricultural production, while the other two small-scale manufacturing productions. To obtain reliable data, this study utilised personal interviews with questionnaires administered to various MFIs and poor people with and without microbank services (the questionnaires utilised in this study are presented in Appendix 1 and 2). The MFIs were sub-divided into formal, semi-formal and informal categories. The microfinance clients were sub-divided into five groups: the very poor, the moderately poor, the not-so-poor, the better-off poor and the non-poor. Considering such different classifications, this study utilised the stratified-randomly sampling method in order to obtain a reliably representative population.

However, the snowball-sampling technique was utilised for the informal MFIs, because the secondary data for such MFIs was lacking. This was undertaken by interviewing the first contact (e.g., a moneylender), then, asking her/him to inform other moneylenders about being interviewed and so on. The survey was undertaken during the period of June to December, 2006. One-hundred-and-fifty-three respondents of formal, semi-formal and

informal MFIs were interviewed, covering 46 microbanks, 41 cooperatives, 33 ROSCAs, and 23 moneylenders. For microfinance clients, 231 were interviewed, comprising the very poor, the moderately poor, the not-so-poor, the better-off poor and the non-poor.

Following the data collection, the analysis of data was undertaken using the statistical methods of percentage distribution, cross-tabulation, chi-square analysis, and correlation and multiple regression analyses. Using percentage distribution and cross-tabulation analyses, we scrutinised the socio-economic characteristics of the respondents of poor clients and MFIs. This was to investigate whether the heterogeneous characteristics of microfinance clients and MFIs led to market segmentations in the industry *(Hypothesis H_1)*. The chi-square and correlation analyses were utilised to examine the extent to which social capital matters in microfinance *(Hypothesis H_2)* and the trade-off between commercialisation and outreach of MFIs *(Hypothesis H_3)*.

To examine the relationship between social capital and loan repayment rates of MFIs, the ordinary least square (OLS) method was employed. Here, we construct an index of perceptions of the importance of social capital (SCI) in lending decisions. In the index four indicators were considered: personal knowledge of borrowers, perceptions of the importance of familial stability of borrowers, friendships with borrowers, and perceptions of the importance of community leaders in lending decisions. Furthermore, the extent to which social networks can help the poor to reduce credit rationing from providers of formal finance was analysed by employing logit models. The logit models were also useful in examining the welfare impacts of microfinance upon the poor *(Hypothesis H_4)*. Here, the welfare impacts were analysed by considering the probability of having children with higher levels of education, of reducing household financial problems, and of having being confidence in dealing with others.

Chapter 4 describes the microfinance industry in Indonesia. The microfinance industry in Indonesia consists of various institutions: formal, semi-formal and informal MFIs. In terms of operational scale and types of client, the industry can be conceived of as a pyramid. The top of the pyramid comprises few formal MFIs (e.g., the BRI-unit, BPR and LDKP), providing financial services to small-scale enterprises with stable income flows. Hence, the financial services of these MFIs are limited to non-poor and not-so-poor households. At a lower level of the pyramid, a significant number of semi-formal MFIs provide financial services to poor people. For instance, rural credit cooperatives are the main players in this market segment. At the bottom level of the pyramid there are a large number of informal MFIs, providing microfinance services to the poor and very poor people. These clients utilise microfinance services to cope with living difficulties. Because of low and unpredictable income flows, the risk of lending to poor people is high. Hence, moving from the top to the bottom

level of the pyramid leads to greater costs of financial services. This leads to market segmentation in the sense that the interest rates charged vary across MFIs. In many cases formal MFIs (e.g., the BRI-unit) set lower rates of interest than semi-formal or informal MFIs such as moneylenders.

The heart of this thesis lies in Chapters 5, 6 and 7. Chapter 5 reviews the variety of microfinance clients and institutions (MFIs) in the survey area. It begins by analysing the socioeconomic characteristics of the Boyolali District and poverty-related issues. Then specific characteristics of MFIs and clients are closely examined. It is found that heterogeneous characteristics of clients and institutions lead to market segmentation of the microfinance industry in the survey area *(Hypothesis H_1)*. Microfinance markets are segmented, as diverse MFIs charge different interest rates on microfinance services. From the demand side, despite various MFIs co-existing, poor people do not have the same access to these MFIs. Poor people have less ability to access formal banks compared to the non-poor. Low levels of education, insufficient income and assets, and a lack of information about banking procedures inhibit the access of the poor to formal MFIs (e.g., microbanks). As such, they utilise financial services from semi-formal and informal MFIs, such as cooperatives and moneylenders. In the context of social capital, the non-poor are also found to be more capable of utilising kinship and business networks to access microbanks than the poor.

From the supply side, market segmentation in microfinance is associated with diverse capabilities of MFIs to overcome informational problems of lending to the poor. Microbanks are less capable of dealing with informational problems due to being operationally far from the social networks of the poor. As a result, they prefer to serve the non-poor, who are seen as being more creditworthy than the poor. However, semi-formal and informal MFIs, such as cooperatives and moneylenders, can overcome informational problems by linking financial services to the social networks of the poor. Thus this study concludes that market segmentation indicates microfinance specialisation in which formal MFIs penetrate up-market segments constituting the non poor, while semi-formal and informal MFIs focus on low-market segments, providing small loans to the poor.

Chapter 6 presents the analysis of the impact of social capital on microfinance practices *(Hypothesis H_2)*. It is found that lending and borrowing among relatives, neighbours and friends are not strongly affected by specific characteristics of lenders and borrowers. This implies that such lending contracts are very likely affected by social-capital-related factors, such as mutual trust, friendships and reciprocity. In the lending contracts among relatives, neighbours and friends, the norms of reciprocity are considered as important because socially close lenders expect to receive similar loans in the future. Poor borrowers are willing to repay such loans because they recognize the norms of trust, friendships and reciprocity.

Moreover, social capital in the form of kinship relationships can enhance the access of poor people to loans from formal MFIs. Maintaining kinship relationships can help the poor to access bank loans through the role of relatives as loan co-signatories or witnesses. At the broader context, maintaining social and business networks is found to lead to greater access to formal loans. Through being members of business associations, the poor can gather knowledge about the borrowing procedures of microbanks from their business associates. Using the logit model, we delineate that social and familial capital can reduce the probability of facing credit rationing from formal MFIs.

From the perspective of the lender, social capital plays a role by enhancing the financial performance of MFIs. It is found that MFIs that consider the importance of social capital in lending decisions tend to have higher rates of loan repayment. For instance, lending provisions with support from community leaders and joint-liability loans between husband and wife can reduce the probability of loan defaults. Lending officials of MFIs who have frequent contacts with clients also potentially reduce loan defaults, as they can closely monitor the creditworthiness of poor borrowers.

It has been argued that the sustainability of MFIs's service of poor people depends on their successful transformation to commercial entities. The question that arises is the extent to which the commercial practices of MFIs increase or decrease their service of the poor. Hence, in Chapter 7 we examine whether a trade-off exists between for-profit practices and outreach serving poor people across different MFIs *(Hypothesis H_3)*. It is found that a trade-off does exists between the profitability and outreach of formal MFIs. Although the for-profit focus contributes to greater saving mobilisation, it potentially reduces the service of poor people by formal MFIs. Focusing on profitability, formal MFIs tend to increase the size of loans beyond the capability of the poor to access such loans. However, the profitability focus of semi-formal and informal MFIs such as cooperatives and moneylenders does not reduce their social outreach. Unlike microbanks, these MFIs can maintain profitable operations while providing small-scale loans to the poor. Being operationally close to the social networks of the poor, cooperatives and moneylenders can overcome the informational and enforcement problems of lending to the poor.

In the last section of Chapter 7, we examine the welfare impact of microfinance upon poor people *(Hypothesis H_4)*. Here, the emphasis is given to the impact of microfinance access upon children's education, frequency of facing household financial problems, and self-confidence of the poor in dealing with other people. However, a comparative analysis between formal and informal MFIs indicates that the microfinance impact on the welfare of the poor *is not uniform*. It was found that access to formal loans can improve the likelihood of having children with higher levels of education, being

more confident in dealing with others, and reducing the likelihood of facing household financial problems. This is likely the case as microbank loans are often utilised for productive activities, leading to an increase in incomes of the poor.

In contrast, access to informal loans (e.g., moneylenders) does not statistically lead to higher levels of child education, and often fails to improve confidence in dealing with others. In fact, access to informal loans was found to lead to an increase in the probability of facing household financial problems. Loans from moneylenders cannot enhance confidence in dealing with others because they are often used to finance consumption by the poor. Loans for consumptive purposes cannot generate income, instead repayment obligations depress the low income of the poor, and thus deteriorate their confidence in dealing with others. This implies that microfinance services from informal MFIs have a little impacts on the welfare of the poor.

The final chapter draws together the main findings of each chapter to elaborate the hypotheses of the study. The concluding chapter emphasises the four critical issues raised in this thesis: (1) the link between heterogeneous characteristics of clients and institutions and market segmentation in microfinance; (2) the important role of social capital in shaping microfinance practices; (3) contradictions between profitability and outreach; and (4) welfare impacts of microfinance upon the poor. In the last section of this chapter, we describe the extent to which the findings of this thesis may provide potential empirical inputs for policy makers dealing with microfinance development in Indonesia.

Considering the heterogeneous nature of the industry, this study proposes that the development of microbanks should be undertaken in parallel with enhancing the business capacity of semi-formal and informal MFIs (e.g., cooperatives, moneylenders and ROSCAs). This can be achieved through strengthening close operational linkages between formal, semi-formal and informal MFIs. Such linkages benefit microbanks through utilising social networks of cooperatives and moneylenders to help overcome informational and enforcement problems in lending to the poor. At the same time, these MFIs can gain greater access to the finance and business skills of microbanks which are vital to be prepared for the poor demanding access to more advanced financial services.

CHAPTER TWO
THE INSTITUTIONAL CHARACTERISTICS OF MICROFINANCE: A CRITICAL LITERATURE REVIEW

2.1 INTRODUCTION

The objective of the present chapter is to critically review the literature associated with the institutional characteristics of microfinance. This review is undertaken to provide a foundation for building the hypotheses of the study. Four general hypotheses are investigated in this study: *Hypothesis* H_1 is that the heterogenous characteristics of clients and institutions lead to market segmentation in microfinance. *Hypothesis* H_2 proposes that social capital plays an important role in microfinance. *Hypothesis* H_3 is that the commercialisation of MFIs increases financial performance, but reduces outreach to the poor. Lastly, *Hypothesis* H_4 deals with the welfare impacts of microfinance on the poor.

This chapter is structured as follows. The next section critically reviews definitions of microfinance. We then argue that conceiving of the role of microfinance as *social intermediation* is more appropriate than viewing it as financial intermediation *per se*. The heterogeneous characteristic of microfinance in relation to market segmentation is reviewed in Section 2.3. Section 2.4 reviews the influence of social capital on microfinance practices and the access of the poor to finance. Section 2.5 examines contradictions between profitability of microfinance and its outreach function. Section 2.6 explores the literature on the impacts of microfinance on the welfare of the poor. The conclusion of this chapter is presented in Section 2.7.

2.2 SOCIAL INTERMEDIATION OF MICROFINANCE

While the term microfinance has generally been understood, it has been differently articulated by many scholars. The narrow definition of microfinance, for instance, refers to only small-scale loans to the poor. As Lashley (2004 p.86) states, microfinance is "lending small amounts of money for enterprise development to achieve a sustainable rise in incomes above the poverty line". Similarly, microfinance is seen as microcredit schemes that utilise collateral substitutes to the short-term working capital of micro-entrepreneurs (Hubka and Zaidi 2004, p.3). Such definitions ignore two important aspects of microfinance: savings services and loans for consumption purposes. It has been well understood that savings mobilisation is important for microlenders to ensure the repayment of non-collateral loans (e.g., Adam, Graham and Von Pischke 1984; Hulme and Mosley 1996a). Microcredit is not only demanded for productive purposes, but also to smooth consumption of the poor against unpredictable shocks

such as sickness, death and harvest failures (Matin et al. 2002; Christen et al. 2003; Hulme and Mosley 1996a). It is also evident that the poor utilise loans to finance a wide array of social-related expenditures, such as religious ceremonies and funerals.

The following definitions also lead to an unclear delineation of microfinance. For example, Schreiner states (2004 p.65) states that microfinance is "new ways to cut the cost of judging the credit risks of the self-employed poor". The serious misconception of microfinance as defined by the author relate to the notion of *new ways of reducing the cost of lending* to the poor. There is no doubt that the cost of assessing the creditworthiness of poor borrowers is significant due to unrecorded economic activities. Lending to the poor also generates diseconomies of scale because the average cost of small loans tends to be higher than that of larger loans. Because the poor have no collateral to secure loans, lenders often fail to enforce repayment, leading to high lending risks. The critical question is whether it is true that microfinance is a new way to reduce the risks of lending to the poor. It is not a convincing argument that the objective of microfinance is to reduce the cost of lending to the poor. Rather, an aim of microfinance is to overcome informational and enforcement problems, so as to minimise the risks of loan defaults. Learning from informal MFIs, traditional moneylenders successfully overcame informational problems through designing credit contracts, such as trade-credit linkages that make loan repayment more likely. Moneylenders have also developed personal relationships with poor clients, so information is available on their creditworthiness. However, the costs of such lending remain relatively high, leading to high interest rates being charged on loans. Therefore, the 'new ways' of microfinancing should be linked to designing loan contracts that ensure sufficient repayments, such as developing collateral substitutes.

Microfinance has been referred to as "a [financial] activity undertaken by the alternate sector (NGOs) [associated] predominantly with the poor" (Sriram and Upadhyayula 2004, p.90). This articulation of microfinance is vague because NGOs are not the only providers of microfinance to the poor. As we will argue in the next section of this chapter, microfinance players comprise a wide array of institutions. However, some scholars have carefully defined the broad terms of microfinance. Microfinance specifically refers to financial services targeted at the poor who have various motives for using such services. Microfinance is not only microcredit but also savings mobilisation and other financial activities. As Christen et al. (2003) state:

> Microfinance means the provision of banking services to low-income people, especially the poor and the very poor….The clients are not just microentrepreneurs seeking to finance their business, but the whole range of poor clients who also use financial services to manage

> emergencies, acquire household assets, improve their homes, smooth consumption, and fund social obligations. The services go beyond microcredit. Also included are savings and transfer services" (Christen et al. 2003, p.6).

Similarly, microfinance refers to:

> The provision of loans, savings, payments and other basic financial services to low-income populations. Microfinance activities involve small loans, employ collateral substitutes, streamline procedures and offer swift and frequent access. Their clients cover typically self-employed, low-income entrepreneurs and households in both rural and urban areas" (Imboden 2005, p.67).

Other scholars recognise microfinance as 'an industry' because it covers various financial providers, such as microbanks, cooperatives, pawnshops, government credit programs, rotating savings and credit associations (ROSCAs), moneylenders, traders, relatives and friends providing loans to others and the like. While some MFIs are subject to banking supervision and regulation (e.g., microbanks), many others operate without a formal legal structure (Donaghue 2004). The range of MFIs co-existing indicates the heterogeneous nature of the industry. From the demand side, such a heterogenous nature arises because poor households have various motives for utilising microfinance services. Microfinance services are not only needed for productive purposes, but also for financing household consumption, emergencies, and other social-related expenses. For the "better-off poor" and "non-poor", microfinance is mostly used to finance productive activities, leading to an increase in income (Zeller at al. 1997; Hulme and Mosley 1996a). However, microfinance services are often used by "the poor" and the "very poor" to smooth and protect consumption against unpredictable changes in income. They are also useful to finance social and family-related expenses, such as religious ceremonies, funerals, child education and the like (Holvoet 2004; Matin et al. 2002). A review of various motivations of the poor in utilising microfinance is presented in the next section.

The recent concept of the 'inclusive financial sector' takes a comprehensive view of microfinance. This concept addresses the building of sustainable MFIs, providing a range of financial services and treating poor people as clients rather than beneficiaries. Microfinance should not be seen as an exclusive institution for the poor, rather it is an integral component of a country's financial system (Imboden 2005, p.68). Hence, in this study we define microfinance as financial provisions focusing on poor clients, who demand an array of financial services to finance their socio-economic activities. Here, microfinance practices go beyond traditional banking services to include building social capital, such as mutual trust, friendship, and social and business networking to the poor. Social capital is

concerned with the successful innovations of some MFIs, such as group lending (e.g., the Grameen Bank), and microfinance programs linked to education, female empowerment, and building social and business networks among the poor. Considering the importance of pre-existing social networks for the poor, this study includes 'local traditions' such as ROSCAs, and friendship and kinship lending, which have long provided financial services to the poor.

In the present study we define the role of MFIs as social intermediaries to improve the welfare of the poor[1]. Social intermediation is "a process in which investment is made in building up both human resources and social capital, with the aim of increasing the self-reliance of marginalised groups, and preparing them to engage in formal financial intermediations" (Edgcomb and Barton 1998, p.vii). Thus, the role of microfinance as social intermediation is the main framework of this study; social capital is seen as being linked to financial practices of MFIs, microfinance utilisation, and the impacts of microfinance on the welfare of the poor.

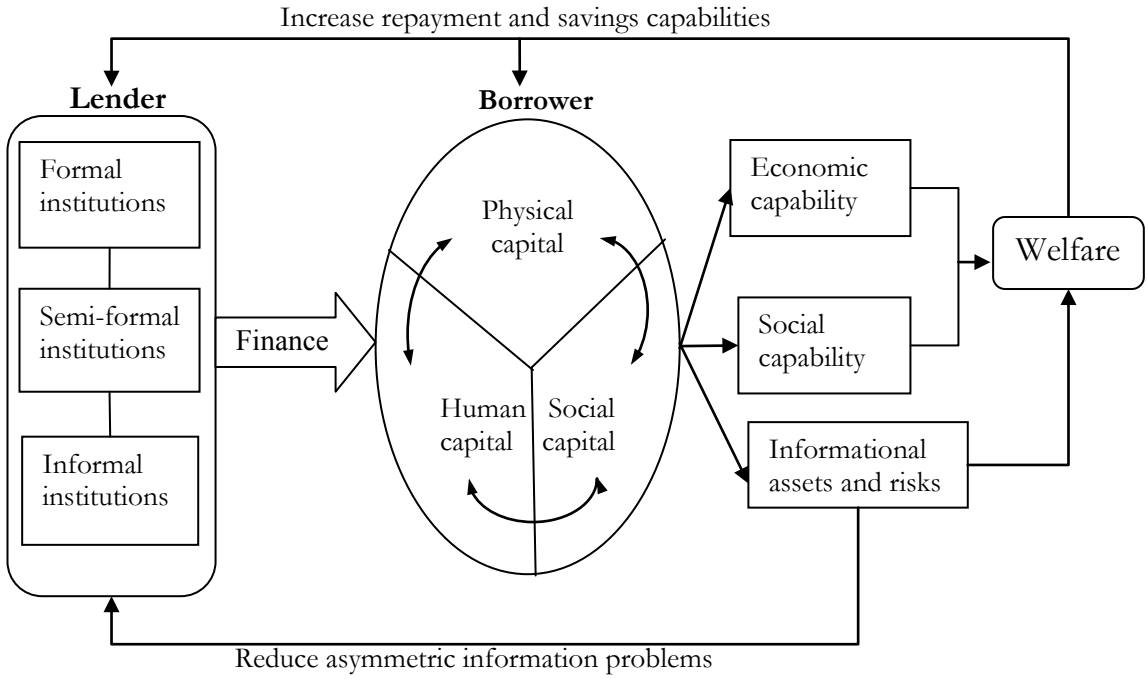
Figure 2.1 presents the extent to which social intermediation can improve the welfare of the poor. It shows that lenders comprise interlinked formal, semi-formal and informal MFIs. They channel microfinance services to the poor for the utilisation of physical, human and social capital. These three types of capital are linked to one another to support socioeconomic activities of the poor. For instance, loans can enhance the quality of human capital as they can be disbursed to finance children's education and better nutrition. Loans can facilitate the accumulation of physical capital (e.g., assets) by being utilised for productive purposes. Social capital can also be enhanced through stronger social and business networks, which lead to an increase in socioeconomic capabilities of the poor, and provide informational assets to MFIs. Informational assets are perceived to be vital for minimising the risks of lending to the poor. The ultimate outcome of social intermediation of microfinance is an improvement of the welfare of the poor. An increase in the welfare of the poor then benefits lenders through greater savings and repayment capacities of the poor.

While physical and human capital can be easily recognised (e.g., land and skills), social capital may take various forms such as trust, networking, norms and shared knowledge (see Putnam 1993, 1995). These elements of social capital, according to Fukuyama (1995), are embedded in local institutions such as ethnic, religious and business clubs. Moreover, Fukuyama (1999) states that social capital can aid any organisation to

[1] Here, welfare is defined as a set of basic functionings that comprise well-being (Sen 1992). Functionings refer to what a person is capable of doing, stemming from fulfilling one's basic needs, such as good nutrition and health, to higher levels of capabilities (e.g., being happy, self-esteem) (Sharif 1997).

effectively achieve its goals. As in Figure 2.1, strengthening social capital results in informational assets, which are perceived as important for MFIs in dealing with informational and enforcement problems of lending. Social intermediation can enhance the capacity of the poor to deal with microfinance practices for two reasons (Bennett 1996). Firstly, building up social capital through strengthening local institutions (e.g., ROSCAs and cooperatives) will improve the capacity of the poor to manage and control risks associated with financial intermediation. The utilisation of social capital through grouping poor borrowers, for instance, can facilitate intensive interactions among members, which are important for knowledge accumulation and generating mutual trust. Social interactions, thus, provide the poor with various opportunities to observe and learn from one another. They can also generate mutual trust that is vital for the decision-making processes within a group. For lenders, the strong network and trust in groups can reduce informational problems by means such as effective peer screening, monitoring, and sanctioning.

Figure 2.1 Social Intermediation of Microfinance



Source: Author's analysis

Secondly, the poor are seen as clients and not targeted recipients of microfinance services. In this respect, microfinance services should be designed through a demand-driven approach. To be client-based, MFIs should recognise the needs of the poor for social services, economic-related support services (e.g., managerial techniques), education of their children, basic nutrition and many other social activities, such as religious ceremonies and funerals. The aim is to enhance the capability of the poor to engage in various income-generating activities. Financial training is also needed to

strengthen the capacity of poor borrowers to perform financial task, such as basic organisational management, accounting and finance. This is critical as most poor borrowers lack knowledge of banking procedures, accounting and managerial practices (Edgcomb and Barton 1998). Thus, microfinance operations should go beyond lending practices to include building the socioeconomic capacities of the poor.

2.3 HETEROGENEOUS CHARACTERISTICS AND MARKET SEGMENTATION OF MICROFINANCE

The previous section has shown that microfinance is not simply associated with lending and borrowing. It is a complex phenomenon that links financial intermediaries with socioeconomic activities of the poor. From the supply side, microfinance providers comprise a wide array of institutions covering individuals providing loans to one another, moneylenders, ROSCAs, cooperatives, microbanks and many others. The objective of microfinance is not only to generate operational profitability but also to develop human and physical capital, as well as social capital of the poor. From the demand side, the utilisation of microfinance has many purposes, such as financing production, consumption, children's education, and supporting social-related activities. Thus, it is necessary for this study to investigate *Hypothesis* H_1, that the heterogeneous characteristics of clients and institutions lead to market segmentation in microfinance.

To delineate *Hypothesis* H_1, two aspects are closely examined in the present section. The first is the extent to which the heterogeneousness of microfinance clients causes MFIs to face informational and enforcement problems. This is to examine *Sub-hypothesis* H_{1A}, that the various motivations of the poor in utilising microfinance impose informational and enforcement problems on MFIs. Here, we also investigate that the accessibility of the poor to microfinance services is limited by social and kinship networks, low levels of education, income and assets. The second aspect is the extent to which market segmentation in microfinance can arise because MFIs do not have the same capability to overcome informational and enforcement problems. In this respect, we review *Sub-hypothesis* H_{1B}, that the capability of MFIs to deliver microfinance services is limited by geographical boundaries, operational scale and the high costs of gathering information about the creditworthiness of the poor.

As has been widely recognised, three main features characterise the microfinance industry. Firstly, from the supply side, a wide variety of MFIs co-exist, serving the needs of the poor for financial services. Secondly, diverse MFIs have different operational scale, objectives and lending methods for serving their clients. Thirdly, from the demand side, microfinance clients are heterogeneous with respect to education, income, assets, and motives for utilising microfinance services. This leads to the fact that despite various MFIs co-existing, microfinance clients, particularly the

poor, do not have the same access to all MFIs. The literature suggests that such heterogeneousness of clients and institutions leads to market segmentation in microfinance. As a result, interest rates are unlikely to be in *a unique equilibrium*, as suggested by market clearing models (Hoff and Stiglitz 1993, 1997; Aleem 1993; Meyer and Nagarajan 1999; Tsai 2004).

Following Stiglitz and Weis (1981), there has been a new theoretical understanding about the functioning of microfinance markets. This understanding emphasises informational problems faced by lenders and borrowers. For instance, as savers the poor face imperfect information problems in the form of high risks in the case of the bankruptcy of uninsured MFIs (Vogel, et al. 2000). A lack of microfinance advertising also constrains the poor from gathering information about borrowing procedures of MFIs (Aleem 1993, p.132). As information availability often goes along with interpersonal contacts, individuals with wider networks of interaction are potentially more capable of accessing microfinance services. In this respect, the failure of accessing microfinance can be recognised because the poor are excluded from social networks of the community. Many factors inhibit the poor from participating in community networks, such as low education and income, poor communication skills and minimal confidence in dealing with other people.

From the perspective of the lender, information about the creditworthiness of borrowers is critically important, because credit is a contract that exchanges money today for a promise of money in the future. As such, whether borrowers will honour loan contracts and repay their loans is uncertain. Originally, the Latin root of credit is *credere* which means "to believe or entrust" (Von Pischke 1991, p.41). Thus, the central issue in any lending contract is a matter of trust between lenders and borrowers that the contract will be honoured. For lenders, trust in credit depends on two elements: the honourable reputation of borrowers and their collateral (Guinnane 2005; Edgcomb and Barton 1998). Assessing reputation, based on information about the historical documents of borrowers' behaviour, may help lenders to value their creditworthiness. However, in microfinance markets, reliable information based on documented history is lacking because the poor often have inadequate financial records of their business. Consequently, lending to the poor leads to the high costs of gathering information, and processing loan applications. The second element of trust in credit is the presence of collateral. Collateral has a dual function of reducing costs to lenders in the case of default, and being an enforcement device to encourage loan repayments (Meyer and Nagarajan, 1999 p.30). Collateral can also reduce moral hazard problems by inducing incentives for borrowers to repay their loans (Udry 1993, p.88). However, as poor clients mostly have insufficient collateral, lenders face enforcement problems, leading to high risks of loan defaults. Thus, the major issue in

microfinance is associated with lenders facing informational and enforcement problems (Udry 1993, p.87).

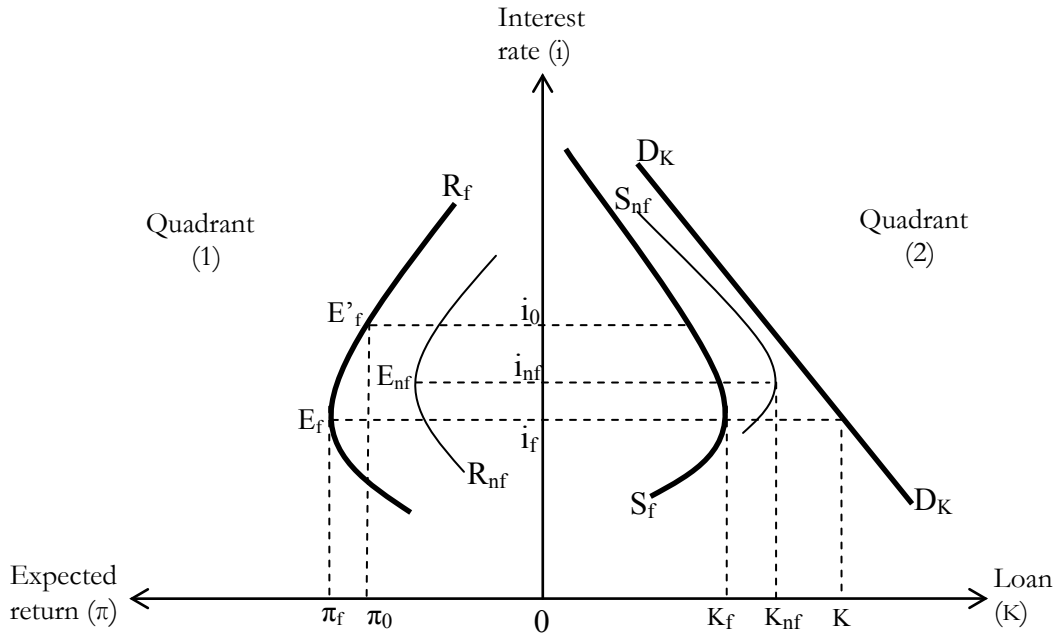
The question arises as to what extent informational and enforcement problems lead to market segmentation in microfinance. In order to overcome such problems, MFIs often utilise lending contracts that help to gather information about the creditworthiness of borrowers. According to Hoff and Stiglitz (1993, p.38), interest rates can be used to as an *indirect screening method* to select creditworthy applicants. Here, interest rates will be set below the level of "perfect information" to reduce risks of loan default. Microbanks set lower interest rates on loans than moneylenders, a practice that indicates the application of this method in microfinance markets. Hoff and Stiglitz (1993) point out that an increase in interest rates induces microbanks to face adverse selection effects as "safe" borrowers are crowded out from microcredit markets. They go on to say that the behaviour of setting lower interest rates leads to credit-supply rationing (Hoff and Stiglitz 1993, p.37). As such, microfinance markets are segmented, with different groups of borrowers facing different scenarios in terms of requirements for loans.

Jaffee and Stigitz (1990) identify three groups of borrowers in relation to interest rates charged by lenders. The first group is fully-served borrowers because they can provide lenders with relatively high returns on loans. The non-poor borrowers usually belong to this group, as they usually provide good collateral, appropriate business records, and stable income. The second group is marginal borrowers, of which some may obtain microbank loans, while others apparently identical cannot. Borrowers belonging to this group may be recognised as the not-so-poor or the better-off-poor. The third group is fully-rationed borrowers, whose return on loans cannot meet the minimum requirements of microbank loans at particular interest rates. The last group of borrowers comprise the (very) poor who mostly gain access to loans from informal MFIs (e.g., moneylenders).

Figure 2.2 describes the incidence of credit–supply rationing and the role of informal finance. It is worth noting that the presence of credit rationing stems from two basic assumptions (see Stiglitz and Weis 1981). The first assumption is that the demand for loan is a decreasing function of interest rates as shown by the downward slope of D_K. The second assumption is that the willingness to supply loans depends on expected returns on lending. Here, the relationship between expected returns and interest rates is assumed to follow a concave function, through which the expected returns on loan increase less rapidly than the interest rate. Thus there is a maximum level of interest rate charged by microbanks. This implies that interest rates beyond the maximum level (i_f) lead to a decrease in the expected returns on lending. As shown by the concave function of R_f, an increase in interest rates from (i_f) to (i_0) leads to a decrease in

expected returns to microbanks from (π_f) to (π_0). As a result, microbanks are only willing to supply loans up to the level where the expected return on lending can be maximised (E_f). Thus at the corresponding interest rate (i_f), the maximum amount of loan the microbanks are willing to supply is ($0K_f$). This leads to credit–supply rationing as the size of loans provided by microbanks (at $0K_f$) is below the market demand for loans amounting to (0K). As presented in quadrant 2 of Figure 2.2, the credit-supply rationing by microbanks can be measured by (K_f) to (K).

Figure 2.2 Credit–supply Rationing and the Role of Informal Finance



Source: Author's analysis

Credit–supply rationing by microbanks paves the way for informal MFIs (e.g., moneylenders) to provide loans to the poor. The supply of informal loans is presented by the curve S_{nf}. The level of interest rate that maximises the expected returns on informal loans is (i_{nf}). Thus interest rates at the level of (i_{nf}) results in an increase of loan supply to (K_{nf}), thereby reducing an excess demand for loans in the market from (K_fK) to ($K_{nf}K$). However, loan interest charged by moneylenders tends to be higher than that of microbanks. As shown in quadrant 2 of Figure 2.2, the interest rate charged by moneylenders is higher than the microbank interest rate ($0i_{nf} > 0i_f$).

The higher level of interest charged by moneylenders is because they need to spend more resources in order to overcome informational and enforcement problems. For instance, moneylenders often spend additional resources to frequently visiting the homes and workplaces of poor borrowers, so as to have close contact and interaction with them. Having frequent interaction with poor borrowers can help moneylenders screen creditworthy applicants, and thus minimise the risk of loan default.

Moreover, maintaining close relationships with poor borrowers also enables moneylenders to build a degree of monopoly power. This then leads to market segmentation in microfinance because to sustain such market power moneylenders may limit their scope of lending only to kinship groups, friendship-based loans and interlink loans with other forms of contracts (e.g., trade–credit linkages). Limited lending, such as trade–credit linkages, provides a degree of monopoly power to moneylenders because it constrains competition between them. Borrowers are discouraged from shifting to other moneylenders because they have been locked in to contracts, such as advance purchases of the growing crop. In friendship-based lending, moneylenders often provide loans only to those with whom they have close contacts, to create patron–client relationships. Moneylenders thus limit the entry of competitors into their market segment (Aleem 1993; Hoff and Stiglitz 1993, 1997). Such lending behaviour of moneylenders can thus result in high interest rates of loans, reducing the welfare impacts of informal microfinance services on the poor. This implies that the utilisation of social capital by informal MFIs can lead to greater access of microfinance services, but it has a little impact on the welfare of the poor.

2.3.1 Motives and Constraints of Poor People in Utilising Financial Services

We have recognised that market segmentation in microfinance arises because MFIs face informational and enforcement problems. To delineate further the underlining cause of such problems, this sub-section examines the literature broadly associated with *Sub-hypothesis* H_{1A}. Here two major aspects are emphasised. Firstly, we explore the literature linked to the extent to which various motives for using microfinance services can lead MFIs to face information and enforcement problems. We then examine the literature linked to various constraints that inhibit access of the poor to microfinance is limited by social and kinship networks, and low levels of education, income and assets.

The literature shows that microfinance clients are heterogeneous in many respects. In terms of income and motivations for using microfinance, Zeller et al. (1997) sub-divide microfinance clients into three groups. The first group is the "(very) poor" with incomes below the poverty line. This includes landless labourers in farm and non-farm activities, tenants, and micro/home enterprises. This group of poor clients is vulnerable (to absolute poverty) due to unstable income flows. They mainly utilise microfinance to smooth and protect consumption against unpredictable disturbances, such as sickness and natural disasters. The second group is the "not-so-poor", that is people having incomes above the poverty line. They include small landowners, petty traders, small-scale manufactures and low-level government officials. Having permanent incomes, this group of

clients utilises small loans to support production and consumption. The third group of microfinance clients is the "non-poor" people, such as owners of agribusinesses, landlords and small traders. Having greater incomes and entitled collaterals, they often demand microfinance to expand production and are potential clients of microbanks (see also Zeller 2003).

The above discussion suggests that the motives for utilising microfinance services can be simplified into two: financing production and smoothing consumption (see Matin et al. 2002; Meyer and Nagarajan 1999; Zeller at al. 1997; Hulme and Mosley 1996a; Morduch 1999a). The logic is that loans for productive purposes permit the poor to earn more income, facilitating asset diversification and accumulation (Matin et al. 2002). Loans for consumption smoothing can help the poor to moderate household financial distress due to sickness, death and harvest failures. However, the willingness of the poor to utilise microfinance often goes beyond production and consumption. According to Zeller et al. (1997), the utilisation of microfinance is also motivated by the willingness of the poor to improve the quality of human capital. Chowdhury et al. (1995) emphasise further that access to microfinance can improve the human capital of the poor by fulfilling the basic needs of nutrition and child education (see also Holvoet 2004; Khandker et al. 1998; Islam 2007).

However, this study emphasises that the demand for microfinance services are also motivated by the willingness to employ social capital. Maintaining kinship and friendship networks is critical, due to the limited capacity of the poor to engage in self-insurance. When incomes are low, for instance, the saving capacities of the poor diminish, leading to low asset holdings. According to Dercon (2002), the poor often fail to accumulate income surpluses for savings due to subsistence production. As a result, many poor people rely on social networks, participating in various informal risk-sharing activities (e.g., ROSCAs) and reciprocal lending among relatives, neighbours, and friends (Mosley and Rock 2004; Morduch 1999a; Zeller at al. 1997; Besley et al. 1993). Being involved in such informal financial arrangements, the poor utilise their social networks to access microfinance services. As De Weerdt (2002) reveals, the poor in rural Tanzania typically rely on informal risk-sharing with other poor households. Similarly, Mosley and Rock (2004) have found that the poor often obtain loans from friends and relatives to cope with emergency expenditure, such as medication and death. It is said that borrowing from socially close lenders can act as a "liquid insurance substitute" (Mosley and Rock 2004, p. 495).

Having heterogenous motives for utilising microfinance may not be a major issue for MFIs if the poor can consistently repay their loans. However, such heterogeneous motivations do impose informational and enforcement problems on MFIs through the 'interchangeability' of loan usage. Similar to with money, the use of loans is fungible or interchangeable

(Adam and Vogel 1986, p.66). For instance, the poor may utilise loans to finance production expansion. MFIs often encourage borrowers to utilise loans for productive purposes because these can generate more income, and hence minimise the probability of default. However, it is also very likely that the poor use loans for consumption. Loans for consumption are less likely to increase the income of poor borrowers, leading to a greater probability of loan default. Thus the interchangeability of loan usage by the poor can generate informational problems, as MFIs fail to gather information about whether loans are utilised to finance production or consumption. It also leads to enforcement problems because MFIs are unlikely to ensure the poor use loans only for productive purposes.

The presence of informational and enforcement problems lead to market segmentation in microfinance because MFIs do not have uniform abilities to overcome such problems. Microbanks often fail to deal with informational problems because their business operations are far from the social networks of the poor. According to Meyer and Nagarajan (1999, p.28), compliance with banking regulations, to some degree, also inhibits microbanks from providing "flexible" financial services favourable to the poor, such as having an informal approach and not requiring physical or monetary collateral. In contrast, semi-formal and informal MFIs (e.g., cooperatives and moneylenders) can serve poor borrowers, as they have fewer regulations and are operationally close to the social networks of the poor. Using informal approaches, for example, moneylenders can link microfinance services closely to the social networks of the poor. Being socially close to the poor, these MFIs can gather information about their creditworthiness and hence minimise the probability of loan default. This market specialisation then leads to market segmentation in microfinance, as diverse MFIs penetrate different market segments. While microbanks tend to focus on up-market segments (non-poor clients), semi-formal and informal MFIs serve the (very) poor and not-so-poor clients.

This study hypothesises that market segmentation is associated with a diverse degree of accessibility of the poor to finance. We argue that the heterogeneous character of microfinance clients implies that the poor are not homogeneous individuals in terms of accessibility to loans. For instance, inadequate transportation infrastructure requires the poor to spend more money and time to visit the distant offices of microbanks in order to apply for loans and make loan repayments (Meyer and Nagarajan 1999; Zeller 2003). The poor also face socio-cultural constraints in dealing with microbanks due to low levels of education and poor knowledge of banking procedures (Baydas et al. 1998). Moreover, insufficient collateral inhibits access of the poor to microbank loans. A lack of skills and entrepreneurship also lead the poor to be risk averse, and often unwilling to utilise microbank loans (Charitonenko et al. 2004).

The diverse degree of accessing microfinance services implies that a few poor people may be served by microbanks, but most are constrained. As has been emphasised in the previous section, this phenomenon is recognised as the poor facing credit rationing or constraints from microbanks. According to Izumida (2004), the term credit rationing refers to a condition in which unsatisfied loan demand exists because microbanks are unwilling to serve poor borrowers at given interest rates. This definition emphasises that credit rationing emerges from the supply side because microbanks cannot precisely observe the creditworthiness of the poor. Here, microbanks face informational problems because borrowers typically know more about the riskiness of their own projects. As has been emphasised above, the various motives of the poor in utilising loans plus the inseparability of production and consumption impose informational problems on microbanks. As a result, microbanks have little incentives to serve the poor.

Considerable research has investigated the extent to which the poor are exposed to credit rationing from microbanks. Feder at al. (1990) reveals that poor farmers with a small farmland tend to face access constraints on microbank loans. The poor whose the main source of income is from agriculture encounter greater problems of credit constraint than those with non-farm sources of income. They are also exposed to credit constraints from microbanks due to low savings and cash balances. Similarly, Siamwalla et al. (1993) argue that access of the rural poor to formal loans decreases corresponding to a decline in income and ownership of assets. In more recent studies, Senanayake and Ho (2002) have shown that households with higher income tend to have more access to bank loans in Vietnam. Similarly, Duong and Izumida (2002, p.333) have found that access of the poor to bank loans is constrained by low levels of education, income, and physical asset holdings. Moreover, the remoteness of rural areas is another obstacle of the poor to microbank loans (Datta 2004; Mushinki and Pickering 2004).

The literature above demonstrates that access of the poor to microfinance is limited by a lack of productive capital. This study, however, argues that access to microfinance is not only associated with the poor lacking physical capital, such as insufficient assets, but also the low capacity of the poor to utilise social networks. In this regard, the present study hypothesises that accessibility of the poor to microfinance is limited by social and kinship networks, low levels of education, income and assets *(Sub-hypothesis H_{1A})*. As has been widely observed, low income and assets can lead the poor to be recognised as "unsafe" borrowers. The reason for this is that low levels of income and assets mean that the repayment capability of the poor is vulnerable to any unpredictable shocks, such as sickness, death, and harvest failures. Moreover, low levels of education and communication skills also lead the poor to lack confidence in participating

in community organisations. As a result, they often fail to expand into networks that would give them access to microbanks. In Section 2.4 we explore further the extent to which the utilisation of social capital can assist the poor to overcome credit constraints from formal MFIs.

2.3.2 HETEROGENEOUS MICROFINANCE INSTITUTIONS

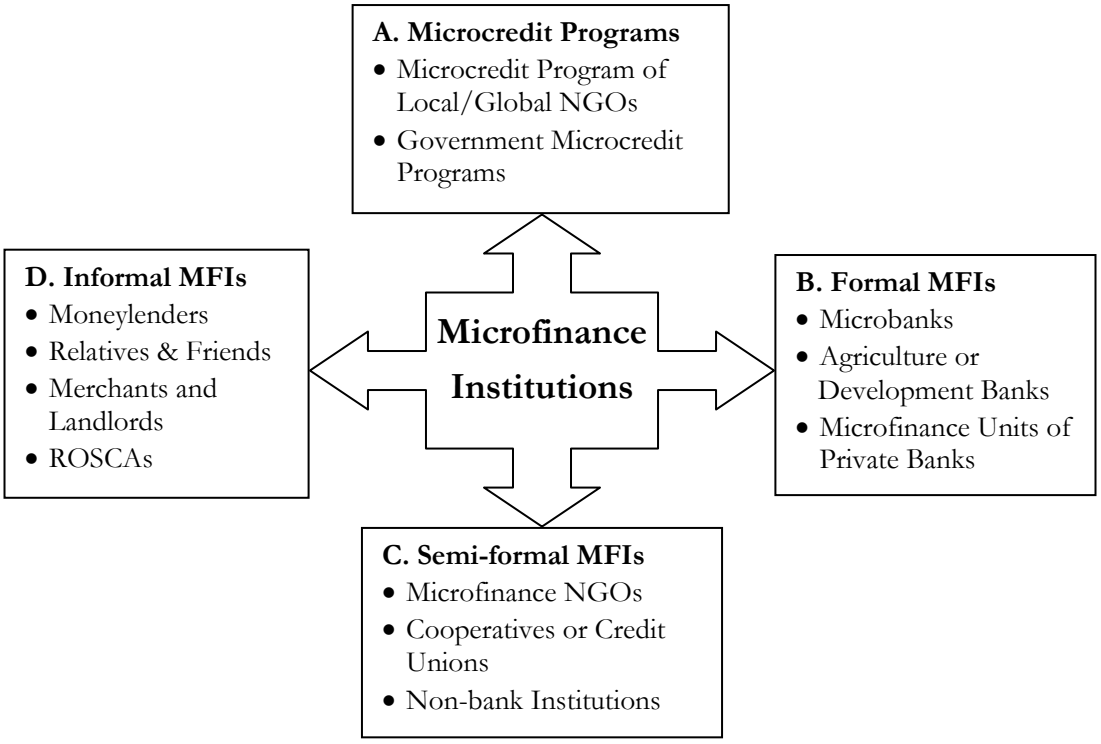
In the previous sub-sections we have reviewed material on how market segmentation arises because various motives for utilising microfinance lead MFIs to face informational and enforcement problems. In this sub-section, we explore the literature relating to *Sub-hypothesis* H_{1B}, that the capability of MFIs to deliver microfinance services to the poor is limited by geographical boundaries, operational scale and the high costs of gathering information about the creditworthiness of the poor. Because microfinance providers have different capabilities of overcoming such constraints, this contributes to market segmentation in microfinance. For instance, microbanks often fail to gather information about the creditworthiness of the poor as their business operations are far from the social networks of the poor. As a result, microbanks prefer to serve non-poor clients because they can provide collateral. In contrast, moneylenders can overcome informational problems of lending to the poor through living and working in villages. However, they fail to serve non-poor clients due to their limited lending capacity. Thus, microfinance markets are segmented as diverse MFIs penetrate different market segments.

The literature shows that the microfinance industry encompasses a wide array of institutions covering moneylenders, cooperatives, ROSCAs, microbanks, private banks, microcredit programs, and the like. These MFIs diverge with respect to operational scale, geographical coverage, ownership structures, business methods, and objectives in delivering financial services to the poor. While some MFIs have a single motive of achieving profitability (e.g., microbanks, moneylenders), others seek to fulfil socioeconomic objectives of serving the poor, for example reciprocal lending among friends, relatives and neighbours, ROSCAs, and microcredit programs. Moreover, MFIs also operate within different legal structures. Figure 2.3 sub-divides MFIs into four types of institution: microcredit programs, formal, semi-formal, and informal institutions. Formal MFIs refer to those that operate under banking supervision and regulation, such as microbanks and microfinance units of private banks. The microfinance services of semi-formal MFIs are subject to relevant laws, but they are excluded from banking supervision and regulation (Satta 2003). They include local-government credit institutions, NGOs, and cooperatives. Informal MFIs operate without a formal legal structure, such as lending among relatives, friends, and neighbours, moneylenders and ROSCAs. In addition to formal, semi-formal and informal MFIs, microcredit programs exist, providing financial services to the poor. They include donor-funded

microfinance programs and government credit schemes (Ledgerwood 1999; Schreiner 2000; Satta 2003).

Microcredit programs have long been utilised by governments of developing countries to alleviate poverty. Most microcredit programs are subsidised, due to the high costs and risks of lending to the poor. Funding subsidies are drawn from the government budget, and soft loans from international donors (e.g., Asian Development Bank, the World Bank). In practice, such financial supports can take the form of interest rate subsidies, administrative supports to loan providers, loan forgiveness programs, and the like (Meyer and Nagarajan 1999; Adam and Vogel 1986). Non-governmental organisations (NGOs) have also taken substantial action in microcredit programs across developing nations. Similar to the government programs, microcredit NGOs deliver subsidised loans to poor people.

Figure 2.3 The Heterogeneous Microfinance Institutions



Source: Author's analysis

In Indonesia, however, NGOs play a lesser role than the government in promoting microfinance programs. The vast majority of microfinance NGOs in Indonesia consist of small and unstable organisations, dependent heavily upon government or donor funds (Charitonencko and Afwan 2003; ProFI 2005). In contrast, most microcredit programs in Indonesia are administered by local and national government institutions. In 2003, for instance, government credit programs allocated US$1.8 billion funds to poverty alleviation programs, most of which had microcredit components. The major microcredit programs at the national level include the Family

Welfare Income Generation Projects, Microfinance Institution Programs and Women's Empowerment Projects (ADB 2003; Charitonenko and Afwan 2003). Most programs are delivered to the poor through cooperatives and government-owned institutions. Many observe that most government credit programs have high loan defaults (Martowijoyo 2007; Charitonenko and Afwan 2003; ProFi 2005).

The main formal MFIs are microbanks, development/agricultural banks and microfinance units of commercial banks. The financial authorities of many developing countries often give a special license to microbanks who specialised in microfinance services, such as people's credit banks e.g., *Bank Perkreditan Rakyat* (BPRs) in Indonesia, the Philippines Rural Bank, Nigerian Community Bank, Ghanaian Rural Bank, and Chinese Rural Credit Cooperatives (CGAP 2004). Many developing nations have also established state-owned development or agricultural banks to deliver subsidised credit schemes to poor people. In Thailand, for instance, the Bank for Agriculture and Agricultural Cooperatives (BAAC) was set up in 1966 to deliver microcredit programs to poor farmers. Similarly, the introduction of the Vietnam Bank for Agricultural Development (VBARD) in 1992 aimed to provide subsidised credit schemes to the rural poor.

Since the late 1990s, commercial banks have also actively engaged in microfinance services through microfinance units to serve small-scale clients (Baydas et al. 1997). For instance, the largest private bank in Sri Lanka, the Hatton National Bank Limited (HNBL) began to establish microfinance services in the late 1990s. The State Bank of India has provided microcredit schemes by establishing self-help groups for poor borrowers. In the global context, in 1998 the Deutsche Bank set up the Microcredit Development Fund to support the microfinance movement. The Dexia Bank has the same function, to promote the microfinance industry across developing countries by a microfinance foundation called the Blue Orchard. ABN AMRO, with collaboration from Accion (an international NGO) has also established ABN Real *Microcredito* to engage in microfinance business in Brazil (Ferro 2005).

Formal MFIs are, however, different with respect to ownership, operational scale and business methods. In terms of ownership, the majority of private banks and microbanks belong to private individuals. Some microbanks are owned and controlled by local governments and NGOs. Development or agricultural banks usually belong to regional or national governments. Considering business methods, the majority of formal MFIs in Indonesia lend to individual borrowers, such as BRI-units and BPRs. Others such as the State Bank of India, BancoSol in Bolivia, and BAAC in Thailand engage in group-lending methods. In terms of operational scale and capitalisation, microbanks are small compared to private banks and development banks. Being commercial entities, however,

these MFIs have the same objective of achieving profitable operations. The single objective of profitability has raised the question of whether the financial services of formal MFIs are well-suited to the social mission of microfinance. This study hypothesises that the profitability focus can reduce the capacity of formal MFIs to serve the poor. This may be true in that the achievement of profitability can lead formal MFIs to increase the size of loans beyond the reach of the poor, thereby reducing the outreach function of microfinance. Such a tension will be discussed further in Section 2.7.

Although formal MFIs, such as microbanks, have greater operational scale and business acumen, they often have operational difficulties, due to being socially distant from the poor. Recalling *Hypothesis* H_1, heterogenous operational characteristics of clients and institutions lead to market segmentation in the microfinance industry, we note that diverse MFIs have different capacities of overcoming informational and enforcement problems. The formal banking procedures of microbanks are incompatible with the needs of the poor for informal methods of borrowing. Lending small amounts to the poor also leads to diseconomies of scale due to the high costs of managing such loans (Zeller and Johannsen 2006). Microbanks thus prefer to serve non-poor borrowers rather than the poor, as the former provide collateral to secure their borrowing. According to Hoff and Stiglitz (1993, 1997), the loan supply is thus rationed in microfinance markets as microbanks are unwilling to serve the poor (see Figure 2.2 in previous section). This study, however, hypothesises that the presence of credit-supply rationing tends to result in market segmentation in microfinance as semi-formal and informal MFIs (e.g., cooperatives and moneylenders) take up the role of serving the poor. These MFIs are more capable of serving the poor than microbanks because they are operationally close to the social networks of the poor. Exclusion from banking supervision and regulations also leads cooperatives and moneylenders to be more flexible in serving the poor. In this study we place an emphasis on these MFIs because they have long provided microfinance services to the poor in Indonesia. However, loans from moneylenders are said to be exploitative, as interest charged on loans are high, depressing the low income of poor borrowers (Meyer and Nagarajan 1999, p.27)

Originally, the notion of cooperative was developed in Germany by Frederich Wilhelm Raiffeisen in the 1840s and Herrmann Schulze von Delitzsch in the 1850s (Guinnane 2001). It was motivated by their altruistic efforts to reduce the reliance of the poor on moneylenders (Guinnane 2001; Zeller 2003). Since the 1980s, however, cooperatives have rapidly grown across developing countries, being an important source of financing for the poor (Hollis and Sweetman 1998). According to CGAP (2004), cooperatives alone contribute 5 percent of the total microfinance portfolio in developing countries. According to Krahnen and Schmidt (1995),

cooperatives are favourable to the poor as they act as self-help support mechanisms against a lack of access to formal finance. The financial services of cooperatives are also well-suited to the needs of the poor for non-collateral loans, simple borrowing procedures, and informal approaches. As a result, cooperatives can link business operations with the social networks of the poor. Having close networks with the poor can minimise loan defaults through the operation of peer monitoring and sanctions. Because a loan default of one member reduces access of other members to loans, an incentive is created for cooperative members to voluntarily monitor the repayment habits of borrowers.

Similarly, when cooperative borrowers consider the norms of friendship and solidarity, they are encouraged to repay their loans. Thus, social capital in the forms of friendship, solidarity and reciprocity play a critical role in the functioning of credit cooperatives (see Guinanne 2001). Having close linkages with social networks enables credit cooperatives to overcome informational and enforcement problems of lending to the poor. However, having small-scale operations, cooperatives are unlikely to serve the non-poor who demand for larger loans. This supports this study's hypothesis that the expansion of MFIs to deliver microfinance services is limited by operational scale and the cost of gathering information about the creditworthiness of the poor.

Two types of informal MFI are reviewed in this study: moneylenders and rotating savings and credit associations (ROSCAs). The financial practices of moneylenders have been intensively studied, among others, by Stiglitz (1990, 1993), Aleem (1993), Hoff and Stiglitz (1993, 1997), and La Ferrara (2003). Moneylenders are found to be of two types: commercial and non-commercial. Relatives, neighbours and friends providing loans to one another are examples of non-commercial moneylenders. Non-commercial moneylenders usually discount interest rates on loans because their main objective of lending is not to gain financial profits. Rather, the norms of reciprocity are considered through which lenders expect to gain similar loans from borrowers in the future (Zeller 2003; La Ferrara 2003; Robinson 1997). The norms of reciprocal obligation also play a role in enforcing loan repayments through moral sanctions (e.g., social exclusion). Poor borrowers consider the long-term benefits of friendships, and hence have an incentive to repay their loans. This indicates that social capital in the forms of mutual trust, friendship and reciprocity underpins lending provisions among relatives, neighbours and friends. However, the negative impact of such informal loans on poor borrowers is that a failure to honour repayments can lead to social exclusion, gossip and humiliation.

The literature generally finds that commercial moneylenders charge high interest rates on loans to obtain substantial returns on capital (see Zeller 2003; Meyer and Nagarajan 1999; Robinson 1997). In practice, moneylenders often lend money to persons they have enough information

about vis-à-vis their creditworthiness. Moneylenders tend to maintain close contacts and friendships with poor borrowers, so that information about their ability to repay loans can be gathered. The long-term friendships can then develop into patron–client relationships between moneylenders and their poor customers. In such relationships moneylenders can design loan contracts that most likely result in positive returns. Potential punishments, such as financial exclusion for loan defaulters, also reinforce the patron–client relationship between moneylenders and poor borrowers (Aleem 1993). Moneylenders often link loans with other complementary transactions, such as commodity and labour utilisation contracts. In a trade–credit linkage, for instance, moneylenders provide loans to poor borrowers in exchange for the right to purchase the growing crop. The aim is to minimise the risk of loan defaults and secure commodity supplies at reasonably low prices. However, such trade-credit linkages can be exploitative to poor borrowers. This is the case as moneylenders can set the price of the tied crops well below market prices, in order to generate high repayments. Thus, such low prices reduce the potential income of poor borrowers.

As well as borrowing from moneylenders, poor people have long established self-help financing from rotating savings and credit associations (ROSCAs). ROSCAs can be seen as collective action in the face of inadequate access to finance. This informal financial arrangement remains an important source of financing to the poor across developing countries[2]. In practice, ROSCAs have various types of operations. In 'random ROSCAs', the members pool a fixed amount of money into a 'pot' for each period. Then the pot is drawn randomly in favour of one of the members. In the next period, the process is repeated and the previous winning member is allocated finance and hence excluded from the draw. The process will end when all ROSCA members have obtained finance from the pot. In 'bidding ROSCAs', the process is similar to that of random ROSCAs, except one member can obtain financing earlier by contributing more money than other members. Therefore, ROSCAs are primarily akin to savings, as money is saved for future consumption often on durable goods. They cannot be seen as providing an insurance against unpredictable risks because winning the pot may not be coincident with the members having financial difficulties (Besley at al. 1993).

The willingness of poor people to participate in ROSCAs goes beyond profit-oriented motives. Rather, they seek to maintain close relationships with relatives, neighbours and business associates. As membership rule of ROSCAs is voluntary, mutual trust and friendship underpin their

[2] ROSCAs operate under different names in different countries, such as *Cheetu* in Sri Lanka, *Chit fund* in India, *Susu* in Ghana, *Tontines* in Senegal, *Njangis* in Cameroon, *Pasanakus* in Bolivia, *Hui* in Taiwan, *Kye* in South Korea, and *Arisan* in Indonesia (Besley et al. 1993; Levenson and Besley 1996).

functioning. This implies that ROSCAs contribute to social capital, such as by strengthening social trust, kinship and friendship networks, and stimulating the norms of reciprocity among poor people. It has been found by Beasley et al. (1993) that ROSCA membership is mostly among those who know each other well, such as people within kinship groups, neighbourhoods, and co-worker associations. As such, the operational scale of ROSCAs tends to be small. However, they can minimise the risk of loan default through the workings of self-selection mechanisms in forming ROSCA agreements.

According to Zeller (2003), ROSCAs can minimise informational problems by exploiting face-to-face connections to effectively select good rather than bad members. Reliance on close social networks can also generate moral sanctions such as social exclusion for loan defaulters, thus inhibiting the members from behaving opportunistically (Zeller 2003; Besley at al. 1993; Levenson and Besley 1996; Ardener 1964). However, such informal microfinance services have a negative impacts on poor borrowers through which a failure to repay such loans can lead them to face social exclusion. This can be the case as in the dense networks of interaction and communication loan defaulters are unlikely to avoid negative gossip, humiliation and loss of reputation within the community.

Unlike microbanks, semi-formal and informal MFIs, such as cooperatives and moneylenders can overcome informational problems because their business operations are close to the social networks of the poor. The financial services of cooperatives and moneylenders are also well-suited to the needs of the poor for non-collateral loans. Informal methods of borrowing enable these MFIs to build personal relationship with the poor. However, cooperatives and moneylenders are unlikely to serve non-poor clients demanding larger loans, due to the small-scale of their operations and the limited funds available for lending. The loans of these MFIs tend to be small because they are legally restricted from engaging in savings mobilisation. Thus, the literature suggests that the heterogeneous characteristics of MFIs lead to market segmentation as diverse MFIs penetrate different market segments. While formal MFIs (e.g., microbanks) focus on providing larger loans to non-poor clients, semi-formal and informal MFIs, such as cooperatives, moneylenders and ROSCAs, concentrate mainly on poor clients. This aspect of microfinance is therefore critical to our own hypotheses and the empirical scrutiny of the situation in parts of Indonesia.

2.4 SOCIAL CAPITAL AND MICROFINANCE

The present section seeks to critically review the literature associated with *Hypothesis* H_2, that social capital is an important factor in microfinance. To delineate this general hypothesis, three sub-hypotheses are proposed. The first is *Sub-hypothesis* H_{2A}, that social capital in the form of friendships,

mutual trust and reciprocity underpins lending and borrowing among relatives, neighbours and friends. The second is *Sub-hypothesis* H_{2B}, that social and business networks increase the access of the poor to microfinance. The third is *Sub-hypothesis* H_{2C}, that lending provisions and the development of social networks among the poor contribute to loan performance of MFIs. In investigating these hypotheses, we begin by reviewing the literature of social capital. Then we scrutinise the role of social capital in the context of microfinance.

2.4.1 Social Capital in the Forms of Trust and Social Networks

Social capital is a multifaceted concept encompassing various aspects of civic engagement, such as interpersonal interaction, communication, networks, trust, norms, beliefs, religion and the like. Hanifan (1920, p.78), for instance, defines social capital as "intangible assets [that] count for most in the daily lives of people: namely goodwill, fellowship, sympathy, and social intercourse among individuals and families who make up a social unit". According to Loury (1977, 1987), social capital is a set of resources emerging within family and community relationships that is important to the cognitive development of young persons and the accumulation of human capital. Bourdieu (1986, p.248), refers to social capital as "the aggregate of actual and potential resources which are linked to the possession of durable networks of more or less institutionalised relationships of mutual acquaintances or recognition". Coleman (1988, 1990, p.302) emphasises that the value of social capital can be identified by the functioning of social relationships in the achievement of individual or group interests.

Putnam's widely cited definition of social (1993 p.67) is "features of social organisation such as networks, norms, and social trust that facilitate coordination and cooperation for mutual benefit". Unlike physical and human capital, social capital is not individual property. It is worthwhile only when it is shared with others through communication and interaction (Grootaert and van Basterlaer 2002). Although social capital can be an individual possession such as trustworthiness, a trustworthy person has meaningful value only in the context of relationships. The importance of interrelationship is emphasised further by O'Hara (2006) who defines social capital as a durable process of communication and interaction within the community that can establish and promote networks, trust, social obligation and practices.

According to O'Hara (2007), however, social capital can also produce conflict and tension to varying degrees in the community. This is the case when different levels of communication, trust, and power lead to unequal distribution of social capital within and between classes, ethnic groups, and genders. It is said that many conflicts between ethnic majority and minority

groups are based on stronger skills, more powerful networks and more effective communication of the majority over the minority. Streeten (2000) refers to anti-social capital through which strong network and trust within and between groups of individuals can be utilised for negative purposes, such as, in abusive power of majority over the minority, mafia, Ku Klux Klan, illicit drug and crime organizations (see also Fine and Lapavitsas 2004, p.27).

These definitions of social capital highlight the importance of trust and association among individuals within social networks. Interpersonal relationships are well known to be the essential element of business networks. Burt (2005), for instance, points out that having wider-ranging personal contacts can lead to better networking access to economic resources. According to Loury (2000), having access to key economic resources can stimulate social networks for the community. Having wider networks thus allows connected individuals to receive support and information as an effective enforcement tool to strengthen group cooperation (Streeten 2000). These networks can also facilitate the accumulation of knowledge as individuals can learn from one another (Collier 2000). Moreover, individual(s) who can connect to two or more networks will likely benefit from accessing various types of information (Quibria 2003). Burt (2005) refers to this as the role of "information brokerage" in terms of early access to various information flows. An informational broker is an entrepreneur who invests resources, time, and sociability to develop networks across different groups, to gain benefits from obtaining and controlling such information.

Trust has also been a fruitful subject of study for various disciplines, because it has a moral foundation that makes social life possible (Weber and Charter 2003). However, concepts of trust are debated among scholars. For supporters of the individualistic approach, trusting others makes sense only if it is based upon available information, expectations and predictions. In this approach, then, trusting strangers is impossible. The economic concepts of trust are associated with the individualistic approach.

In contrast, according to the moralistic approach, trusting strangers remains possible if it is based upon the moralistic values of the community. In most communities, the moral values of egalitarianism, honesty, and acceptance require people to share common values with others, including strangers. Consequently, if people take these values into account in their social life, trusting strangers is not overly risky. Even if they do not have enough information about the trustworthiness of others, people need to have potentially positive views of strangers (Uslaner 2002). Similarly, Weber and Charter (2003) emphasise that trust is a product of social interactions. Trust as a social phenomenon "emerges from and maintains itself within the context of social interaction of everyday people" (p.1). Trusting others is thus "the belief that others will take one's perspectives into account when

making a decision and will not act in ways to violate the moral standard of the relationship" (p.3).

Parallel to moralistic trust, societal-based trust is the property of the community in which individuals are involved in, contribute to and gain benefits from a culture of trusting (Delhey and Newton 2002). The community affects mutual trust among individuals through two mechanisms. Firstly, face-to-face contacts among members within and across voluntary organisations can build mutual trust through the norms of reciprocity, egalitarianism, and friendship. Thus, a society characterised by an abundance of voluntary association is more likely to produce high levels of social trust. Secondly, however, the availability of voluntary organisation as a medium of generating trust is too narrow for understanding the complexity of interpersonal relationships among individuals. Indeed, trusting behaviour emerges as a result of individual participation in various networks of everyday life, including participation in relationships among families, neighbourhoods, and other community structures. In short, societal-based trust comes from generalised norms of morality (e.g., reciprocity, loyalty, and friendship) embedded in the socio-economic networks of the community (Lyon 2002; Heldey and Newton 2002; Foley and Edwards 1997). From the economic point of view, such networks can build mutual trust which is critical for any economic transaction under conditions of unequally distributed information. They can minimise uncertainty due to reduced opportunistic behaviour of others (moral hazard problems) (Fukuyama 1995).

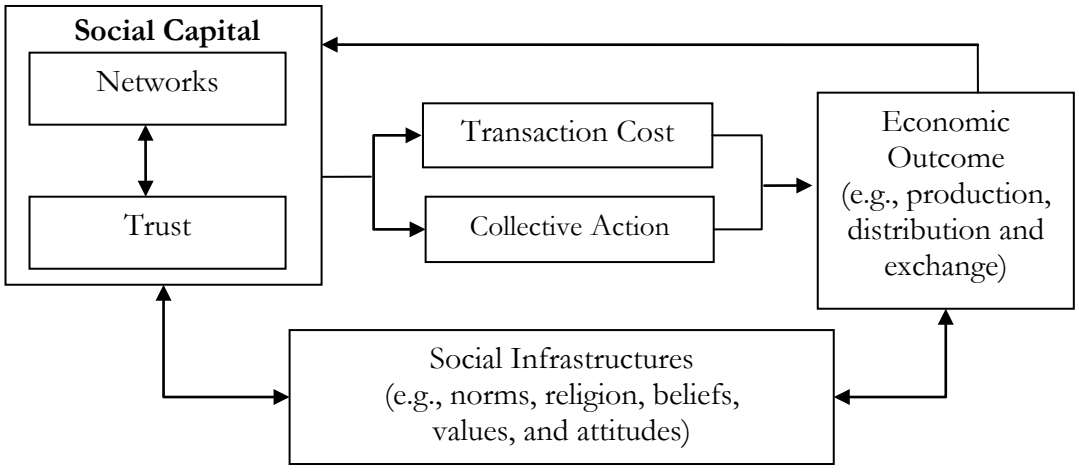
The above review shows that behaviour based on trust and networks embedded in the community are the key ingredients of social capital. People are willing to have close contacts and friendships because they believe that others will behave in a relatively predictable manner. Thus, the present study defines social capital as the interlinking of social trust and networks embedded in the community that enable connected people to achieve their socioeconomic goals (see Figure 2.4). However, the workings of social capital in contributing to economic outcomes are influenced by social infrastructure, such as norms, religion, beliefs, and the like.

In contrast to Putnam (1993), in our definition of social capital norms are not the key component of social capital; rather, they facilitate the role of trusting and networking in the construction and reproduction of social capital. Thus, norms are better seen as a component of social infrastructure, facilitating trust and networks within the community. For instance, when the norms of acceptance, friendship, and egalitarianism are strong in a community, they can help people develop mutual trust and networks. Similarly, trust and networks across different religions can be strong when religious members consider the norms of tolerance. However, if the religious majority fail to be tolerant, it is likely that they will depress religious minorities, and diminish their access to opportunities and power in

a community. Thus, we follow Dasgupta (2002) in recognising that building social capital is a matter of creating mutual trust and strengthening networks, which are, in turn, influenced by religion, beliefs and norms embedded in the community.

Figure 2.4 presents the circular linkages between social capital, social infrastructure and economic performance. Social capital contributes to economic outcomes through its ability to sustain the cooperation and reduce the transaction costs involved in production, distribution and exchange. At the same time, an improvement in economic outcomes can facilitate social capital accumulation, when these outcomes are characterised by relatively equal distributions of power and income among community members. As Rothstein and Uslaner (2005) point out, communities with relatively egalitarian distributions of income tend to have greater trust among community members. According to Dasgupta (2002), individuals are willing to engage in cooperation for three reasons. Firstly, individual agents are willing to sustain long-term cooperation because they care about one another. If agents are cognisant of such caring behaviour, they will tend to trust one another. When agents behave honourably, monitoring costs are lower due to a low level of moral hazard. Secondly, individuals will sustain their obligations because violating an agreement may lead to social exclusion. For instance, being regarded as dishonourable may result from violations of an agreement. Thirdly, repeated transactions resulting from long-term business relationships can be self-enforcing in sustaining agreements. As individual agents are able to observe one another's behaviour, outside parties are less needed to enforce agreements, thus reducing transaction costs.

Figure 2.4 Circular Linkage between Social Capital and Economic Performance



Source: Adapted from O'Hara (2007, forthcoming)

The functioning of social capital in microfinance has been substantially investigated in the context of group lending methods (the Grameen Bank model). It is said that group lending can help MFIs to overcome informational and enforcement problems for two reasons. Firstly, social interaction can reduce informational problems through the self-selected mechanism in forming the group. Within a dense network of interactions community members can help recognise the creditworthiness of one another. Hence, they will select themselves, into a relatively homogeneous group of low risk borrowers (Gathak 1995). Secondly, group lending methods can overcome informational and enforcement problems through peer pressure and sanctions (e.g., Stiglitz 1990; Varian 1990; Rashid and Townsend 1992; Besley et al. 1993; Armendariz de Aghion 1999; Armendariz de Aghion and Morduch 2005; Wydick 1999, 2001). Social capital is thus a form of social collateral through which peer pressure and social sanctions encourage the repayment discipline of group members. As Besley and Coate (1995) argue, group lending will be disadvantageous without the presence of strong social sanctions. Varian (1990) emphasises that the main benefit of group lending is peer guarantees and pressure in the face of risks faced by lenders. As Karlan (2007, p.F79) reveals, social capital in the form of connected members underpins the functioning of group monitoring.

The present study, however, hypothesises that in microfinance social capital plays the role not only in the context of group lending methods, but also in lending to individual borrowers. This study also emphasises that social capital can contribute to the poor having greater access to microfinance. Hence our general hypothesis is that social capital plays an important role in microfinance *(Hypothesis H_2)*. To investigate this hypothesis, two critical questions are raised. The first is to what extent social capital in the forms of trust and social networks facilitates the access of the poor to microfinance. The second is to what extent social capital contributes to the performance of lending methods to individual borrowers. The following sub-sections explore the literature concerning these two issues.

2.4.2 SOCIAL CAPITAL AND ACCESS OF THE POOR TO MICROFINANCE

The present sub-section investigates the literature associated with the extent to which reciprocal lending among relatives, neighbours and friends may not be strongly affected by specific characteristics of lenders and borrowers, such as income, education, gender and occupation (*Sub-hypothesis H_{2A}*). Instead, social-capital-related factors, such as friendships, mutual trust and reciprocity, are generally considered as more important than specific individual characteristics in influencing the willingness to provide loans to others. Such reciprocal lending, it is hypothesised, benefits the poor by acting as self-help mechanisms against a lack of access to formal

finance. The poor engage in self-help financing also because they seek to maintain kinship, friendship and neighbourhood, which is perceived useful to insure their vulnerable incomes (Kantor and Nair 2003).

Many unpredictable factors can trap the poor in persistent poverty, such as sickness, death, economic crises, natural disasters and the like. Economic crises and natural disasters, for instance, can reduce production profit and income. Sebstad and Cohen (2001, p.48) demonstrate that religious and cultural ceremonies can also lead to household financial distress, especially when they are not financially anticipated. Being involved in such events is vital for the poor to maintain neighbourhoods, friendships and sociability. Failure to participate in social activities can lead to alienation, in which the poor are excluded from access to resources and power. This indicates that such cultural events as a product of social capital may have a potential negative impact on the poor.

The poor employ various strategies to cope with external shocks, including income diversification, multi-crop farming, physical savings (e.g., raising livestock), and the like (Dercon 2002). Concerning social capital, this study examines efforts by the poor to maintain social and business networks, such as through reciprocal lending among relatives and friends, ROSCAs and business organisations (e.g., farmers' association). Membership in such community organisations can facilitate access to loans from others, perceived vital to finance emergency expenditures on things such as medication and funerals.

Reciprocal lending among relatives, neighbours and friends is common for the rural poor throughout developing countries. They often engage in self-help support mechanisms against a lack of access to finance. As Duong and Izumida (2002) point out, poor farmers in rural Vietnam consider loans from relatives and friends an important source of financing. In Indonesia Johar and Rommohan (2006, p.28) calculate that informal finance (e.g., loans from friends, relatives, ROSCAs and moneylenders) constitutes 31 percent of the borrowings of the poor. Elsewhere, La Ferrara (2003, p.17) reports that in Ghana loans from relatives and private non-moneylenders account for 67 percent of rural borrowings. However, many microfinance scholars often overlook such reciprocal lending because it is informal, unstructured, and generate a relatively small amount of loans. They also pay little attention to reciprocal lending as it is said to be unlikely to develop into "modern" MFIs. In contrast, we take into account reciprocal lending in this study because it is an alternative source of self-financing used by the poor.

The benefit of gaining access to loans from socially close lenders (e.g., friends, relatives and neighbours) is that such loans are often available without physical collateral. Loans from socially close lenders are undertaken on the basis of friendship and reciprocity. Socially close lenders do not maximise financial benefits (e.g., profit), as loans often carry zero or

minimal interest rates. Instead, the norms of reciprocity are considered, through which the socially close lenders expect to obtain similar loans from borrowers in the future. Borrowers are unlikely to violate such loans because they recognise that loan defaults can create moral punishments, such as gossip and social exclusion. In dense networks of interaction, the injured lenders can inform the public about defaulters and thus tarnish their reputation. From a social capital perspective, maintaining kinship and friendship networks is thus perceived vital for the poor, in order for them to gain access to loans from socially close lenders. Thus it is rational to hypothesise that lending and borrowing among relatives, neighbours and friends are not strongly affected by individual characteristics of lenders and borrowers. If social-capital-related factors are examined, individuals' decisions to provide loans to others are more likely affected by the norms of friendships, social trust and reciprocity.

The literature shows that the poor face credit rationing because microbanks are exposed to enforcement problems due to the poor's lack of collateral (Hoff and Stiglitz 1993, 1997). However, the present study hypothesises that the problem of credit rationing can also arise from the demand side. As Boucher et al. (2005) reveal, many creditworthy borrowers do not apply for microbank loans because, were they to default, they might lose their precious collateral (e.g., farmland). According to Dufhues and Buchenrieder (2005), the poor are often unwilling to utilise microbank loans due to their lack of knowledge of banking procedures. Moreover, the poor are discouraged from utilising bank loans because the transaction costs of borrowing are too high, due to complicated borrowing procedures (Mushinski and Pickering 2006). This is the case as the lending staff of banks often lack incentives to help the poor borrowers fulfil the terms and conditions of loan contracts. Paraphrasing Izumida (2004), banks are said to be *psychologically and socially* distant from the poor.

Reviewing the problem of credit rationing from the demand side provides the ground for the present study to investigate the extent to which social capital enhances access of the poor to formal finance. In so doing, this study proposes *Sub-hypothesis* H_{2B}, that maintaining social and business networks can increase access of the poor to microfinance. The extent to which social capital enhances access to finance has not been deeply explored by microfinance scholars. Most discussions of social capital in microfinance tend to focus on the roles of social cohesion, networks, and sanctions in reducing the rates of loan default. In this study, however, we argue that social capital can help the poor access microfinance services. For instance, maintaining social and business networks can reduce the probability of facing credit rationing, as relatives, friends, and business associates can provide information to the poor about the borrowing procedures of microbanks. They can also act as loan reference, substituting for a lack of physical collateral. The extent to which the utilisation of

kinship, business and social networks reduces the likelihood of facing credit rationing from formal MFIs is examined further in Chapter 6.

2.4.3 THE FUNCTIONING OF SOCIAL CAPITAL IN LENDING PRACTICES

Considerable research has investigated the functioning of social capital in the context of group lending (see Karlan 2007; Wydick 2001; 1999, Armandaiz de Aghion 1999; Matin 1997; Ghatak 1995; Besley et al. 1993; Rashid and Townsend 1992; Stiglitz 1990; Varian 1990). Unlike these studies, however, we seek to examine the extent to which social capital plays a role in the functioning of lending to individuals rather than groups. In this regard, this study proposes *Sub-hypothesis* H_{2C}, that lending provisions along with the developing of social networks with the poor, contribute to the financial performance of MFIs.

The working of social capital in lending to individuals has been investigated in many contexts. In Indonesia, the successful lending performance of some microbanks (e.g., BRI-units) is associated with intensive collection methods and the use of loan reference from among community leaders and relatives. According to Robinson (2001), intensive loan collections facilitate face-to-face contact and interaction between the lending staff of BRI-units and borrowers. Close friendships with borrowers can be built through which the BRI-units' staff can effectively gather information about borrowers' creditworthiness. Coupled with treating borrowers in friendly, helpful and respectful manners, such friendships can create the loyalty of borrowers to BRI-units. As a result, they can provide incentives for borrowers to prudently manage their loans (Robinson 2001, p.236). Maintaining customer relationships can also generate reciprocal obligations and hence encourage borrowers to repay their loans. Thus, BRI-units actively encourage for lending staff to frequently visit the workplaces and homes of borrowers. Information about the creditworthiness of borrowers can also be gathered from their neighbours, relatives and community leaders (Robinson 2001).

The working of social capital in microfinance can also be recognised in the lending practices of cooperatives. This stems from the functioning of cooperatives as self-help support mechanisms among the poor, helping them to cope with a lack of access to finance. The financial services of cooperatives are undertaken based on the principles of solidarity, recognising cooperative members as clients and owners. Such 'solidarity principle' can be self-enforceable tools to encourage cooperative borrowers to prudently manage their loans. They recognise that an imprudent utilisation of loans is likely to result in default, constraining other members from accessing cooperative loans. However, the working of such solidarity principles is affected by the norms of friendship and reciprocity which underpin interpersonal relationships among cooperative members. If the norms of friendship and reciprocity are highly appreciated, cooperative

borrowers tend to consider the solidarity principles when utilising their loans. As a result, they will prudently manage their loans so as to avoid loan defaults.

Similar to group lending, the functioning of solidarity principles in cooperative lending can generate peer monitoring and impose moral sanctions upon any loan defaulter. Because the loan defaults of one member affect the access of other members to loans, members will voluntarily scrutinise other members' loan utilisations. In dense networks of interaction among cooperative members, loan defaults can create moral sanctions, such as gossip, public humiliation and social exclusion. As Guinanne (2001) and Krahnen and Schmidt (1995) conclude, dense networks can enable cooperatives to overcome the informational and enforcement problems of lending.

As has been reviewed in the previous section, moneylenders are differentiated into commercial and non-commercial. Non-commercial moneylenders are relatives, neighbours and friends providing loans to one another. These non-commercial moneylenders do not seek to maximise profit, as loans often carry little or no rates of interest. Instead they impose reciprocal obligations upon borrowers. In contrast, commercial moneylenders set positive interest rates to gain reasonable returns from lending. However, Zeller (2002), Sayibo (1997) and Seibel (2001), for instance, show that commercial and non-commercial moneylenders share similar characteristics, such as providing non-collateral loans, informal approaches and moralistic principles of lending (e.g., mutual trust and friendship).

Considerable research shows that such informal lending contracts often result in high repayment rates (La Ferrara 2003; Zeller 2002; Robinson 2001). For instance, a survey by La Ferrara (2003 p.2) in Ghana shows that the repayment rate of informal loans is approximately 95 percent annually. Here, social capital influences informal lending contracts undertaken on the basis of friendship and face-to-face contacts between lenders and poor borrowers. Having close contacts with clients, for instance, moneylenders can gather information about the creditworthiness of borrowers, so that the probability of loan defaults can be minimised. Lending on the basis of friendship can also generate reciprocal obligations, encouraging poor borrowers to repay their loans. However, moneylenders may lend money to those whose creditworthiness they have less information about if enforcement actions are feasible. In this regard, loan guarantees and supports from community leaders are often needed to enforce repayment. As Lyon (2000) points out, church-based networks play a vital role in minimising loan defaults through the existence of social sanctions within these communities, such as loss of reputation and moral pressure from church leaders.

Similar to group lending, social capital in the form of trust, friendship networks and reciprocity thus contributes to the functioning of lending to individual borrowers. In this regard, this study hypothesises that lending provision, in conjunction with the development of social networks among the poor, contributes to the loan performance of MFIs *(Sub-hypothesis H_{2C})*. In microbanks, maintaining close friendships with clients can create loyalty and reciprocal obligations to repay their loans. Similarly, semi-formal and informal MFIs, such as cooperatives and moneylenders, utilise social collateral that leads to high repayment rates of loans. The working of solidarity principles in cooperative lending can reduce the costs of screening and monitoring loans. The solidarity principles can encourage cooperative members to scrutinise borrowers to prudently manage their loans. The lending practices of moneylenders can lead to high repayment rates when loan contracts are undertaken on the basis of social collateral. Friendship-based lending helps moneylenders overcome informational and enforcement problems. This is because having close friendships can help lenders to gather information about the creditworthiness of the poor. Thus it becomes clear from the literature that lending provisions on the basis of friendships and social networks potentially contribute to the loan repayment rates of MFIs. This current study scrutinies this hypothesis in a specific Indonesian context.

2.5 CONTRADICTIONS BETWEEN PROFITABILITY AND OUTREACH OBJECTIVES OF MICROFINANCE

Since the 1990s commercialisation has become a prominent microfinance policy across developing countries. Yet its merit remains contested among microfinance scholars and practitioners. Many believe that the commercialisation of MFIs is the most desirable policy for achieving operational sustainability of MFIs. In contrast, others argue that a single-minded profitability focus potentially undermines the microfinance mission of serving the poor. Regarding such contested views, the present section seeks to investigate *Hypothesis H_3*, that commercialisation of MFIs increases their financial performance, but reduces their outreach to serve the poor.

Proponents of commercialisation claim that the success of MFIs depends on their ability to implement good banking practices, operational efficiency and financial discipline (Sanderatne 2002, p.2). The ultimate target, these proponents claim, is to generate sufficient profits without subsidy. If MFIs failed to cover operational costs, their capital base would soon be depleted. Consequently, the ongoing ability of MFIs to serve the poor would be in doubt. According to Charitonenko et al. (2004), funding subsidies cannot be seen as a basis for business expansion of MFIs because they are uncertain and highly dependent upon the government or donor's budget. Proponents of microfinance commercialisation argue that profit-oriented practices of MFIs are rational for three reasons (CGAP 1995;

Christen 2001; Charitonenko et al. 2004). Firstly, the efforts to alleviate global poverty through microfinance require a massive scale of MFI operations. The Consultative Group to Assist the Poorest (CGAP) (1995) estimated that the worldwide demand for microcredit will be about US$90 billion in 2025. This amount is far above the capacity of international donors and national governments (Woller et al. 1999). MFIs are thus required to tap funds from commercial sources. To attract private capital (e.g., commercial investments and savings), business operations of MFIs should be profitable, efficient and without subsidy (CGAP 1995). Secondly, microfinance operations cannot rely on funding subsidies from governments, as the availability of subsidised funds is uncertain in the long-run due to governments' budget constraints (Gonzales-Vega 1997).

Thirdly, the proponents of commercialisation argue that the for-profit focus of MFIs does not contradict their social mission of serving the poor. For instance, a study in Indonesia by Charitonenko and Afwan (2003) concludes that the commercial practices of BRI-units do not reduce their social outreach. This conclusion is simply derived from the average loan size of BRI-units being "low", accounting for 40–60 percent of Indonesia's GDP per capita[3]. The immediate question is whether such percentage scales do indicate a greater ability of BRI-units to serve the poor. For instance, in 2006 Indonesia's GDP per capita was Rp 15 million or US$1,663 (BPS 2007). Being 40–60 percent of GDP per capita, the average loan size of BRI-units can be calculated to have been in the range of US$665–US$998. Consistent with Seibel and Parhusip (1998), a survey conducted for this thesis shows that the average loan size of BRI-units stood at above US$500. This figure is significantly above the average loan size of US$100 for MFIs that focus mainly on poverty alleviation (Morduch 1999a). Thus, having an average loan size of 40–60 percent of GDP per capita does not necessarily indicate the ability of BRI-units to serve the poor.

The widely-cited examples to indicate the successful commercialisation approach are the rapid expansion of BancoSol in Bolivia and of BRI-units in Indonesia. BancoSol was the metamorphosis of a microfinance NGO (PRODEM) into a commercial microbank in 1992. Following this transformation, the lending mobilisation of BancoSol increased markedly from US$4.5 million in 1991 to US$108.7 million in 2004. In the same period, the number of active borrowers also increased from 22,000 to

[3] Microfinance scholars often measure the outreach of MFIs through a percentage ratio between the average size of loan and the country's GDP per capita. The lower the percentage ratio, the greater the capability of MFIs to serve the poor. However, there is no consensus among scholars about the cut-off points of the ratio that indicates deeper levels of outreach. Ravicz (1998), for instance, identifies that the most prominent MFIs in the world (e.g., the Grameen Bank in Bangladesh, Bancosol in Bolivia, BRI-units in Indonesia, K-Rep in Kenya, CarpoSol Columbia) have average loan size in proportion to country's GDP per capita in the range of 16 to 136 percent.

71,600. In 2005 the savings mobilisation of BancoSol stood at US$98.0 million, serving around 68,000 depositors. BancoSol is recognised as one of the most prominent banks in Bolivia, dedicated exclusively to microfinance services (Ledgerwood and White 2006). Similarly, since the implementation of commercial practices in 1983, the financial operations of BRI-units in Indonesia have resulted in remarkable progress. For instance, savings mobilisation substantially increased from US$2.0 billion in 1996 to US$3.7 billion in 2005. Robinson (2006) recognises that Indonesia's BRI-unit system, which has been operationally profitable for more than two decades, is the largest MFI in the world.

Regarding the business success of BRI-units and BancoSol, this study hypothesises that commercial practices can improve financial performance of formal MFIs in terms of profitability, loan repayment rates, and savings and lending mobilisations (see *Hypothesis* H_3). According to Charitonenko et al. (2004, p.6) and Christen and Drake (2002), commercial practices can enhance the financial performance of formal MFIs by helping them implement operational efficiency and financial discipline. Thus MFIs requires such practices to continuously improve their financial products and reduce the operational costs of serving their clients (Christen and Drake 2000). The financial discipline of formal MFIs can be strengthened by their adopting prudent standards of banking operation, such as accumulating sufficient capital, and obtaining reasonable profits, adopting loan-loss provisions and minimising loan defaults (Sanderatne 2002). An improvement in the quality of savings products is also a key issue in the financial performance of formal MFIs. Savings mobilisation is vital for enhancing the lending capacity of formal MFIs. Robinson (2006) shows that in order to successfully mobilise public savings, MFIs are thus required to design savings products that are attractive to both the poor and non-poor clients.

Central to the commercial approach to lending is that interest rates should be set at levels that cover the costs of microfinance operations (Ledgerwood and White 2006, p.18). In order to generate sufficient profits and achieve financial self-sufficiency, formal MFIs are permitted to set higher rates of loan interest. For proponents of commercialisation, this policy will not reduce the customer base of MFIs because the demand for microfinance services is believed to be unresponsive to changes in interest rates. It is said that the poor need to have greater access to finance, not necessarily cheap loans. The indicative outlook is that the demand of the poor for loans from moneylenders is inelastic to higher interest rates (Deheija et al. 2005).

However, this study hypothesises that efforts to achieve profitability potentially reduce the social outreach of formal MFIs (e.g., microbanks). For instance, setting higher rates of loan interest can exclude those poor who are only capable of repaying loans with moderate to low interest rates

(Datta 2004; Morduch 2000; Woller et al. 1999). A study by Dehejia et al. (2005) in Bangladesh shows that poor borrowers are highly sensitive to changes in interest rates charged on loans. As a result, although higher interest rates can improve the financial performance of formal MFIs, their lending services tend to be directed elsewhere than poor borrowers (Dehejia et al. 2005, p.4). In Bolivia, Mosley (1996,) argues that efforts to improve profitability have led BancoSol to increase the average loan size and become more focused on serving non-poor clients. Hence, the implementation of commercial practices can undermine the mission of helping the poor (see Morduch 2000, 2006; Armendariz de Aghion and Morduch 2005; Woller at al. 1999).

The profitability–outreach nexus is broken when an increase in operational profit of MFIs is accompanied by a reduction in capability to serve the poor. Such phenomenon is very important to the working of management within MFIs that seek to serve the poor (Armendariz de Aghion and Morduch 2005). Consider microbanks providing incentive schemes to lending staff on the basis of loan volume. Such as incentive policy may potentially discourage lending staff of microbanks from serving the poor. Conversely, they may prefer to serve non-poor clients because their bonus increases in proportion to the size of loans. As a result, the loan portfolio of microbanks may be driven to penetrate up-market segments (the non-poor). Similarly, consider an incentive being given to lending staff managing loans with high rates of repayment. Such incentives also potentially discourage microbanks from serving poor clients, as they tend to have a greater probability of loan defaults. Lending staff of these MFIs may thus prefer to serve non-poor clients because they have collateral and stable incomes, thereby minimising the probability of loan defaults. Thus, this study investigates *Sub-hypothesis* H_{3A}, that the concern of formal MFIs with profitability leads to a focus on non-poor clients at the expense of the (very) poor client.

However, this study also hypothesises that semi-formal and informal MFIs, such as cooperatives and moneylenders, may be more capable of serving the poor than microbanks. We thus propose *Sub-hypothesis* H_{3B}, that semi-formal and informal MFIs are more capable of serving the poor. Being capable of linking business operations to the social networks of the poor, cooperatives and moneylenders may efficiently distribute small and non-collateral loans to poor clients. Being operationally close to the social networks of the poor, these MFIs may overcome relevant informational and enforcement problems. For instance, cooperatives can overcome such problems through the functioning of peer monitoring and sanctions directed to loan defaulters. Similarly, moneylenders may overcome informational and enforcement problems through lending methods based on social collateral (e.g., friendship and community networks). Their lending is also linked to other forms of contract, such as advance purchases

of the growing crops of poor borrowers to secure loan repayments (e.g., trade–credit linkage).

However, the commercial practices of moneylenders and cooperatives may be unlikely to lead to a rapid expansion of lending intermediary capacity, due to small-scale of operations, geographical boundaries and financial constraints. In Indonesia, for instance, regulatory policies prohibit cooperatives from mobilising savings from the public. They are only permitted to mobilise the savings of their own members. The lending mobilisation of cooperatives thus tends to be relatively small due to their reliance on the compulsory savings of their members. By law, moneylenders in Indonesia are illegal businesses, and hence, they are unlikely to mobilise the savings of the poor. The lending capacity of moneylenders thus depends solely on their capital plus operational profits.

2.6 THE WELFARE IMPACTS OF MICROFINANCE

The ability of the poor to access finance is the key issue of poverty alleviation through microfinance. The question arises as to what extent MFIs can provide financial services to the poor. Hulme and Mosley (1996a p.113) present an economic framework of poverty alleviation through microfinance. They claim that lending for promotional activities can enhance production, leading to an increase in the income of the poor. Similarly, Zeller et al. (1997) and Zeller and Meyer (2002, p.) propose that microfinance can help the poor through strengthening their ability to cope with the insecurity of food production and consumption. This can be achieved in three ways, including financing necessary inputs of production (e.g., raw materials and equipment); enhancing their capacity to bear the risks of investments in non-farm enterprises; and financing household expenditures on subsistence and other expenses (see also Matin at al. 2002). However, the weakness of this line of analysis is that it narrowly focuses on microfinance's impacts on production of the poor at the household level. The incidence of poverty is solely recognised as the poor being incapable of generating sufficient income due to a lack of financial inputs.

As has been widely accepted, a more holistic approach is required to comprehend the socioeconomic dimensions of poverty (Myrdal 1968; Sen 1992). Such a holistic approach recognises that the poor are trapped into poverty cycles not only due to the deprivation of physical capital (e.g., productive assets), but also due to the alienation from the (re)production processes of social capital, such as social and business networks. For instance, low skills and education can lead the poor to lack self-confidence in participating in social and business networks. In this regard, the present study proposes *Hypothesis* H_4, that microfinance contributes to the improvement of the welfare of the poor. To investigate this general hypothesis, we critically examines the extent to which microfinance impacts the welfare of the poor through (1) improving children's education, (2)

giving poor people greater confidence in dealing with other people, and (3) equipping the poor to be more capable of coping with household financial problems.

This study considers the 'circuit' of social capital as a framework for analysing the microfinance impacts on the welfare of the poor. Central to the circuit of social capital is that the reproduction of (social) capital is not only affected by economic factors, but also by socio-cultural aspects of the community (O'Hara 2006, 2007)[4]. At the household level, familial factors may contribute to the reproduction of social capital through improvements in the quality of human capital. As O'Hara (2006) points out, emotional as well as financial supports from parents can help children to pursue higher education, leading to higher quality human capital of the children. At the community level, social capital has been widely recognised as potentially contributing to economic performance. For instance, strong bonds of trust can enhance self-confidence and wider networks of interaction among community members. As a result, such trust and networks can give rise to economic outcomes, as both are key foundations of many economic transactions. According to Streeten (2000), Dasgupta (2002) and many others, transaction costs will be low when economic agents trust one another. In contrast, a decline in trust lowers social cohesion and potentially increases social instability and conflict. As a result, the business climate can become uncertain, inhibiting investment and growth (see O'Hara 2006).

The circuit of social capital can comprehend the process of poverty alleviation through linking socioeconomic activities of the poor with microfinance. For instance, access to microfinance services can accelerate social capital reproduction (accumulation) of the poor through an increase in labour productivity, wider networks, and the reactivation of surplus product. It is no doubt that access to loans can help the poor to reactivate their (meagre) surplus product for expansion of output. Similarly, savings help to accumulate the surplus value of labour, which is perceived as being important for risk-coping strategies of the poor. Savings are also useful to support human resource investment of the poor in their children's education. From the perspective of the lender, familial factors such as

[4] According to O'Hara (2006), in the circuit of social capital the realisation of surplus values of production into new production (reproduction) requires (re)investments of profit and external financing (e.g., credit) from financial institutions. Credit can be financed by mobilising savings from the surplus value of labour power, while surplus products (e.g., profit) are generated from the market sale of the products. This implies that the financial system, production and consumption linkages play a vital role in the reproduction of capital. In O'Hara (2007), he goes on to say that social capital reproduction is not only affected by physical elements (e.g., labour, means of production, output and finance) within production spheres, but also by various aspects of the community including family, trust, belief, norms, interpersonal interactions and government.

family stability can benefit MFIs through reducing the risks of lending. The logic is that family instabilities, such as divorce and disharmony, may affect the income of borrowers through a decrease in their productivity.

At the community level, trust, friendship, and association play a vital role in microfinance practices. As has been explored earlier, lending provisions with strong social cohesion benefit MFIs by exploiting the ability of community members to enforce repayments and monitor one another. From the borrowing point of view, strong trust, reliable friendships and networks can increase the access of the poor to informal finance, such as loans from relatives, friends, neighbours, ROSCAs and moneylenders. This is because such informal lending is mainly delivered on the basis of social collateral (e.g., friendships and reciprocity) rather than physical collateral.

The question arises whether microfinance can fulfil its promise of alleviating poverty. Considerable research has investigated whether microfinance contributes to poverty alleviation. Yet studies on the impact of microfinance on poverty alleviation have come to mixed conclusions. For instance, a study of MFIs in Bangladesh by Khandker (1998) shows that 5 percent of poor clients have escaped from poverty annually through microfinance. Similarly, Khandker (2003) reveals that microfinance can reduce extreme poverty. One important aspect of the contribution of microfinance to poverty alleviation is through its enabling on increase in female participation in labour markets and schooling (Pitt and Khandker 1998). In India, Chen and Snodgrass (2001) reveal that microfinance can increase the income of poor clients above the poverty line. In Thailand, Kaboski and Townsend (2005) show that microfinance services accelerate the asset growth of the poor and help them to smooth household consumption. In Bolivia, Mosley (2001) has found that microfinance reduces poverty through the growth of the incomes and assets of the poor. A similar finding can be found in Dunn and Arbuckle (2001) for the country of Peru and Banegas et al. (2002) for Ecuador.

However, Coleman (1999) reveals that microfinance has had no impact on assets and incomes of the poor in Thailand. Further, he suggests that the positive economic impact of microfinance tends to be greater for the non-poor than the poor (Coleman 2002). Duong and Izumida (2002) reveal that the poor often face various difficulties in accessing to microcredit in Vietnam. Amin et al. (2003) show that microfinance tends to exclude the poor and very poor clients, but it is successful at reaching the better-off poor. In Bangladesh, a study by Datta (2004) shows that many microfinance schemes tend to exclude the poor, as they are deemed to be risky borrowers. Islam (2007) emphasises further that the microfinance services of the Grameen Bank fail to improve the welfare of their poor clients. He calculates that about 77 percent of poor clients of the Grameen Bank could not improve their welfare.

Looking at the impact of microfinance on education, this study proposes *Sub-hypothesis* H_{4A}, namely that access to microfinance services potentially increase the level of children's education among the poor. This can be the case for two reasons. The first is that an increase in income resulting from loans can enhance the ability of the poor to finance their children's education. The second is that access to loans can facilitate investment in childhood education through the disbursement of loans to finance such expenditure. The willingness to invest in children's education is related partly to the higher future earnings of children, which also benefits parents (King and Hill 1993). Greater access to loans can improve the level of children's education because the poor can allocate household budgets to support this education (Pitt et al. 2003). In Indonesia, Panjaitan-Drioadisuryo and Cloud (1999) reveal that access to loans can improve income, influencing household decision-making to provide better education of children, improved nutrition and decreased family size.

It is evident that the poor are highly prone to external shocks, such as sickness, death, and natural disasters, leading to household financial distress. As loans can help to finance emergency expenditures (e.g., medication), this study hypothesises that access to microfinance services improves to the capacity of the poor to cope with household financial problems (*Sub-hypothesis* H_{4B}). As has been widely observed, access to loans facilitates production and thus the income of the poor. An improvement in income can then help the poor engage in asset diversification such as physical savings (e.g., raising livestock) and microbank deposits (Dercon 2002). Asset diversification is critical to the risk-coping strategies of the poor for dealing with unpredictable shocks such as sickness, death and harvest failures. Savings benefit the poor as they can be withdrawn to finance emergency expenditures, and hence lower the probability of facing household financial distress. Moreover, access to loans may also reduce financial distress as the poor can utilise loans to smooth consumption in urgent situations.

However, access to loans can result in financial distress as the poor fail to make repayments. High interest rate charged and frequent repayments of such loans can depress further the low income of the poor. This is probably the case as loans are utilised to finance consumption, and thus have little income–generating effects for the poor. As Coleman (1999) points out, access to loans had no impact on assets and incomes of the poor in Thailand. He goes on to say that the income generating impact of loans is greater for the non-poor than the poor (Coleman 2002).

Central to the broader approach is the notion that poverty can arise because the poor often face social exclusion, leading to a deprivation of access to kinship, friendship, and community networks (Sen 1992; Mukerjee 2002; ADB 2006). In this regard, this study proposes *Sub-hypothesis* H_{4C}, that access to microfinance services can enhance the self-

confidence of the poor in dealing with other people. It is likely that low levels of education, income and skills cause the poor to lack self-confidence in participating in community organisations (ADB 2006). As a result, the poor often tend be alienated from access to resources and power within the community. According to O'Hara (2007), a lack of communication skills inhibits the lower-classes from enhancing their social networks, and hence they are often bound within 'unproductive' networks that stimulate crime and drug abuse. Having only subsistence income also potentially constrains the poor from enhancing their social networks. This is the case as the poor are often incapable of financing expenditures on social activities, including transportation costs to maintain close relationships with relatives and business associates.

In the present study, we thus hypothesise that access to microfinance services leads the poor to have more self-confidence in dealing with other people. Such confidence potentially provides a basis for the poor to maintain kinship relationships and to expand social networks. This study argues that access to loans may give rise to self-confidence in dealing with others through an increase in income of the poor. Greater income, for instance, can help the poor finance expenditure on social activities and participation in community organisations. Loans for productive purposes also potentially improve the self-confidence of the poor in dealing with other people. However, access to loans can reduce the self-confidence of the poor in dealing with others, as failure to make repayments can lead them to face gossips and social exclusion. This is likely the case as loans are utilised by the poor for consumption rather than production purposes. Loans for consumption are unlikely to enhance the self-confidence of the poor as they tend to have low income-generating effects. As loans for consumptive purposes tend to have a greater probability of default, they will adversely affect the self-confidence of the poor in dealing with others. This is the case as loan defaults can tarnish the reputation of the poor within their social networks.

2.7 CONCLUDING DISCUSSION

This chapter has reviewed the literature on the institutional and social characteristics of the microfinance industry. In this study microfinance refers to financial provisions that enable the poor to finance not only economic but also social activities. Microfinance thus goes beyond traditional banking services to include building social capital, such as trust, and social and business networks among the poor. Social intermediation is concerned with the successful performance of informal MFIs in serving the poor, by means such as reciprocal lending among friends, relatives, neighbours, ROSCAs and moneylenders. We also recognise the heterogeneous characteristics of clients and institutions being an important aspect in microfinance analyses. However, this heterogeneous nature of

microfinance clients causes MFIs to face informational and enforcement problems. Because different MFIs do not have the same ability to overcome such problems the microfinance industry is highly segmented. Thus this study will examine *Hypothesis* H_1, that in the case study area of Java, the heterogeneous characteristics of clients and institutions lead to market segmentation in microfinance.

This chapter also examines the literature on the role of social capital in microfinance practices and how these enhance access of the poor to finance. Social capital, it has been suggested, can affect financial performance, as lending on the basis of social collateral may assist MFIs to overcome informational and enforcement problems. From the perspective of the borrower, social capital in the form of kinships plus social and business networks may contribute to greater access of the poor to microfinance. This is the case as relatives, friends and community leaders can help the poor to gain knowledge about borrowing procedures of microbanks. However, the utilisation of social capital by informal MFIs, such as moneylenders can lead to high interest rate of lending to the poor. As a result, such microfinance services can thus have little impacts on the welfare of the poor. This issue will be explored in *Hypothesis* H_4 of this study. The present study thus proposes *Hypothesis* H_2, that social capital is an important factor in microfinance. Hence, we will empirically scrutinise this hypothesis in parts of Indonesia.

Regarding contrasting views on microfinance commercialisation, this study seeks to examine *Hypothesis* H_3, that microfinance commercialisation underpins the financial performance of MFIs, but reduces outreach to serve the poor. Commercial practices can improve financial performance through encouraging MFIs to implement sound banking practices, operational efficiency and financial discipline. However, a single focus of profitability can reduce the outreach of MFIs, as they tend to increase the size of loans and become unwilling to serve the poor. Moreover, there are opposing views regarding the welfare impacts of microfinance on the poor. While some scholars argue that microfinance alone is unlikely to reduce poverty, others point out that microfinance contributes to the welfare of the poor. In this regard, this study seeks to examine *Hypothesis* H_4, that microfinance potentially contributes to the welfare of the poor. In so doing, we will closely analyse, in the Indonesian context, the microfinance impact on (1) children education, (2) capability to cope with household financial problems, and (3) the degree of confidence in dealing with others.

CHAPTER THREE
RESEARCH METHODOLOGY OF THE STUDY

3.1 INTRODUCTION

One of the core arguments in this thesis is that the microfinance industry encompasses heterogenous clients and institutions. Being social intermediaries, MFIs have the potential to reduce poverty and promote social change and innovation (Armendariz de Aghion and Morduch 2005). Microfinance is thus a complex phenomenon that has socioeconomic and cultural dimensions. It is not a panacea for poverty reduction by enhancing the access of the poor to finance. There are operational contradictions within MFIs that can hinder their role in alleviating poverty. For instance, a trade-off potentially exists between profitability and outreach of MFIs to the poor. Formal MFIs, such as microbanks, tend to promote profitable operations by serving the non-poor and neglecting the (very) poor. In contrast, other MFIs such as moneylenders can maintain profitability while serving the poor. However, moneylenders tend to have low income-generating effects as their financial services are often utilised by the poor for consumption purposes. They also fail to anticipate the needs of the poor for a greater range of financial services due to their small scale of operations.

In order to capture and analyse the complexity of the microfinance industry, this study takes a more 'holistic' approach, investigating market segmentation, the importance of social capital, operational contradictions of MFIs, and the welfare impact of microfinance on the poor. The literature associated with these issues has been substantially reviewed in Chapter 2. The present chapter describes the research methodology of this thesis. In the next section we outline the hypotheses of the study. There are critically important for determining the research direction of the study and the most appropriate methods of data collection and analysis. Section 3.3 then describes the procedures used in data collection, including the research location, sampling methods and survey technique. Section 3.4 presents the statistical tools utilised for data analysis. A conclusion then follows.

3.2 THE HYPOTHESES OF THE STUDY

In the previous chapters the literature associated with the institutional characteristics of the microfinance industry was critically reviewed. Four major issues in the microfinance industry have been raised: (1) market segmentation, (2) the role of social capital, (3) the commercialisation–

outreach nexus, and (4) the welfare impacts on the poor. In this regard, we present the following hypotheses to be investigated.

H_1: Heterogeneous characteristics of clients and institutions lead to market segmentation in the microfinance industry.

The poor have various motives for utilising microfinance services. Apart from financing production, consumption and emergencies (e.g., sickness and death), microfinance is also perceived as being useful to build social capital, such as maintaining kinship, friendships and business networks (Johnson et al. 2005; Zeller 2003) However, the capacity of the poor to access microfinance services is constrained by numerous factors, such as geographical remoteness, low levels of education, skills, income and assets (Johnson 2005; Meyer and Magarajan 1999). A failure to utilise the social networks of the community also inhibits the poor from accessing microfinance services. This implies that the poor face not only monetary-related constraints (e.g., low income), but also human and social capital limitations in accessing microfinance (Datta 2004; Zeller and Meyer 2002). The interrelated effect of such constraints is that the poor are exposed to informational problems in microfinance markets. From the lender's side, the poor have heterogeneous motives for borrowing, inseparable production and consumption, and lack of collateral –all of which impose informational and enforcement problems on MFIs (Johnson 2005; Hoff et. al. 1993). MFIs have different capacities for dealing with such problems due to varying scale, scope and ability to link financial services with the social networks of the poor. As a result, microfinance markets are segmented and MFIs tend to charge different interest rates. Thus, a single-unique equilibrium interest rate may not apply in the case of microfinance (Hoff and Stiglitz 1993).

Moreover, in response to informational and enforcement problems, lending contracts may rely on economic considerations as well as social factors, such as familial, social and personal relationships between MFIs and poor borrowers. Institutional and social factors thus play vital roles in microfinance. If such social networks can limit the competition among MFIs, this will lead to segmentation in microfinance markets. To test whether heterogeneous clients affect the lending behaviour of MFIs and market segmentation in microfinance, this study employs these following sub-hypotheses:

H_{1A}: *The poor have various motives and constraints in utilising microfinance services, such as limited social and kinship networks, low levels of education, income and assets.*

H_{1B}: *The ability of MFIs to deliver microfinance services is limited by geographical boundaries, their small-scale of operation, and difficulties in gathering information about the creditworthiness of the poor.*

H_2: Social capital plays an important factor in microfinance.

According to Putnam (1993, 1995), social capital incorporates features of social organisation, such as networks, norms and trust which facilitate cooperation for mutual benefit. In relation to microfinance, social capital in the form of trust, kinship and networks underpins lending contracts among relatives, neighbours and friends, as loans carry zero or very low interest rates and do not require collateral. Socially close lenders also consider the norms of reciprocity as they expect to receive similar loans from borrowers in the future. If social capital are considered as important, the behaviour of lending and borrowing among relatives, neighbours and friends may not be strongly affected by specific characteristics of lenders and borrowers (e.g., income, gender and occupation). The microfinance literature also suggests that social capital in the forms of social and business networks enables the poor to access formal finance (e.g., microbank loans). For instance, relatives, neighbours and business associates can provide the poor with information about the borrowing procedures of formal MFIs. They also can act as social collateral by being loan co-signatories or witnesses, as effective substitutes for physical collateral. From the perspective of MFIs, utilising the social capital of the poor can help to overcome informational and enforcement problems, thereby enhancing repayment rates of micro loans. However, the workings of social capital in microfinancing have mostly been investigated in the context of group lending. It is claimed that group lending can minimise the number of loan defaults through the functioning of peer pressure and sanctions in enforcing repayments. This study, however, proposes that social capital plays such a role not only in group lending but also in lending of MFIs to individual borrowers. For instance, cooperatives, ROSCAs and moneylenders can reduce the rate of loan default through undertaking lending contracts on the basis of solidarity, reciprocity and friendship with poor borrowers. Thus, to understand the important role of social capital in microfinance, the following sub-hypotheses are closely examined.

- H_{2A}: *Lending and borrowing among relatives, friends and neighbours are not strongly affected by specific characteristics of lenders and borrowers.*
- H_{2B}: *Social and business networks increase the access of the poor to microfinance.*
- H_{2C}: *Lending provisions in conjunction with the development of social networks with the poor contribute to loan performance of MFIs.*

H_3: Commercialisation of MFIs increases financial performance, but reduces outreach to the poor.

There is no doubt that the operational sustainability of MFIs is vital to enhance the access of the poor to microfinance services. However, whether or not MFIs should rely solely on achieving self-sustaining financial operations remains a debatable issue. Proponents of the commercialisation approach argue that operational profitability of MFIs is the key to

providing finance for the poor. Thus, a transformation into fully commercial MFIs such as microbanks is said to be the most desirable policy to sustain microfinance operations. On the other hand, the welfarist approach suggests that a focus on achieving profitability can drive MFIs away from their mission of serving the poor. This is claimed to be the case as efforts to enhance profit can lead MFIs to ignore the poor. An unwillingness of formal MFIs (e.g., microbanks) to serve the poor is associated with diseconomies of scale due to the high costs of managing small loans. This study will thus test the hypothesis that the commercialisation of MFIs improves their financial performance, but reduces their outreach to the poor. The emphasis is given to an assessment of whether formal, semi-formal or informal MFIs are more effective in serving poor clients. The following sub-hypotheses thus will be tested:

H_{3A}: *The concern of formal MFIs with profitability leads to a focus on non-poor clients at the expense of the (very) poor client.*

H_{3B}: *Semi-formal and informal MFIs are more capable of serving (very) poor clients.*

H_4: Microfinance contributes to the improvement of the welfare of the poor.

Enhancing the access of the poor to finance is the core issue of poverty reduction through microfinance. Many studies state that a reliable supply of loanable funds will support production within farm and non-farm enterprises, leading to higher incomes of the poor (Meyer and Nagarajan 1999). Loan utilisation by the poor is not only for income promotion, but also to protect household consumption against unpredictable shocks such as sickness, harvest failure and other social obligations (e.g., religious ceremonies and funerals) (Matin et al. 2002; Hulme and Mosley 1996a). However, some remain doubtful about the capacity of microfinance providers to alleviate poverty. As Coleman (1999) claimed, microfinance alone is unlikely to reduce poverty. While access to microfinance increases the income of non-poor and not-so-poor clients, it has low income-generating effects among the poor. Islam (2007) also reveals that the group lending model of the Grameen Bank fail to improve the welfare of their poor members.

In this study we investigate the extent to which access to microfinance can lead to (1) higher levels of children's education, (2) a reduced probability of having household financial difficulties, and (3) enhanced self-confidence in dealing with other people. In this regard, the study will examine the following sub-hypotheses:

H_{4A}: *Access to microfinance services leads to an improvement in the education of the children of poor people.*

H_{4B}: *Access to microfinance services can reduce the probability of the poor facing household financial difficulties.*

H_{4C}: *Access to microfinance services leads the poor to be more confident in dealing with other people.*

3.3 PROCEDURES OF DATA COLLECTION

3.3.1 RESEARCH LOCATION AND DATA

The research location of this study is in the district of *Boyolali* in the Central Java province. The decision to choose the Boyolali district was taken because its economy mainly comprises small-agricultural activities, such as traditional rice-farms and animal breeders, petty traders and small-manufacturing producers (e.g., traditional roof-tile manufacturers). The incidence of rural poverty is also profound in the Boyolali District due to the under-development of the economy compared to its neighbouring districts, such as *Klaten, Sukoharjo, Magelang,* and *Sragen*. The district of Boyolali consists of 15 sub-districts, covering very remote areas surrounding the two mountains of *Merapi* and *Merbabu* (83 percent of total district area) and relatively developed areas close to the city of Surakarta. The district contains a variety of MFIs, ranging from ROSCAs, moneylenders, credit groups and cooperatives to the well-developed microbanks, such as BRI-units and BPRs (Boyolali 2005).

This study utilises two types of data: secondary and primary. The secondary data includes microbank statistics (BPRs) published by Bank Indonesia's branch in Surakarta, the BRI-unit data of Boyolali, the cooperatives' data, and the annual economic report published by the district government of Boyolali. These secondary data were especially useful in selecting the respondents from MFIs to be interviewed. The primary data was obtained from personal interviews. Questionnaires were used for these interviews with various MFIs plus individual respondents. Individual respondents were sub-divided into five categories: the very poor, the moderately poor, the not-so-poor, the better-off-poor and the non-poor.

The primary data of individual respondents, collected in the survey was sub-divided into three categories. The first category encompassed the demographic characteristics of respondents, including their marital status, gender, age, levels of education, family size, and the level of their children's education. The second category comprised the economic-related characteristics of respondents, covering their ownership of assets (e.g., size of farmland, house, the monetary value of jewellery, and savings), occupation, income, and access to loans from various MFIs (e.g., microbanks, cooperatives, moneylenders). The third category was social-capital-related information, such as frequency of visits to relatives, participation in social and business organisations (e.g., ROSCAs and farmers' associations), and discussions with close relatives prior to borrowing. The survey also gathered information associated with the extent to which relatives, neighbours, friends, and community leaders facilitated access to microfinance services. Information about socioeconomic

characteristics of individual respondents surveyed can be seen in the questionnaire for microfinance clients in *Appendix 1*.

The primary data about MFIs collected in our survey include: ownership of MFIs, the number of savings and loan portfolios, the number of savers and borrowers, the average size of savings and loans provided to clients, types of lending methods (e.g., group lending and individual lending), profitability and loan repayment rates, the utilisation of social networks of clients in lending decisions, and the perception of MFIs towards social capital in lending decisions. Information about the characteristics of surveyed MFIs can be seen in *Appendix 2*.

3.3.2 SAMPLING METHODS AND THE SURVEY

The definition and measurement of poverty remain debatable among development scholars. A narrow definition of poverty refers to the material dispossession of the poor, and is widely known as the income-poverty definition. However, this material deprivation perspective on poverty has been widely criticized as being reductionist. Measuring income to determine the degree of "unhappiness" of a person is an oversimplified approach. Incomes are only a partial component –one that allows the fulfilment of certain ends among the various and complicated objectives of human life. In contrast, the broader definition of poverty views poverty as a complex set of factors indicating the inability of the poor to attain basic well-being. Thus, poverty occurs not only due to income insufficiency, but also ill-health, illiteracy, social and personal inferiority, powerless, a lack of choice, and vulnerability to natural or economic disturbances. As Sen (1992) points out, to understand the quality of life of the poor, one should look at their capability to fulfil various needs required for the 'functioning' of human life. This 'functioning' encompasses the fulfilment of basic needs through the achievement of well-being, including such things as happiness, educational attainment, meeting health conditions, nutrition at standard, social status, and self-respect. As human life constitutes interrelated functionings, the income–poverty measure is clearly insufficient (see Chamber 1995).

However, the income–poverty measurement may provide a simple method for identifying the access of different groups of the poor to *basic needs* (Townsend 1993). The poverty line, for instance, provides useful information that can help to design poverty reduction programs (e.g., social-safety-net programs) (Greely 1994). In analysing the impact of microfinance on the poor, a study by Weis et al. (2003) also utilises the income–poverty line to distinguish the poor into three different categories: the 'transitory', the 'destitute' and the 'non-destitute' poor. The transitory poor are poor people who have income just above, close to or periodically below the poverty line. Thus, any adverse shocks to their economic security may temporarily drop their income below the poverty line. The last two

categories (the destitute and non-destitute poor) are termed the 'chronic' poor who are poor people living below the poverty line. These poor people are those who are socially and physically disadvantaged, so that without welfare support their income will remain permanently below the poverty line. Charitonenko et al. (2004) refers to this group as the 'hard core poor', who have income 50 percent below the poverty line. The destitute poor are a group of poor people having income below the poverty line because of a lack of assets and opportunities. Thus, these poor people may rise above the poverty line by being provided with financial access to improve their productive activities.

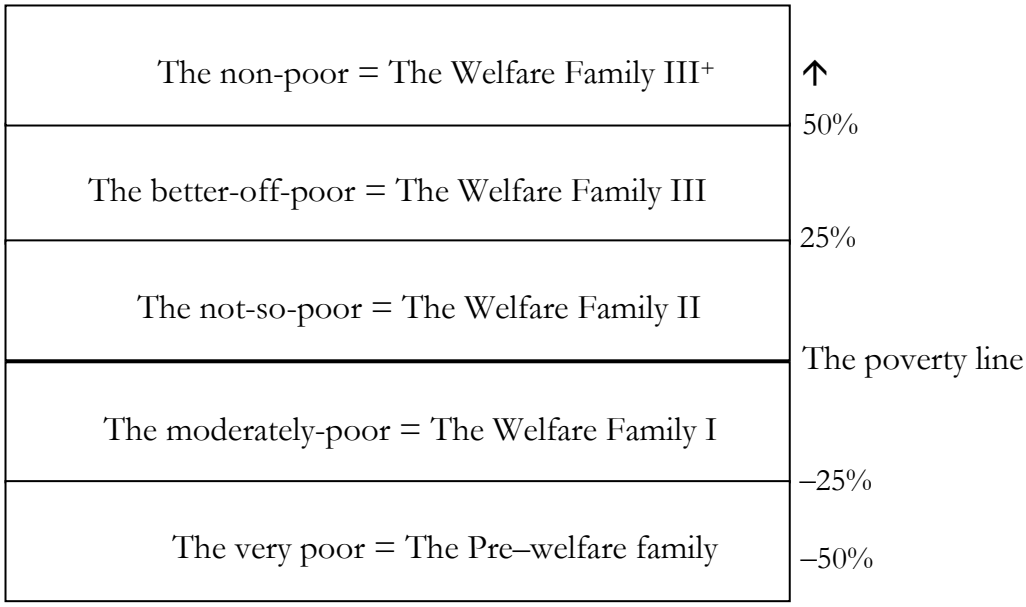
Data on poor households in Indonesia is provided by two institutions: the Central Board of Statistics (BPS) and the National Family Planning Coordination Board (BKKBN). Poverty data of the BPS is presented with respect to the country's poverty line. The poor, then, refer to the number of people having income below the poverty line. The calculation of poor households by the BKKBN is based on various socioeconomic criteria, such as levels of nourishment, occupation, housing and health conditions, educational attainment and the like, resulting in the different 'groups' of households. The BKKBN subdivides households into five categories. The three lowest categories refer to poor households, including the 'Pre-welfare Family' *(Keluarga Pra-sejahtera)*; 'the Welfare Family I' *(Keluarga Sejahtera I)*, and the 'Welfare Family II' *(Keluarga Sejahtera II)*. The other two categories are 'the Welfare Family III, and III^{+}', referring to the better-off poor and the non-poor, respectively.

This study chose the population of poor households calculated by the BKKBN, rather than the estimate generated by BPS. The BKKBN's method of poverty identification is preferred because it is based on more comprehensive criteria. However, the terminology employed by BKKBN is not widely recognised. Therefore, this study uses four different terms to refer to the BKKBN categories, which is diagrammatically outlined in Figure 3.1. It shows that the lowest level of poverty is the very poor, corresponding to the 'Pre-welfare Family'. The very poor refer to a group of poor people whose set of capabilities barely enable them to fulfil basic survival needs, such as food, clothing and shelter. In this study we prefer to use the term the very poor rather than the Pre-welfare Family, due to the ambiguous meaning of the later. The same reason applies for other divergences in poverty categorisations.

The second lowest group of poor people is the moderately-poor, referring to households who have sufficient income to potentially purchase basic needs. As with the Welfare Family I defined by the BKKBN, the moderately poor are households that have fulfilled basic needs, but at a minimum level. For instance, all family members have food intake at least twice a day, but they are unable to provide high protein foods. They may wear different clothes for different occasions, but they cannot afford to buy

clothes every year. The third group of poor people is the not-so-poor, referring to the Welfare Family II. Poor households that fall within this category have income capable of realising a better quality of basic needs. Such families are able to provide enriched protein foods at least once a week. Family members in this category have no literacy problems, and at least one family member has a fixed income but at a minimum level.

Figure 3.1 The Categorisation of Poverty



Source: Author's analysis

The fourth category of poor people is the better-off-poor. This terminology is often used in many studies of microfinance (e.g., Weis et al. 2003; Hulme and Mosley 1996a), but it has not been clearly defined. In this study, the better-off-poor refers to low-income households living well above the poverty line. Poor people in this category have fulfilled basic survival needs, such as food, clothing and shelter and security needs (a basic education, better health conditions). They are often well-regarded (i.e. have social status), have higher education levels, political and organisational participation, and the like. Poor people within this category are defined by the BKKBN as Welfare Family III. Lastly, households whose socio-economic conditions are above those of the better-off-poor refer to the non-poor people who are comparable to the Welfare Family III^{+} as defined by the BKKBN.

In terms of income, the very poor can be defined as having income between 25 and 50 percent below the poverty line, while the moderately-poor are between the poverty line and 25 percent below it. Similarly, the not-so-poor have income between the poverty line and 25 percent above it, while the better-off-poor are between 25 and 50 percent above the poverty

line. The non-poor are those who have income more than 50 percent above the poverty line (see Figure 3.1).

As this study seeks to investigate the microfinance industry from the demand and the supply sides, two types of population are sampled: (1) microfinance clients, and (2) microfinance institutions (MFIs). As these two types of population diverge in many respects, this study utilises different strategies to sample each population. In collecting data for individual respondents, we utilise *the randomly-stratified sampling method*, rather than *a simple random sample technique*, due to the different poverty categories and their diverse accessibility to microfinance services. In the simple random sampling method, every individual in the population has an equal chance of being selected in the sample. However, there is a potential problem with this technique when dealing with a population comprising individuals with heterogeneous characteristics (see Weiers 1994). In our study, for instance, the use of a simple random method may result in a sample consisting entirely of microbank clients or cooperative clients. To overcome this problem, we use the randomly-stratified sampling technique. In this method, the population is divided into different strata (e.g., the very poor and the not-so-poor), then a simple random sample of members from each strata is selected to be interviewed (Howell 2007; Babbie 2001; Weiers 1994).

To identify the respondents to be interviewed, we use poverty data obtained from the BKKBN's office in Boyolali and selected MFIs. The poverty data from the BKKBN were utilised to identify poor households without access to formal microfinance services. The data from selected MFIs identified the respondents with access to microfinance services from formal and semi-formal MFIs.

Furthermore, the population of MFIs was sub-divided into formal, semi-formal, and informal. Formal institutions are MFIs that are subject to all relevant laws including banking regulation and supervision (e.g., microbanks). Semi-formal MFIs are those excluded from banking regulation and supervision (e.g., credit cooperatives, BMTs and BKDs). Informal MFIs are those providing financial services outside of formal legal structure, such as moneylenders and ROSCAs. In selecting the sample of MFIs, the randomly-stratified sampling technique was chosen. This sampling technique was used to incorporate two criteria. Firstly, the MFI samples should fall within the three categories of formal, semi-formal and informal MFIs. In this study formal MFIs include the BRI-units, BKKs, and private microbanks (BPRs). The semi-formal MFIs cover cooperatives and rural credit institutions (BKDs). For informal MFIs, the sample includes ROSCAs, moneylenders, traders and manufacturers providing financial services to the poor. Secondly, we analysed only MFIs that had been operating for at least five years. This was important as the older

establishments were likely to have had greater experience in dealing with poor clients.

The survey was undertaken between June and December 2006. It began with the selection of villages to be researched. The observation and information gathering took four days, as I travelled from one sub-district to another within the Boyolali District. It included interviews with village leaders to gather information about socioeconomic characteristics, poverty-related issues, and microfinance in the villages. These observations resulted in the selection of four villages to be the research sites: *Karangkepoh, Musuk, Sudimoro and Tumang.* These villages were selected because they have relatively better transport access, and are close to the district capital of Boyolali. Distances from the district capital to the villages of Karangkepoh, Musuk, Sudimoro and Tumang are approximately four, ten, fifteen and twenty-two kilometres, respectively. However, these villages have different economic characteristics. The village of Karangkepoh, for instance, constitutes small-scale trade and manufacturing activities. In the village of Musuk, most people work as small non-rice farmers with no irrigation infrastructure. This village regularly faces water shortage problems during the dry season. Most people in the Sudimoro village are rice farmers with good quality irrigation infrastructure. The Tumang village is the home of traditional handcraft production, despite many people engaging in non-rice farm production.

Following the selection of the survey areas, the questionnaires were translated into Indonesian. Pilot testing of the questionnaires was then undertaken by interviewing ten (10) respondents. The aim was to select suitable indicators to be included in the final questionnaires, and to avoid overlapping questions. The pilot testing was also used to measure the time needed to interview each respondent. In the pilot testing, the questionnaire for microfinance clients consisted of sixty-seven questions, with twenty of them are open-ended in nature. Having a large number of open-ended questions, the questionnaire was found to be impracticable, as it took more than one hour to finish an interview. Two important things were learnt from the pilot testing. Firstly, it was found that the respondents often did not directly answer the questions. This also made interview times in the pilot testing much longer than expected. Secondly, it was found that the questionnaires contained some overlapping questions that needed to be adjusted. Similar problems occurred during the pilot testing for the questionnaire of MFIs.

Having learnt from the pilot testing, the questionnaires for MFIs and individual clients were adjusted to suit the socioeconomic and cultural conditions of the respondents. Having poor people with low levels of education as respondents, the questionnaires were designed to be as simple as possible. The final questionnaires are presented in Appendices 1 and 2.

After the pilot study the formal process of the survey of individual respondents was undertaken in the villages of *Karangkepoh, Musuk, Sudimoro and Tumang*. During the survey, the challenge was to find suitable times for interviewing farmers. The appropriate time for interviews was in the afternoon, particularly after 2 pm, when most farmers had returned home to rest and eat lunch. The best time for interviews with small traders was between 11 am to 1 pm in the marketplace. During this time most traders were not busy, so interviews were not interrupted by customers. Finding appropriate times for interviews with home-industry manufacturers was not so difficult, as they typically have regular working hours from 9 am to 4 pm in their home. They were pleased to have interviews anytime during these working hours. In total 231 people were interviewed. A more detailed analysis of the characteristics of respondents is presented in Chapter 5.

The second part of the empirical research involved interviewing microfinanciers. The population of the existing formal MFIs was gathered from different sources. The BRI-unit data was obtained from the BRI branch office at the Boyolali District, while BPRs and BKKs were collected from the microbank association of Boyolali *(PERBARINDO)*, and the central bank's branch office at Surakarta. Formal procedures were required to survey these formal MFIs. For instance, approval from the head of the BRI branch office was required to access information on the BRI-units. A recommendation from the head of the microbank association *(PERBARINDO)* facilitated access to BPRs and BKKs. There was no difficulty finding the exact location of formal MFIs, as the data provided a complete list of addresses of the microbanks. We used the same procedure to survey the respondents of cooperatives. Cooperative data was obtained from the local cooperative authority of the Boyolali District. A problem that arose was that the data provided incomplete addresses for many cooperatives. To overcome this, the snow-ball sampling technique was utilised by interviewing the first contact of a particular cooperative, and then asking him/her for information about other cooperatives that could be part of the survey (see Blaikie 2000). We repeated this snow-balling procedure when required. This method was also applied to the interviewing of moneylenders.

Respondents from ROSCAs were identified by information provided by village leaders in the research area. To gather information on how this self-help support mechanism works for the poor, I became actively involved in some ROSCA and cooperative meetings. The survey successfully interviewed 153 respondents of MFIs, covering formal, semi-formal and informal providers. The formal MFIs comprised 10 BRI-units, 12 BPRs, and 24 BKKs. Forty-one (41) respondents from cooperatives were interviewed to represent semi-formal MFIs. The informal MFIs comprised 33 respondents from ROSCAs and 23 moneylenders.

3.4 METHODS OF DATA ANALYSIS

Following data collection, statistical analysis was begun by employing standard procedures for editing and coding. The statistical analysis then employed various methods, such as percentage distribution, cross-tabulation, chi-square analysis, correlation and multiple regression methods. The following subsections review the statistical methods utilised for data analysis.

3.4.1 PERCENTAGE DISTRIBUTION AND CROSS-TABULATION ANALYSES

The statistical methods of percentage distribution and cross-tabulations were used to describe the socioeconomic characteristics of respondents, such as age, gender, education, occupation and income, in relation to their accessibility to microfinance. These statistical methods were deemed to be especially useful for analysing *Hypothesis* H_1, that heterogeneous characteristics of clients and institutions lead to market segmentation in the microfinance industry in the research location. As has been emphasised in Chapter 2, market segmentation in microfinance is associated with the presence of informational and enforcement problems. In this regard, we investigate the following two sub-hypotheses: (1) *Sub-hypothesis* H_{1A}, that the poor have various motives and constraints in utilising microfinance services; and (2) *Sub-hypothesis* H_{1B}, that the ability MFIs to deliver microfinance is limited by geographical factors, scale of operation, and difficulties in gathering information about the creditworthiness of the poor.

To investigate *Sub-hypothesis* H_{1A}, we used cross-tabulation analyses by constructing a number of contingency tables. The contingency tables, for instance, link the motivations of borrowing with levels of income, education and occupation of respondents. Using a contingency table, Chapter 5 shows that the poor utilise loans for many purposes, such as financing production, children's education, social activities, the purchase of medication, buying land or a house, repaying other loans, and household consumption. The contingency tables were also perceived to be useful for investigating various constraints of the poor in utilising loans. The tables show that access to microfinance services diverged with respect to education, income and occupation of respondents. The respondents with higher levels of income and education tend to have greater access to formal finance (e.g., microbank loans). Contingency tables also revealed that access of the poor to microfinance is associated with their inability to utilise social and kinship networks. This is the case as a small percentage of poor respondents gained help from relatives and friends to access formal MFIs. In contrast, a greater proportion of the non-poor respondents gained help from relatives and friends to access microfinance services from formal MFIs.

Regarding *Sub-hypothesis* H_{1B}, financial practices of formal, semi-formal and informal MFIs were investigated. The result shows that different MFIs

have different operational scales, targeted clients, and geographical location and business skills. On average, microbanks have greater operational scale, and geographical coverage and better business skills than semi-formal and informal MFIs such as cooperatives and moneylenders. The targeted clients also diverge across MFIs. While microbanks tend to focus on the better-off-poor and non-poor clients, cooperatives and moneylenders serve the poor and the very poor clients. Thus, such diverse operational characteristics imply market segmentation in microfinance as MFIs in the same location tend to charge different interest rates on loans. For instance, the majority of microbanks (e.g., BRI-units, BPRs and BKKs) charge annual loan interest rates in the range of 20.0 to 24.9 percent. Interest rates charged on loans by cooperatives range from 20.0 to 40.0 percent annually. Loan interest rates of moneylenders are significantly higher than those of microbanks and cooperatives, ranging from 35.0 to 50.0 percent. The extent to which such market segmentation occurs in the microfinance industry in the research location is discussed further in Chapter 5.

3.4.2 CHI-SQUARE ANALYSIS

We undertook chi-square analysis to statistically test the relationships between considered variables in this thesis. Chi-square analysis has been extensively used for analysing categorical data (Howell 2007). As most variables in this study use categorical measurement, chi-square analysis is desirable. In this thesis we apply the chi-square analysis to investigate contingency tables with two classification variables, say variable X and variable Y. Thus, in order to test whether these two variables are independent or correlated with one another, we compute the coefficient of chi-square (χ^2). Suppose that a contingency table has *r* rows and *k* columns. Then the coefficient of chi-square (χ^2) can be calculated as follows:

$$\chi^2 = \sum_{i=1}^{r} \sum_{j=1}^{j} \frac{(O_{ij} - E_{ij})^2}{E_{ij}} \quad \text{.....(1)}$$

where O_{ij} is observed frequency in row *i*, column *j*, and E_{ij} is expected frequency in row *i*, column *j*. In the hypothesis testing, if the estimated coefficient of chi-square (χ^2) is greater than the value at the standard tabled distribution of χ^2 at the 95 percent level of confidence, we reject the null hypothesis *(H_o)* and accept the alternative hypothesis *(H_a)*. In this case, we can statistically infer that the two considered variables are correlated with one another. In contrast, if the estimated coefficient of χ^2 is less than the critical value at the standard tabled distribution of chi-square, the null hypothesis is accepted, and thus the two variables are not statistically correlated (Howell 2007). Alternatively, in the hypothesis testing, if the estimated coefficient of χ^2 results in a probability value (*p*-value) smaller than 0.05, we reject the null hypothesis *(H_o)*, and accept the alternative hypothesis *(H_a)*, that the two variables considered are statistically correlated

to one another at the 95 percent level of significance. However, if the coefficient of *p*-value is greater than 0.05, we accept the null hypothesis, and hence the two variables are not correlated to one another at the 95 percent level (Howell 2007).

In Chapter 6, the chi-square analyses are extensively used to investigate whether the willingness to provide loans to others is affected by income, occupation, gender, age, and education levels of respondents *(Sub-hypothesis H_{2A})*. We expect that the willingness to provide loans to relatives, neighbours and friends is not strongly correlated with income, education level, gender, age or occupation of lenders. This implies the willingness to provide loans to other is more likely associated with social capital-related factors, such as social trust, friendship and reciprocity. Similarly, the willingness to make in-time repayment of loans is expected to be uncorrelated to the specific characteristics of borrowers, such as income, education, age, gender and occupation. The hypothesis testing procedures for examining whether the willingness to provide loans to others is correlated with income, for instance, are as follows.

If *p*-value of $\chi^2 > 0.05$: We accept the *null hypothesis (H_o)* that the willingness to provide loans to relatives, neighbours and friends is not affected by the income level of lenders.

If *p*-value of $\chi^2 < 0.05$: We accept the *alternative hypothesis (H_a)* that the willingness to provide loans to relatives, neighbour and friend is affected by the income level of lenders.

For instance, the computation of the variable of income results in a chi-square coefficient of 55.59 with the *p*-value of 0.00. As the coefficient of the *p*-value is smaller than 0.05 ($0.00 < 0.05$), we thus accept the alternative hypothesis *(H_a)* that the willingness to provide loans to others is affected by the income of the lender. The same procedure is applied for analysing whether the variables of age, gender, education levels and occupation affect the willingness to provide and make in-time repayment of loans to relatives, neighbours and friends.

In Chapter 7, chi-square analysis is also used to examine *Hypothesis H_3*, that commercialisation of MFIs increases financial performance, but reduces outreach to the poor. In this analysis financial performance is measured by financial intermediation, profitability and loan repayment rates of microbanks. The capacity of MFIs to serve poor clients is measured by the 'breadth' and 'depth' of outreach. The breadth of outreach refers to the number of clients being served by MFIs. Here, a greater number of microfinance clients indicates a greater outreach by MFIs. The depth of outreach can be measured by the average loan size and the minimum size of loans (Ledgerwood 1999; Charitonenko et al. 2004). The smaller the

average loan size, the greater the capability of MFIs to serve poor clients. MFIs are decomposed into two groups. The first is MFIs that represent purely commercial microbanks such as BRI-units and BPRs. This group of MFIs takes the value of one (1). In contrast, the second is MFIs that have non-commercial-based operations, such as BKKs and BKDs. These MFIs take a value of zero (0) in the chi-square analyses.

To examine whether commercial practices improve the lending mobilisation of microbanks, the hypothesis testing procedures in the chi-square analysis can be presented as follows.

If *p*-value of $\chi^2 > 0.05$: We accept the *null hypothesis* (H_o) that commercialisation does not lead to an increase in lending mobilisation of microbanks.

If *p*-value of $\chi^2 < 0.05$: We accept the *alternative hypothesis* (H_a) that the commercialisation leads to an increase in lending mobilisation of microbanks.

In Chapter 7, for instance, the chi-square computation of the variable of lending mobilisation results in a chi-square coefficient of 19.945 with *p*-value of 0.001. Thus as the *p*-value is smaller than 0.05 (0.001 < 0.05), we reject H_o at the 95 percent level of significance. Thus it can be concluded that, statistically, commercialisation practices lead to an increase in lending mobilisation of microbanks. We undertake the same procedure for analysing whether commercialisation affects savings mobilisation, profitability and repayment rates of microbanks.

We also use chi-square analysis to investigate whether commercial practices reduce the outreach of microbanks. Here, we use four indicators of the outreach of microfinance providers to the poor: average loans size, minimum size of loan, the number of borrowers and the number of savers. For instance, for the hypothesis testing procedure whether commercialisation statistically affects the average loan size of microbanks can be constructed as follows.

If *p*-value of $\chi^2 > 0.05$: We accept the *null hypothesis* (H_o) that commercialisation does not lead to an increase in the average size of loan of microbanks.

If *p*-value of $\chi^2 < 0.05$: We accept the *alternative hypothesis* (H_a) that commercialisation leads to an increase in the average size of loan of microbanks.

In Chapter 7, the computation of the variable of average loan size results in a chi-square coefficient of 20.786 with a *p*-value of 0.001. As the coefficient of the *p*-value is smaller than 0.05, we accept the alternative hypothesis that commercialisation leads to an increase in the average size of loans of microbanks at the 95 percent level. Thus we can conclude that commercial practices potentially reduce the outreach of microbanks to the

poor. This reduction is mostly due to a greater average size of loan. We undertake the same procedure for investigating the relationship between commercial practices and financial performance and outreach of semi-formal and informal MFIs.

3.4.3 LOGIT REGRESSION

In this thesis we use the logit model extensively. It is preferred because our regressions use a dummy (binary) dependent variable. For instance, in analysing the determinants of borrowing, the explanatory variable takes a value of one (1) if respondents obtain loans from banks, and zero (0) otherwise. Similarly, to investigate the problem of credit rationing from formal finance, the dependent variable takes a value of one (1), if the respondents only obtain loans from informal MFIs (e.g., relatives, neighbours, and moneylenders). Conversely, it takes the value of zero (0), if the respondents can access loans from banks and cooperatives. Furthermore, the logit model is also employed to examine the extent to which microfinance can improve the welfare of poor people. Here, three indicators are used to represent the welfare of the poor: the ability to improve children's education, degree of confidence in dealing with others, and frequency of facing household financial difficulties. In analysing the impact of microfinance on children's education, the dependent variable takes the value of one (1), if respondents have children with senior high school or university education. It takes the value of zero (0) if the respondents have children with junior high school or lesser levels of education.

To examine the impacts of microfinance on the probability of facing household financial difficulties, the dependent variable of the logit model is constructed by taking a value of zero (0) if respondents never face financial difficulties, and one (1) otherwise. Similarly, to examine the impact on self-confidence in dealing with others, the dependent variable takes the value of one (1) if respondents are confident and very confident in dealing with other people. In contrast, it takes the value of zero (0) if respondents are not confident in dealing with other people.

Various methods have been developed to estimate models with a dummy dependent variable, such as the linear probability method (LPM), probit, logit and tobit models. The LPM method is methodologically weak, as it can result in the predicted values of dependent variables being negative or greater than one (1). This does not make sense for a probability which is assumed to fall in the range of 0 and 1 (Greene 2003). Tobit estimations are commonly used when data are partly omitted or censored. However, the disadvantage of censoring the data is that it can reduce the quality of the information. Greene (2003, p. 764) warns that "if data are always censored, the [estimate] result will usually not be useful". As data in this study are not censored, the econometric analysis does not utilise the tobit estimation.

Probit and logit estimations have the same procedure of computation, and often produce a very similar result. The only difference is that the probit model is based on the standard normal distribution probability, whereas the logit model utilises the logistic probability distribution. These probability distributions have the same bell shape, but the logistic distribution tends to be heavier in the tails than the normal probability distribution. This econometric analysis of this study employs the logit estimation.

As is widely known, the logit model is derived from cumulative logistic probability as follows,

$$P_i = F(a + bX_i) = \frac{1}{1 + e^{-(a + b X_i)}} \quad \text{.....(2)}$$

where P_i is the probability of a certain event, given X_i, and e is a constant number approximately equal to 2.718. To construct a logit model, firstly, the above equation can be rearranged by multiplying both sides by $1 + e^{-(a + b Xi)}$ to obtain,

$$(1 + e^{-(a + bi Xi)})\, P_i = 1 \text{ or}$$

$$e^{-(a + bi Xi)} = \frac{1}{P_i} - 1 = \frac{(1 - Pi)}{P_i} \quad \text{.....(3)}$$

We know that $e^{-(a + bi Xi)}$ equal to $1/e^{(a + bi Xi)}$, so that Equation 3 can be rearranged as:

$$e^{(a + bi Xi)} = \frac{Pi}{(1 - P_i)} \quad \text{.....(4)}$$

Then, by taking the natural logarithm of both sides, Equation 4 becomes,

$$\text{Log} \frac{P_i}{(1 - P_i)} = a + b_i X_i \quad \text{.....(5)}$$

Equation 5 is known as the logit model. The ratio $P_i/(1–P_i)$ is recognised as the probability of a particular event occurring at given X_i. X_i represents the vector independent variables for the ith observation, while a is a constant and b_i represents the coefficient parameters of the selected independent variables. The common procedure to estimate the logit model of Equation 5 is the maximum likelihood method. Using iterative procedures, this method will determine the best-linear combination of

explanatory variables that maximise the probability of obtaining the observed outcome frequencies (Greene 2003).

To investigate *Hypothesis* H_2, that social capital plays an important role in microfinance, we utilise the model of credit rationing (ration). Specifically, the model of credit rationing examines *Sub-hypothesis* H_{2B}, whether social and business networks increase access of the poor to microfinance. Here, the probability of facing credit rationing (P_i) occurs when respondents only obtain loans from informal MFIs, such as moneylenders and ROSCAs. Thus, the probability of not facing credit rationing ($1–P_i$) is when the respondents can access loans from microbanks and cooperatives. Given this, the probability of facing credit rationing can be modelled as,

$$\text{Log (Ration)} \begin{cases} 1, \text{ if respondent only obtains loans from informal MFIs} = P_i \\ 0, \text{ if respondent obtains loans from formal and semi-formal MFIs} = (1 - P_i) \end{cases}$$

Hence, the logit model can be constructed as:

$$\text{Log} \frac{P_i}{(1 - P_i)} = (\text{Ration}) = a + b_i X_i \quad \text{.....(6)}$$

As has been discussed in Chapter 2, the probability of facing credit rationing is affected by social capital variables, including frequency of visits to relatives *(Visit)*, discussions with family members before borrowing *(Discuss),* participation in ROSCAs *(Rosca),* and business associations *(Basoc),* plus other economic-related variables, such as income *(Income)*, ownerships of liquid assets *(Asset),* the size of house *(House)* and education level *(Edu).* Thus, our logit model of credit rationing can take a simple form as follows.

$$\text{Log (Ration)} = a + b_1 \text{ Edu} + b_2 \text{ Income} + b_3 \text{ Asset} + b_4 \text{ House} + b_5 \text{ Discuss} + b_6 \text{ Visit} + b_7 \text{ Rosca} + b_8 \text{ Basoc} + E \quad \text{.....(7)}$$

where a is the estimated constant, b_1 to b_8 are the estimated coefficients of the explanatory variables, and E is the error term.

We use the same procedure in constructing the logit model for analysing *Hypothesis* H_4, that microfinance contributes to the improvement of the welfare of the poor. For instance, considering *Sub-hypothesis* H_{4A}, that access to microfinance leads to the improvement in children's education, the logit model can be constructed as follows.

$$\text{1, if children of respondents have high-school or university education} = P_i$$

Log (ChildEdu){

0, if children of respondents have education below high school = $(1 - P_i)$

Hence, the logit model for the probability of respondents having children with high school or university education can be constructed as,

$$\text{Log} \frac{P_i}{(1 - P_i)} = (\text{ChildEdu}) = a + b_i X_i \quad \text{.....(8)}$$

The probability of having children with higher levels of education is hypothetically affected by levels of parental education *(Edu),* period of time engaging in business enterprises *(Year),* monthly income *(Income)*, membership in ROSCAs *(Rosca),* access to loans from friends *(Bfriend),* moneylenders *(Blender)*, and borrowing from microbanks and cooperatives *(BFormal)*. The simple form of the logit model can be presented in the equation below.

$$\text{Log (ChildEdu)} = a + b_1 \text{ Edu} + b_2 \text{ Income} + b_3 \text{ Year} + b_4 \text{ Rosca} + b_5 \text{ Bfriend} + b_6 \text{ Blender} + b_7 \text{ Bformal} + E \quad \text{.....(9)}$$

where a is the estimated constant, b_1 to b_7 are the estimated coefficients of explanatory variables, and E is the error term. We use the same procedure to estimate the logit model of the impact of microfinance on the probability of facing household financial problems and self-confidence in dealing with other people.

It is worth noting that the estimated coefficients of the logit model do not directly indicate the magnitude of the effect of the explanatory variables on the probability of the dependent variable. According to Hosmer and Lemeshow (2000), in the logit model the magnitude-effect of explanatory variables on the dependant variable can be recognised by the computation of the 'odd ratio' (OR) of the estimated coefficients. The odd ratio can be calculated as:

$$OR = e^{(a + bi)-a} = e^{bi} \quad \text{.....(10)}$$

where e = 2.718, a = the estimated constant, and b_i = the estimated coefficient of variable X_i. Suppose that the logit regression of credit rationing results in the coefficient of the variable *Income* being –0.05. The odd ratio of this coefficient is $e^{-0.05} = 0.951$. This means that an increase in income of 10 percent is associated with a decrease in the probability of facing credit rationing by 9.5 percent. We use the same procedure to interpret the estimated coefficients of other variables in the logit

regressions. The computation results of logit regressions of this study are presented in Chapters 6 and 7.

3.4.4 ORDINARY LEAST SQUARE REGRESSION

To examine the relationship between social capital and loan repayment rates of MFIs *(Sub-hypothesis H_{2C})*, the ordinary least square (OLS) method was employed. It is worth noting that data on loan repayment rates of MFIs are approximate. There was a significant difficulty in gathering information about the loan repayment rates of the surveyed MFIs. The loan repayment rates of microbanks, for instance, could not be accessed due to confidentiality. Because of inappropriate accounting reports, ROSCAs and moneylenders could not provide data on loan repayment rates. To overcome this problem, we surveyed MFIs vis-à-vis a list of loan repayment rates to be selected. Each respondent choose one of the following ranges of loan repayment rates: (1) 90 – 100 percent, (2) 80 – 90 percent, (3) 70 – 80 percent, (4) 60 – 70 percent, and so on through to 0 – 10 percent. Then, the mean value of the selected scale was assumed to be the loan repayment rates of the MFIs.

The literature suggests that the index of social capital can be measured by the existence of social associations, membership in such associations, political participation, and the like within a region(s) (see Putnam 1995). However, this method could not be implemented because the unit of analysis in this study is individual MFIs, with items such as lending mobilisation capacity and financial performance (e.g., loan repayment rate) of a particular MFI being assessed. Hence, in analysing the role of social capital in enhancing loan repayments rates, we constructed an index of perceptions of MFIs on the importance of social capital (SCI). Here, four indicators were considered: 1) personal knowledge of borrowers (X_1); 2) perceptions of the importance of familial stability of borrowers (X_2); 3) friendships with borrowers (X_3); and 4) perceptions of the importance of community leaders in lending decisions (X_4). As each indicator had score values in the range of 1 to 4, the SCI for each MFI (n) could be calculated as the sum of score values divided by total score (16) times 100, or simply as,

Social Capital Index, SCI_n**Error! Bookmark not defined.** = $(\sum^{4}_{i=1} X_{in})/16*100$.....(11)

Suppose that an MFI has score values for each social capital indicator of $X_1 = 4$, $X_2 = 4$, $X_3 = 4$, $X_4 = 4$. The index of social capital for this MFI would be 100. This is the maximum value of the index. The minimum value of the index will be 25, which would be the case when MFIs have the score value of one (1) for each indicator. The index of social capital varies, depending on the perceptions of MFIs toward the importance of social capital. It increases as MFIs regard social capital as an important factor in

their lending decisions. In contrast, it declines as MFIs disregard the importance of social capital. The social capital index was constructed to investigate the extent to which social capital can affect financial performance of MFIs. Here, the financial performance of MFIs is measured by the rate of loan repayment.

The variable 'Rt' (rate of loan repayment) is expected to be influenced by the following explanatory variables: the average loan size *(Avloan),* the size of loan instalments *(Instal),* loan instalment period *(Period),* loan interest rates *(Intres),* years of enterprise *(Year),* the proportion of lending staff living in the area of the business *(Labor),* and the perception of the importance of social capital in lending decisions (SCI). Thus, in a simple form, the linear model of repayment rates can be written as,

$$Rt = a + \beta_1 \text{ Avloan} + \beta_2 \text{ Instal} + \beta_3 \text{ Period} + \beta_4 \text{ Intres} + \beta_5 \text{ Year} + \beta_6 \text{ Labor} + \beta_7 \text{ SCI} + E \quad (12)$$

where a is the estimated constant, β_1 to β_7 are the estimated coefficients of explanatory variables, and E is the error term.

In estimating the above equation, the data of each variable is transformed into a logarithm, so that the estimated coefficients indicate the magnitude of the change in explanatory variables on the dependent variable. However, we need to undertake a test of whether the selected explanatory variables in the regression jointly affect the dependent variable. Howell (2007) suggests that prior to analysing estimated coefficients of individual variables, one should test whether the set of selected explanatory variables statistically affect the dependent variable. In doing so, we carry out the *F*-test. If the estimated coefficient of the *F*-statistic is greater that the *F*-table at a 95 percent level, it shows that the selected explanatory variables jointly affect the dependent variable. Following the *F*-test, we then interpret the estimated coefficient of individual variables. A positive and significant estimated coefficient of the variable *'Intres'*, for instance, implies that an increase in interest rates is associated with an increase in loan repayment rates. The estimated regression of repayment rates is discussed further in Chapter 6 of the thesis.

4.5 CONCLUDING DISCUSSION

This chapter has outlined the research methodology utilised in this study. Regarding microfinance as a complex phenomenon, we propose four general hypotheses comprising ten sub-hypotheses to be investigated in this study. Data were collected for two types of sample: microfinance clients and institutional providers (MFIs). Various statistical methods were employed to examine the hypotheses of this study, such as percentage distribution, cross-tabulation analysis, chi-square, correlation, logit regression and ordinary least square (OLS) regression methods. The

institutional analysis of microfinance in Indonesia is presented in Chapter 4, while the institutional characteristic of the microfinance industry in the research location is deeply investigated in Chapter 5. Here, the extent to which the heterogeneous nature of clients and institutional providers leads to market segmentation in microfinance are emphasised *(Hypothesis H_1)*. In Chapter 6, we deeply investigate the extent to which social capital influences microfinance operations and enhances the access of the poor to financial services *(Hypothesis H_2)*. Chapter 7 presents an analysis of *Hypothesis H_3* and *Hypothesis H_4*. In the first part of Chapter 7, we investigate whether a trade-off (synergy) exists between commercialisation and outreach of MFIs to serve the poor *(Hypothesis H_3)*. The second part of Chapter 7 investigates *Hypothesis H_4*, that microfinance contributes to the improvement of the welfare of the poor. Here, three important aspects are examined: the impact of microfinance on (1) children's education, (2) the incidence of facing financial difficulties, and (3) the degree of confidence in dealing with others.

CHAPTER FOUR
THE DEVELOPMENT OF MICROFINANCE IN INDONESIA

4.1 INTRODUCTION

The present chapter examines the development of microfinance in Indonesia in relation to four critical issues raised in this study: market segmentation in microfinance, the importance of social capital, contradictions within microfinance operations, and the welfare impacts of microfinance on the poor. An understanding of the development of microfinance and the financial practices of MFIs will provide useful insight and background for further assessing these issues in the region of Boyolali.

As this thesis examines microfinance in relation to poverty, the next section of this chapter explores the incidence of poverty in Indonesia and the way the Indonesian government has sought to alleviate poverty through microfinance. Section 4.3 scrutinises the progress of financial intermediaries across different MFIs in Indonesia. It is linked to the extent to which heterogenous institutional characteristics lead to market segmentation in microfinance *(Hypothesis H_1)*. Section 4.4 reviews the financial performance and practices of formal, semi-formal and informal MFIs. Here, the importance of social capital in microfinance *(Hypothesis H_2)*, and the profitability–outreach nexus within microfinance operations *(Hypothesis H_3)* are emphasised. Section 4.5 reviews the welfare impacts of microfinance on the poor. The aim is to explore *Hypothesis H_4*, that microfinance has the potential to improve the welfare of the poor in Indonesia. Section 4.6 then concludes this chapter.

4.2 THE INCIDENCE OF POVERTY AND THE NEED FOR MICROFINANCE

Prior to the financial crisis in 1997, Indonesia had made substantial progress in reducing the number of poor people. Table 4.1 outlines the incidence of poverty in Indonesia from 1990 to 2006. In 1990, the proportion of poor people was estimated at 15.1 percent of the total population, compared to 40 percent in 1970 (Martowijoyo 2007; ADB 2003; BI and GTZ 2000). This figure was further reduced to 11.3 percent in 1996. Following the financial crisis, the contraction in Indonesia's economy increased the incidence of poverty to 23.4 percent in 1999. In conjunction with the economic recovery of Indonesia, the incidence of

poverty was gradually reduced to 17.7 percent in 2006. Table 4.1 also shows a greater proportion of poor people living in rural areas, compared to urban areas. In the period 1990 to 1999, for instance, urban poverty significantly decreased from 16.8 to 9.7 percent, while rural poverty modestly declined from 14.3 to 12.3 percent. In 2006 the number of poor people in rural areas remained significantly greater than in urban areas. As a result, the incidence of rural poverty accounted for 24.7 percent of total poor people, compared to 13.3 percent in the urban areas. This is consistent with a study by the World Bank (2001), which found that the majority of poor people in Indonesia live in rural areas, with their main income emanating from agriculture. According to the World Bank (2001), the incidence of rural poverty stems from a continuous decline in agricultural productivity, the low wage of farm labourers and unhygienic circumstances, such as a lack of clean water and sanitation.

Table 4.1 Urban and Rural Poverty in Indonesia, 1990 – 2006

Year	Urban Poverty		Rural Poverty		Total	
	Number in Million	% of Poor People	Number in Million	% of Poor People	Number in Million	% of Poor People
1990	9.4	16.8	17.8	14.3	27.2	15.1
1993	8.7	13.4	17.2	13.8	22.5	13.7
1996	7.2	9.7	15.3	12.3	15.3	11.3
1999	15.6	19.4	32.3	26.0	47.9	23.4
2002	13.3	14.5	25.1	21.1	38.4	18.2
2006	14.3	13.3	21.9	24.7	39.0	17.7

Source: Central Bureau of Statistics of Indonesia/BPS (2007)

The incidence of rural poverty indicates that Indonesia's development strategy has provided more benefits to urban dwellers than villagers. This urban–biased development stems from two factors. The first is the industrial concentration that has led to infrastructure development in urban areas being prioritised. At the same time, the development of rural infrastructure has been overlooked due to the limited budget of the government. The ultimate impact is stagnant agricultural production, leading to the low incomes of rural dwellers. The second factor is the policy of industrialisation, accompanied by low minimum wages. To sustain this policy, the government set a low price for agricultural commodities, particularly rice, the staple food of all Indonesians. The low price of rice is ensured by the market–ceiling policy and the involvement of a state-owned monopolist, *Badan Urusan Logistic (Bulog)*. To sustain rice production, the government provides subsidised credit schemes to farmers to purchase necessary inputs. However, these subsidies fail to increase rural incomes because they represent a transfer from farmers to urban labourers. Thus, industrialisation in Indonesia has been built upon the generation of rural poverty.

Several studies have shown that the Indonesian economy remains reliant on the progress of micro- and small-scale enterprises (MSEs) (Rice 2003; Charitonenko and Afwan 2003; Berry et al. 2001; Hill 2001). The development of MSEs is also important in alleviating poverty, through their role in providing income and employment to the poor. However, the development of the industrial sector indicates the country's imbalance between small- and large-scale enterprises. Table 4.2 reveals the role played by MSEs in the Indonesian economy. It indicates that MSEs constitute 99.8 percent of total establishments, compared to only 0.2 percent for medium- and large-scale enterprises (MLEs). However, MLEs contribute 78 to 80 percent of total investment, while investment in MSEs accounts for 20 to 22 percent. MSEs play a vital role in reducing unemployment, as they contribute to around 91 percent of total employment. In contrast, the labour employed in MLEs accounts for only 9 percent. Regarding the small value of exports generated by MSEs (4.7 percent of total exports in 2006), the output of MSEs is mostly produced for domestic markets. This implies that the growth of MSEs depends on the Indonesian economy maintaining sufficient domestic demand, such as through an increase in the GDP per capita (especially consumption). This indicates that MLEs have enjoyed a larger proportion of the recent progress of the Indonesian economy. Such an imbalance tends to amplify income disparity between lower and upper classes, as the former rely on income from the production of MSEs.

Table 4.2 The Contribution of Micro- and Small-scale Enterprises (MSEs) to the Indonesian Economy, 2000 – 2006

Indicator	2000		2003		2006	
	Value/unit	(%)	Value/unit	(%)	Value/unit	(%)
Number of Establishment:						
Micro and Small	39,705,204	(99.8)	43,372,885	(99.8)	48,822,925	(99.8)
Medium and Large	84,507	(0.2)	93,871	(0.2)	113,915	(0.2)
Employment:						
Micro and Small	68,791,152	(91.3)	77,947,490	(91.6)	80,933,384	(91.1)
Medium and Large	6,609,030	(8.7)	7,140,599	(8.4)	7,871,571	(8.9)
Investment: (Rp million)						
Micro and Small	51,490,736	(21.5)	60,038,938	(19.4)	85,625,085	(21.2)
Medium and Large	188,390,563	(78.5)	249,392,101	(80.6)	318,981,540	(78.8)
Export Value: (Rp million)						
Micro and Small	21,136,510	(4.3)	19,941,068	(4.9)	30,303,653	(4.7)
Medium and Large	465,415,895	(95.7)	382,534,146	(95.1)	607,397,270	(95.3)

Note:
The Indonesian Central Bureau of Statistics (BPS) classifies large-scale enterprises, as having more than 99 employees, medium-scale enterprises as of having 22 – 99 employees, and micro- and small-scale enterprises have less than 20 employees (BPS 1996).

Source: Ministry of Cooperatives and SMEs (2006)

The development of MSEs in Indonesia is constrained by the following three factors. The first factor is the dispersed location of SME operations. The localisation of MSEs through industrial clustering policies

imposes high costs on the government. Insufficient transportation and communication infrastructure also constrains MSEs from expanding marketing networks and subcontracting for large-scale manufacturers (Thee 1994). The second factor is related to the low quality of human capital and entrepreneurship. A large number of MSEs are owned and run by people with low levels of education and skills, and thus their capacity to adopt advanced production techniques is low (Moregawe et al. 1995). A lack of entrepreneurship is associated with the subsistence production characteristics of MSEs. A famous study of the Javanese society by Geertz (1963) probably remains relevant to indicate the business characteristics of MSEs in Indonesia. It is said that the production characteristics in the rural community of Java constitutes an "involution". This term refers to social evolution that leads to a stagnant level of subsistence output, rather than a technologically dynamic progression, in response to a greater population pressure (Booth 1990). According to Geertz (1963), such subsistence production stems from a lack of self-driven motivation and entrepreneurship to exploit market opportunities.

The third factor constraining the development of MSEs in Indonesia is a lack of finance. This factor downplaying the importance of microfinance in financing MSEs (see, for example, Meyer and Nagarajan 1999; Zeller et al. 1997; Robinson 2001). Commercial banks are unwilling to lend to MSEs for three reasons. The first is associated with the demand of MSEs for small-scale loans. Since loan sizes are small, the average cost of processing and managing such loans are high, compared to larger loans. As a result, commercial banks prefer to serve large-scale enterprises demanding greater loans (Zeller and Johannsen 2006; Levy 1993). The second is the failure of MSEs to provide good collateral to secure their loans. The absence of collateral leads commercial banks to face a high risk in lending to MSEs (Baydas et al. 1997). This is the case as commercial banks find it difficult to screen creditworthy applicants, and in the case of loan default, they cannot enforce repayment. As Hill (2006) points out, the weak system of land entitlement in Indonesia has adversely affected the willingness of commercial banks to serve MSEs. For instance, many farmers and MSEs do not have land ownership certificate that can be used as collateral in borrowing from banks.

The question arises as to what extent Indonesia's national government has sought to alleviate poverty through microfinance. Prior to the 1990s, the government's poverty alleviation strategy (which had microfinance components) was mainly undertaken through the provision of subsidised credit to the agricultural sector. An example is the *Bimas* program and the *Kredit Usaha Tani/KUT* credit program for micro farmers. These subsidised credit schemes, however, tend to fail due to high default rates. Two factors are responsible for such failures. Firstly, the policy of setting low prices for agricultural commodities, particularly rice, leads to low farm incomes. As a

result, lower incomes diminish the ability of farmers to make repayments, leading to the high default rates of subsidised credit schemes. Secondly, in a densely populated region such as Java, the growth of agricultural production to alleviate poverty is reaching its limit. This is the case as the development of the industrial sector in Java has caused a significant decrease in the size of farmlands. Such rapid deterioration of farmland inhibits subsidised credit programs from enhancing agricultural production and the income of poor farmers.

The ability of MFIs to overcome informational and enforcement problems play a vital role in microfinance operations. The microfinance literature suggests that group lending (the Grameen Bank model) is one of the more prevalent solutions that seek to address such problems. According to Ghatak and Guinnane (1999), grouping a number of poor borrowers who know one another gives rise to social collateral in the forms of moral sanctions and peer pressure exerted upon delinquent borrowers. These collateral substitutes then enable MFIs to reduce informational and enforcement problems. However, the application of the group lending method is relatively new in Indonesia. The income-generating project for poor families *(Usaha Peningkatan Pendapatan Keluaraga Sejahtera* (UPPKS) began to undertake group lending in 1996. According to Hariyadi (2003), this lending method helped to deliver small loans to 584,577 groups, encompassing 10.4 million poor members.

Some NGOs also implement group lending in Indonesia. Many of them fail, while some have grown in terms of operational scale and loan mobilisation. These include *Yayasan Mitra Karya* (YMK), established in 1993, *Yayasan Mitra Usaha* (YMU) in 1998, *Yayasan Dharma Bhakti Parasahabat* (YDBP) in 1999, and the Ganesha Microfinance Foundation in 2003. For instance, the YMU has more than doubled the groups of poor borrowers served from 301 in 1998 to 653 in 2003, encompassing 3,440 members. Lending mobilisation also significantly increased from Rp 1.2 billion (US$ 130,434) in 1998 to Rp 2.5 billion (US$ 222,934) in 2003 (Haryadi 2003). Similarly, the progress of the YDBP group lending program can be recognised through a significant increase in lending mobilisation and group membership. Since being established in 1999, its outstanding loans have grown from Rp 3.9 billion (US$423,910) to Rp 9.6 billion (US$1.0 million) in 2003. Active members of the group have also significantly increased, from 2,250 in 1999 to 16,595 in 2003. The same is true for the replication of the Grameen Bank model by the Ganesha NGO. The group lending program of Ganesha has maintained the growth of loans at 50 percent annually. The number of poor borrowers involved in the group lending programs by Ganesha also significantly increased from 923 in 2003 to 16,056 in 2005 (Ganesha Foundation 2006).

However, Parhusip and Seibel (2000) argue that attempts to replicate the Grameen Bank model in Indonesia remain far from satisfactory. For

instance, *Mitra Karya's* degree of financial self-sufficiency is only 39 percent, and hence it is likely to take a long time to grow into an operationally profitable microbank, if it ever does. Robinson (2001) claims that the replications of the Grameen Bank in Indonesia are unlikely to become sustainable MFIs for two reasons. Firstly, being "clone institutions", many Grameen Bank replications have not adapted their microfinance business to the Indonesian context. For instance, the rigid target of serving the poor disadvantages the replications because failures of poor members to repay substantially deteriorate their financial base. Secondly, reliance on subsidies plus the rigid target of poor clients lowers the savings mobilisation of the Grameen Bank replications (Robinson 2001). The logic is that reliance on subsidies tends to result in operational inefficiency and unwillingness of the replications to mobilise savings (see Morduch 2006; Armendaris de Aghion and Morduch 2005; Adam and Von Pischke 1992). A focus on poor borrowers constrains savings mobilisation of the Grameen Bank replications due to the low incomes of the poor.

The Indonesian government has long utilised cooperatives to help alleviate poverty. However, their aim has never been to build sound business practices into cooperatives. Instead, cooperatives are employed to channel subsidised credit schemes to the poor. As a result, the widespread failure of subsidised credit causes cooperatives to suffer from a lack of trust, and thus to fail to mobilise voluntary savings of their members. Moreover, a large number of cooperatives often experience operational defaults due to mismanagement and corruption. Hence, many cooperatives, especially government-sponsored cooperatives (e.g., KUDs), remain highly dependent upon subsidies from the government (Charitonenko and Afwan 2003). Nevertheless, the recent development of credit and Islamic cooperatives *(Baitul Mal wat Tanwil/BMTs)* has restored some faith that cooperatives can progress toward becoming trustworthy MFIs.

Some microbanks, such as BRI-units, BKKs and BPRs, have successfully served MSEs through lending methods based on social capital. According to Robinson (2001) and Chavez and Gonzales-Vega (1996), the lending progress of BRI-units and BKKs has been associated with frequent face-to-face contact between their lending staff and clients. Initially, this is undertaken through pro-active screening processes in which the lending staff frequently visit the workplaces and homes of borrowers. As such, the lending staff can recognise the pre-existing networks of borrowers. Information about the creditworthiness of borrowers can also be gathered from their neighbours, relatives and community leaders. The lending staff are encouraged to treat clients in a friendly and respectful manner so as to develop close relationships, and to gain the trust and loyalty of borrowers. Building close relationships is also perceived as important in providing incentives for borrowers to prudently manage their loans. Moreover, lending contracts are also linked to community leaders who function as

loan references. The aim is to generate moral pressure and sanctions for borrowers to repay their loans. These are some of the grounds upon which the present study investigates the role of social capital in lending performance of MFIs.

Several researchers have concluded that the implementation of commercial practices contributes to the effective financial performance of microbanks in Indonesia (see Charitonenko et al. 2004; Charitonenko and Afwan 2003; Steinwand 2001; Patern et al. 2000; Parhusip and Seibel 2000; Ravics 1998). These studies, however, tend to ignore potential contradictions between the commercialisation and outreach mission of microbanks for two reasons. The first is that proponents of the commercialisation approach assume that the profit-oriented focus can be undertaken in conjunction with serving the poor. According to Charitonenko and Afwan (2003), for instance, the successful implementation of commercial practices does not lead to an increase in the average loan size of BRI-units. These authors argue that the average loan size of BRI-units remains "accessible" to the poor. The second is that serving the poor is said by some not to be the main focus of microfinance; rather, this is the government's responsibility through poverty alleviation programs (Charitonenko et al. 2004).

In contrast to the above research, the present study argues that a trade-off exists between commercialisation and the outreach mission of microbanks to serve the poor. We hypothesise that the commercial practices of MFIs (e.g., microbanks) increase financial performance, but reduce outreach to the poor (see *Hypothesis H_3*). There is no doubt that commercialisation practices can enhance the financial performance of microbanks through increased operational efficiency and financial discipline (Sanderatne 2002). However, attempts to achieve operational profitability can limit the outreach of microbanks due to an increase in the size of their loans. This tendency to increase the size of loans is due to microbanks facing diseconomies of scale in lending small amount to the poor. To maintain profitability, microbanks also tend to set terms and conditions of lending in favour of non-poor borrowers, such as enforcing the availability of collateral, thus the poor are excluded. This study argues that a trade-off potentially exists between microbanks' profitability and their outreach to the poor.

4.3 Institutional Providers and Segmented Markets of Microfinance

Table 4.3 presents a brief picture of the microfinance industry in Indonesia in 2006. It shows that the microfinance industry comprises a wide array of MFIs. Informal MFIs constitute the largest number of financial providers, followed by semi-formal and formal MFIs. While the number of formal MFIs contributed only 2.7 percent of total MFIs in 2006, semi-formal and

informal MFIs accounted for 14.7 and 82.6 percent, respectively. However, the financial intermediary capacity of formal MFIs is much higher than that of informal and semi-formal MFIs. Formal MFIs have mobilised 96 percent of total micro-savings, while their loan portfolios accounted for 84 percent of total micro-loan covering 40 percent of total borrowers. In contrast, lending mobilisation of informal and semi-formal MFIs accounted for 1.2 percent and 14.5 percent, respectively.

Table 4.3 Microfinance Services by Type of MFIs in Indonesia, 2006

Type of MFIs	Units (%)	Number of Borrower[a](%)	Total Loan[b] (%)	Number of Savers[a] (%)	Total Savings[b] (%)
Formal MFIs:					
BRI-Units	3,916 (1.4)	4,300(22.7)	14,182 (44.7)	29,870 (78.8)	4,700 (67.8)
BPRs	1,984 (0.6)	2,160(15.8)	15,415 (38.3)	5,760 (15.2)	13,888 (27.6)
LDKPs	2,272 (0.7)	500 (3.7)	358 (1.1)	871 (2.3)	334 (0.8)
Semi-formal MFIs:					
BKDs	5,345 (1.7)	410 (3.0)	200 (0.6)	460 (1.2)	28 (0.1)
Cooperatives	39,353 (12.9)	1,855(13.6)	4,317 (13,6)	655 (1.7)	1,142 (3.1)
Microfinance NGOs	124 (0.04)	162 (1.2)	110 (0.3)	82 (0.2)	12 (0.1)
Informal MFIs:					
Credit Unions	1,022 (0.3)	235 (1.7)	396 (1.2)	207 (0.5)	272 (0.7)
ROSCAs*	250,000(82.3)	1,000 (7.3)	N/A	N/A	N/A
Total	304,016 (100)	13,653(100)	31,734 (100)	37,905 (100)	40,477 (100)

Notes: * Estimated figure, [a] figure is in thousand, and [b] is in Rp billion, N/A = Data is not available.

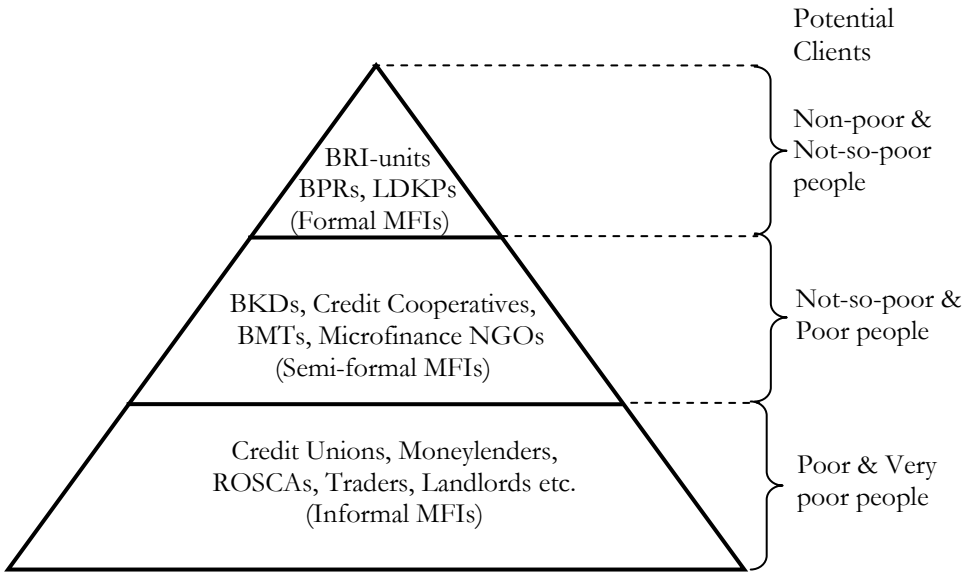
Source: BI (2006) and Martowijoyo (2007)

In Hypothesis H_1, we link the heterogeneous characteristics of MFIs to market segmentation in microfinance. From Table 4.3 we can construct Figure 4.2 to elaborate this hypothesis. This figure indicates the pyramid-like structure of the microfinance industry in Indonesia. It shows market segmentation in microfinance for each group of MFI (e.g., formal, semi-formal and informal), indicating each group's particular targeted clients. For instance, at the top of the pyramid are formal MFIs (e.g., BRI-unit and BPRs), providing financial services to up-market segments. The financial services of these MFIs are mainly designed to finance small-scale enterprises with stable incomes. Formal MFIs also charge low rates of interest rates on loans provided to these clients, due to low risks of lending. Hence, their outreach is often limited to the non-poor and not-so-poor clients.

At lower levels of the pyramid, the number of potential customers is larger. At the median level, semi-formal MFIs take up the microfinance role for not-so-poor and poor clients. For instance, microfinance services of rural credit institutions (BKDs) and credit cooperatives are mainly designed to penetrate this market segment. At the bottom level of the pyramid there are a large number of potential customers demanding small-scale loans. They are the (very) poor who use such loans to secure unpredictable falls in

income. Because of poverty, they need petty loans to cope with living difficulties. As they are not creditworthy, (due to low and unstable incomes), the risk of lending to them is very high. As a result, semi-formal and informal MFIs often charge high interest rates of loans to the poor.

Figure 4.1 The Pyramid of Microfinance and Potential Clients in Indonesia



Source: Adapted from BI and GTZ (2000, p.10)

The question arises as to why market segmentation occurs in the microfinance industry in Indonesia. The present study argues that such market segmentation arises due to the divergent capacity of MFIs to overcome informational and enforcement problems. Although formal MFIs have sophisticated business skills and funding resources to lend, they tend to have lower abilities to overcome such problems than do semi-formal and informal MFIs. Microbanks, for instance, are often unable to gather information about the creditworthiness of poor borrowers because they are operationally distant from the social networks of the poor. Enforcing loan contracts is also problematic for microbanks due to the various motives of the poor in utilising loans. Suppose that microbanks agree to provide loans to poor borrowers only for productive purposes. The poor can then violate the lending contract by utilising such loans for consumption. This interchangeability of loan usage is scarcely recognised by microbanks because the poor mostly do not have accounting records of their activities. Microbanks also fail to force the poor to comply with lending agreements due to their lack of collateral. In response, microbanks prefer to serve non-poor clients who can provide good collateral and have a stable income.

Microbanks serving non-poor clients lead to credit–supply rationing in microfinance markets. As a result, microfinance markets are segmented

as the excess demand of loans encourages semi-formal and informal MFIs (e.g., cooperatives and moneylenders) to take up the role of serving the poor. Unlike microbanks, these MFIs have greater operational flexibility, which enable them to serve the poor. For instance, as individual business practitioners, moneylenders have the freedom to undertake their own lending operations, and are not necessarily accountable to others. Cooperatives, as a non-banking institution, to some degree, have financial services more adaptable to the socioeconomic environment of the poor, such as a lack of collateral and the needs of small loans to finance not only production but also consumption. As Zeller (2003) and Meyer and Nagarajan (1999) recognise, cooperatives and moneylenders have stronger competitive advantages for serving the poor than microbanks.

Market segmentation in microfinance is also reinforced by the limited capacity of cooperatives and moneylenders to serve non-poor clients demanding more sophisticated financial services. Small-scale operations, geographical boundaries and legal constraints inhibit these MFIs from expanding their financial services to non-poor clients. In Indonesia, for instance, cooperatives are legally prohibited from mobilising public savings, leading to low levels of lending capacity. The lending practices of cooperatives are often extended to cooperative members living in the area of operation, hence resulting in a small geographical coverage. Similarly, moneylenders are illegal businesses in Indonesia, constraining their business expansion. Thus, as the financial services of microbanks are predominantly delivered to non-poor clients, the focus of cooperatives and moneylenders on serving the (very) poor results in market segmentation in microfinance. Chapter 5 of this thesis will examine further the extent to which market segmentation in microfinance arises in the survey area.

4.4 FINANCIAL PERFORMANCE AND PRACTICES OF MFIS

The present section reviews the financial performance and practices of various MFIs in Indonesia. Here, the emphasis is linked to *Hypothesis* H_2, that social capital plays an important role in microfinance. Regarding *Hypothesis* H_3, this section investigates the extent to which the successful performance of some microbanks (e.g., BRI-units) reduces their outreach to the poor. In the case of semi-formal and informal MFIs, however, cooperatives and moneylenders can undertake commercial practices in conjunction with serving the poor.

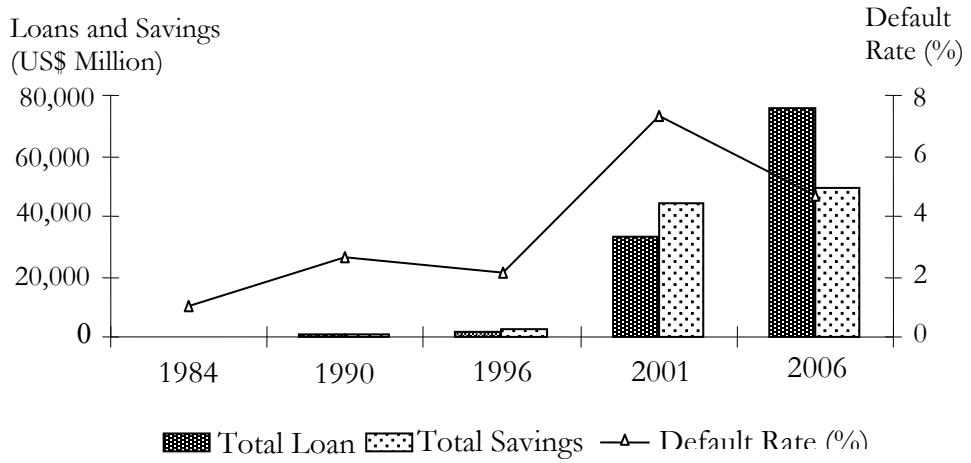
4.4.1 THE BRI-UNIT SYSTEM

The history of the BRI-unit goes back to the mid–1890s when the Dutch colonial authority established '*Hulp en Spaarbank voor de Inlandsche Bestuurs Ambtenaren*' in Purwokerto, Central Java. After independence, the bank was nationalised under the name of *Bank Rakyat Indonesia* (BRI) in 1968. The village-units of BRI microbanking came to be known as *BRI unit desa* or the

BRI-unit system, established in 1973 (Hadinoto 2005). The introduction of BRI-units was originally to channel subsidised credit schemes to poor farmers, as part of the mass guidance program *(Program Bimbingan Massa/Bimas)*. The *Bimas* program was set in motion in 1970, and it sought to achieve self-sufficiency of rice production. The BRI-units extended the microcredit schemes to rice farmers, in which subsidised funds were obtained from the central bank, Bank Indonesia (Robinson 2001). Meyer and Nagarajan (1999), however, reveal that the default rate of the *Bimas* program increased markedly from 5.62 percent in 1971 to 56.08 percent of total loan supply in 1983. The *Bimas* program was then closed down in 1983, as the government had budget difficulties due to the world oil price decline.

However, the end of the *Bimas* program was a blessing in disguise for the BRI-units, as they were transformed into commercial microbanks in 1984. Figure 4.2 shows the financial progress of the BRI-units from 1984 to 2006. The loan portfolio of BRI-units increased dramatically from US$103 million in 1984 to US$727 million in 1994. At the same time, savings mobilisation jumped from US$39.3 million to US$2,049 million. This progress massively increased the ratio of savings to loan portfolio within the BRI-units, from 38 percent in 1984 to more than 200 percent in 1994. This ratio indicates that the loan portfolio of BRI-units has been financed by public savings mobilisation. By 2006, the total number of borrowers of BRI-units were 3,916, with outstanding loans of Rp 14.18 trillion (US$1.5 billion). Being rural microbanks, 87 percent of the BRI-units' loan portfolio was distributed to around 29 million small clients. This progress has led the BRI-unit system to be known worldwide as one of the most efficient microbank system in developing countries (Hadinoto 2005; Charitonenko et al. 2004; Robinson 2006).

Figure 4.2 Financial Progress of the BRI-unit System, 1984 – 2006



Source: Adapted from Robinson (2001) and BRI Head Office (2006)

The financial services of the BRI-units are undertaken through designing microfinance products that are responsive to the needs of rural clients. One major innovation of the BRI-unit was the introduction of Rural Saving products *(Simpanan Pedesaan*/SIMPEDES) in 1986. With the characteristics of small minimum balances, unlimited withdrawals, positive real interest rates, and being linked with a semi-annual lottery, SIMPEDES has experienced rapid growth since its introduction (Robinson 2001). For instance, in the period 1986 to 1996, total savings mobilised by this product increased dramatically from US$50 million to US$1.8 billion. In 2006 SIMPEDES savings products accounted for Rp 3.2 trillion (US$3.4 billion), contributing 68.8 percent of total savings mobilisation of the BRI-unit (BRI 2006). In channelling small-scale loans to rural borrowers, BRI-units introduced *Kredit Umum Pedesaan*/KUPEDES or General Rural Credit in 1986. This was designed to assist creditworthy individuals with their ongoing enterprises. The BRI-units do not provide credit to start-up enterprises. In providing loans to borrowers, collateral is desirable but not mandatory. Hence, the presence of collateral is not merely seen as an insurance against default, but also as something that reduces moral hazard problems. It has the function of encouraging the goodwill of borrowers to repay their loans (Yaron et al. 1998).

In terms of profitability, Yaron et al. (1998) show that the return on assets of the BRI-units improved significantly from 2.6 percent in 1990 to 6.1 percent in 1995. Although there was a contraction in profit during the financial crisis in 1997/98, in 2001 the BRI-units' profitability recovered to reach 5.1 percent, measured by return on assets (Martowijoyo 2001). By 2006 the return on assets of BRI-units stood at 4.68 percent (BRI 2006). At the same time, 94 percent of existing BRI-units had been profitable. The BRI-units are also excellent in terms of having a low default rate. In the period 1990 to 1996, the long-term loan loss ratio was maintained below 3.5 percent of total outstanding loans (Robinson 2001). While numerous commercial banks collapsed in 1998/99 following the financial crisis, the BRI-units maintained loan losses of 2.47 percent of total loans in 2001. By 2006 the default rate of the BRI-units was being maintained at 2.1 percent of total outstanding loans, compared to 7.3 percent of total loan defaults of commercial banks (BRI 2006).

Moreover, Yaron et al. (1998) state that the good performance of the BRI-unit system is associated with its organisational structure. The organisational structure of the BRI-unit system comprises independent microbank units distributed across sub-districts in Indonesia. Each BRI-unit has a management structure, consisting of one manager with 4 to 5 bank staff. The geographical operation of each BRI-unit covers some villages within a sub-district region. Being an independent unit, the BRI unit is thus fully responsible for its lending decisions, loan monitoring and savings mobilisation (Hadinoto 2005). The unit has the freedom to develop

its own management strategies, including methods of assessing staff performance and incentive policies to achieve operational efficiency. Approximately 10 percent of profits are distributed to the employees of the BRI-unit as a reward for their performance (Robinson 2001). Having financial operations within a sub-district region has made the BRI-unit close to its rural customers. From the perspective of clients, the implementation of commercial practices has led rural clients to view the BRI-unit as a professional microbank. It is not seen a government agent that channels microcredit programs with high default rates. As a result, the rural customers are highly confident in saving at the BRI-unit, leading to the successful mobilisation of rural savings (Robinson 2001; Martowijoyo 2007).

The high repayment rates of the BRI-unit loans are associated with the functioning of social collateral in lending practices. According to Robinson (2001), lending innovation within BRI-units stems from the utilisation of the trust-based principle in lending supervision. This principle leads the BRI-units to recognise that borrowers know their own businesses better than lending officers. The trust-based principle has two implications for the lending operation of BRI-units. Firstly, there is "little" or "soft" supervision of loan usage, which potentially reduces the cost of loan supervision. The trust-based principle also implies that BRI-units accept that a portion of loans are being used for other purposes (e.g., consumption and emergencies). This lending flexibility is required to deal with rural borrowers having various motives for borrowing (Hadinoto 2005). Secondly, lending supervision is linked to social networks within the community, as the lending contracts of BRI-units require loan co-signers or witnesses from among close relatives and community leaders of borrowers. The utilisation of social networks thus helps to encourage borrowers to prudently manage their loans, thereby reducing the probability of loan default. According to Martowijoyo (2007), the high loan repayment rates of the BRI-units are also supported by lending provisions that contain frequent loan instalments. As a result, the lending staff of BRI-units can develop face-to-face contact and friendships with borrowers. Close relationships with borrowers provide incentives for them to repay, through the functioning of the norms of friendship, loyalty and reciprocity. Such lending practices thus support *Hypothesis* H_2 that social capital plays an important factor in microfinance.

While the remarkable financial progress of BRI-units is evident, their services of poor people remain doubtful. Regarding *Hypothesis* H_3, this study argues that there is a potential contradiction between profit-oriented practices and social outreach of BRI-units. Considering profitability, BRI-units tend to increase the minimum size of loans beyond the capacity of the poor to access such loans. A survey conducted for this thesis found that, on average, the minimum size of loansmade by BRI-units was equal to Rp 5

million (US$526). Interviews with some BRI-unit managers revealed that they were unwilling to provide small-scale loans due to the high cost of managing such loans. Larger loans tend to place the lending provisions of BRI-units out of reach of the poor. In the survey area, many village posts of BRI-units have also been inactive due to the high costs of operation. Lending requirements, such as the availability of good collateral (e.g., ownership certificates for farmland and houses) and a stable income preclude the poor from accessing loans of BRI-units. As a result, lending provisions of BRI-units favour non-poor clients. In the survey it was found that most BRI-unit clients were wealthier farmers, traders, manufacturers or medium-level government officials. In contrast, the poor were not favoured as clients of BRI-units because they tended to be "unsafe" borrowers. Chapter 7 of this thesis will examine further a trade-off between a profitability focus and the outreach of microbanks in the survey area.

4.4.2 PEOPLE'S CREDIT BANK *(BANK PERKREDITAN RAKYAT/BPR)*

Bank Perkreditan Rakyat (BPRs) or the people's credit banks emerged from the 1992 Banking Act. Bank Indonesia distinguishes between three types of BPR: *BPR ex-LDKP, BPR old-style* and *BPR new-style*. *BPR ex-LDKPs* were a conversion of some Rural Credit Institutions *(Lembaga Dana Kredit Pedesaan/LDKPs)* into BPRs, and were designed as microbanks for low-income customers. In 1999, there were 625 *BPR ex-LDKPs* or about 27 percent of all *LDKPs* that had a microbank license. *BPR old-style* comprises microbanks established before 1988 and *BPR new-style* begun operation after 1988. Table 4.4 outlines the characteristics of BPRs. It shows that the new-style BPRs have been established across all Indonesian provinces since 1988. However, most are concentrated in Java and Bali (80 percent of total BPRs). Most new-style BPRs are owned by private individuals and shareholders. The *BPRs ex-LDKPs* mostly belong to local governments and cooperatives (BI and GTZ 2000).

Table 4.4 Characteristics of Private Microbanks (BPRs) in Indonesia

Characteristics	*BPR Old-style*	*BPR ex-LDKP*	*BPR New-style*
Year of Establishment	Established before 1988 Some were set up during the colonial era	Established as LDKP in 1970-1990 and converted to BPR since 1990	Since 1988 to present
Main Location	Java and Bali	Java, West Sumatera, Bali and NTB province	All Indonesia's provinces
Ownership	Private individuals and local government	Local government	Private individuals and cooperative
Financial Services	Credit and savings services	Credit and savings services	Credit and savings services
Number of Establishment	371 units	625 units	1,424 units

Source: Bank Indonesia and GTZ (2000)

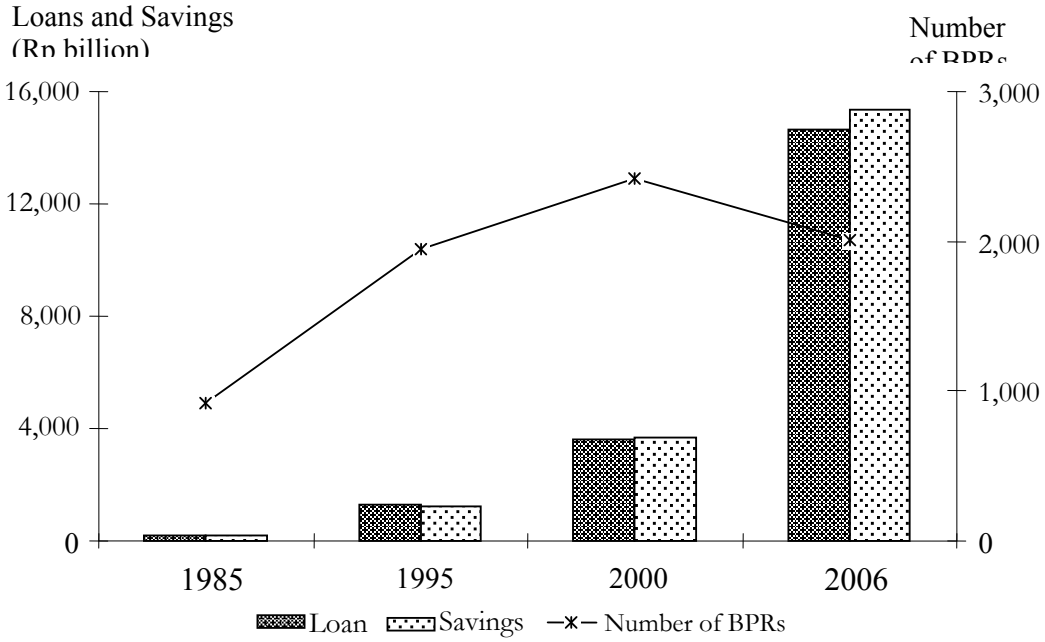
Typically, the size of loans provided by BPRs is relatively small, with a range of Rp 500,000 to Rp 1 million (US$52.63–US$105.26). Such loans mostly have a maturity period of 3 to 6 months, and are often extended to small traders. Loans are of a short-term maturity, with weekly instalments, and flat interest rates of 2 to 4 percent. However, the BPRs also often offer loans in the range of Rp 5 million to Rp 10 million (US$526.31–US$1,052.63) for small manufacturers with interest rates charged being slightly lower than micro loans and maturity period between 6 to 18 months. Bank Indonesia and GTZ (2000) estimate the average loan made by BPRs Rp 2 million (US$210.52), with loans made to around 2 million borrowers. The lending of BPRs are mostly financed by savings mobilisation. Savings services of BPRs offer interest rate returns in the range of 9 to 12 percent per anum, with unlimited withdrawals. Based on the inflation rate of 8 percent, this savings facility results in positive returns of 1 to 3 percent per anum.

Figure 4.3 presents the financial progress of BPRs in the period of 1985 to 2006. It shows that the growth in microfinance intermediation by BPRs has been impressive. The total loan portfolio of BPRs increased substantially from Rp 214 billion (US$22.52 million) in 1985 to Rp 1,266 billion (US$133.26 million) in 1995. In the post crisis period the loan portfolio of BPRs increased from Rp 3,619 billion (US$380.94 million) in 2000 to Rp 14,654 billion (US$1.54 billion) in 2006. Similarly, savings mobilisation of BPRs amounted to Rp 15,345 billion (US$1.61 billion) in 2006, serving around 4.4 million clients (BI 2006). However, following the financial crisis in 1997/98, many BPRs suffered a large number of loan defaults, leading to the financial condition becoming unsound. While the rate of loan defaults of BPRs stood at an average of less than 10 percent prior to the crisis of 1997, it peaked at 37 percent of total loans of BPRs in 1999. BI and GTZ (2000) revealed that in 1999 the aggregate balance sheet of BPRs indicated a capital loss, leading to the liquidation of 72 BPRs. Furthermore, the banking restructuring program resulted in a substantial reduction in the number of BPRs from 2,419 in 2000 to 1,984 in 2006 (see Figure 4.3).

However, most unsound BPRs operated in urban areas where many BPR customers faced unemployment and bankruptcy, leading to numerous loan defaults. In contrast, many rural BPRs had better financial performance than urban BPRs, due to the lower impact of the 1997 financial crisis on the rural economy. Following the crisis, for instance, an increase in the price of agricultural commodities improved the loan repayment rates of rural borrowers. As a result, many rural BPRs remained profitable with low rates of loan default. According to BI and GTZ (2000), the financial progress of rural BPRs is associated with operational linkages with the community. The rural BPRs are operationally linked to social

networks of clients through community ownership and their financial services focus on rural community members. This community linkage then encourages loan repayment, as borrowers consider that loan defaults will reduce the access of other community members to loans. The norm of solidarity among borrowers thus plays a role in maintaining the financial soundness of rural BPRs, highlighting the importance of social capital in microfinance (*Hypothesis* H_2). The extent to which social capital affects financial performance of MFIs in the survey area is investigated further in Chapter 6 of this thesis.

Figure 4.3 Financial Progress of BPRs in Indonesia, 1985 – 2006



Source: BI and ProFi (2000) and BI (2006)

4.4.3 RURAL CREDIT INSTITUTIONS *(LEMBAGA DANA KREDIT PEDESAAN/ LDKP)*

Lembaga Dana Kredit Pedesaan (LDKP) or Rural Credit Institutions are owned and established by provincial and district governments. They mainly arose during the period of the 1970s–1980s. The LDKPs primarily aim is to improve the access of the rural poor to microfinance. They have various names across different provinces. For instance, the first LDKP, called *Badan Kredit Kecamatan* (BKK) or Sub-district Credit Institution, was set up in the Central Java province in 1970. In the West Java province, the name used is *Lembaga Perkreditan Kecil* (LPK) or Microcredit Institution established in 1971. In Bali the LDKP has the name of *Lembaga Kredit Pedesaan* (LKP) or Village Credit Institution, which was found in 1985. It was then followed by the East Java province in 1987, whose LDKP has the name of *Kredit Usaha Rakyat Kecil* (KURK) or Credit Institution for Micro Enterprises. In the same year, *Lembaga Kredit Pedesaan* (LKP) or Rural Credit

Institution was set in the *Nusa Tenggara Barat (NTB)* province. Many other provincial governments established LDKPs in the 1990s, such as South Kalimantan, Riau, Aceh, Jakarta, and Bengkulu provinces. By 2000, the total number of LDPKs accounted for 2,272 units, distributed across provinces in Indonesia (BI and GTZ 2000).

Considering the location of this research is in the Central Java province, only the development of LDKPs in this province is reviewed. The Central Java province also has the most developed LDKP, as it was the pioneer of the LDKP system in Indonesia. *Badan Kredit Kecamatan* (BKK) or the Sub-district Credit Institution was originally a microfinance project of the Central Java province in 1970. This project developed 486 BKKs, located in almost all sub-districts of the province. The ownership of the BKK is structured thus: 50 percent of shares belong to the provincial government, 35 percent to district governments and the remainder is owned by the Central Javanese provincially-owned development bank *(Bank Pembangunan Daerah Jawa Tengah/BPD-Jateng)*. In the early stages of their operations, BKKs experienced high levels of loan defaults that led to the closing down of one-third of them. In the late 1970s the BKK project obtained technical assistance from the U.S. Agency for International Development (USAID). The purpose of this technical assistance was to rehabilitate the collapsed BKKs through providing financial business training to the staff and strengthening the organisational capacity of BKKs. The result of this assistance was the transformation of BKKs' operations from microcredit projects into rural microbanks in 1981 (Robinson 2001; Hulme and Mosley 1996a).

Following their transformation, the BKKs introduced rural people's savings products or *Tabungan Masyarakat Pedesaan* (TAMADES) in 1987. This savings product was adopted due to the success of the BRI-units' savings product or SIMPEDES. As a result, the BKKs began to show significant progress in mobilising rural savings. In 1998, savings mobilisation of BKKs stood at US$7.1 million (Steinwand 2001). This then remarkably increased to US$142.5 million in 2006. By 2006 there were 982 BKKs with around 4,000 village posts. Around 35 percent of BKKs have a microbank licence, with 70 percent of their loan portfolio being covered by savings mobilisation (Provincial Government of Central Java 2006). BKKs also introduced small and short-term loans for working capital. In the beginning of their lending operations BKKs experienced significant loan losses, as the non-performing loans increased from 15.9 percent in 1985 to 23.5 percent of total loans in 1988. Then it reduced to 11 percent in the 1990s (Mosley 1996a). By 2006 the loan portfolio of BKKs stood at US$141.6 million (Provincial Government of Central Java 2006).

A survey conducted for this thesis found that BKKs had the average size of loans and savings per client were Rp 325,000 (US$34.21) and Rp 150,000 (US$15.78), respectively. The small size of financial services has

made BKKs capable of reaching a significant number of poor borrowers. Robinson (2001) estimates that the loan portfolios of BKKs are capable of serving 294,000 poor borrowers. Operational profit of BKKs increased substantially from US$2.1 million in 2000 to US$6.3 million in 2006, corresponding to 5 percent of total assets (Provincial Government of Central Java 2006). Such financial progress has led BKKs to be recognised as one of the best microbank systems for rural poor in Indonesia (Robinson 2001). Several researchers have also investigated the comparative advantages of BKKs in serving the rural poor in the Central Java province. Steinwand (2001), for instance, reveals that BKKs with a rural focus face low competitive pressures from BPRs that mainly penetrate urban markets. Many BKKs can enjoy market leadership in rural areas, due to their simple lending procedures and requirement of no collateral (Mosley 1996a; BI and GTZ 2000). Having long-term experience in dealing with the rural poor, BKKs can maintain sufficient profit and repayment levels (Mosley 1996a). For non-collateral loans, BKKs require poor borrowers to engage in compulsory savings of 10 percent of loans disbursed (Hulme and Mosley 1996a). This compulsory savings is to insure against the risk of lending to the poor who otherwise have no monetary or physical collateral.

Lending provision on the basis of social collateral is undertaken by BKKs through simple procedures for borrowing and building close friendships with poor clients. Simple borrowing procedures are desirable when dealing with uneducated borrowers. These are implemented through a half-page loan application (Hulme and Mosley 1996a). To maintain close relationships with poor borrowers, the BKK staff often help potential borrowers to complete the loan application. Most micro-loans of BKKs require weekly instalments in local village posts near to the home of borrowers (usually in the village hall). BKK staff often visit borrowers' homes or workplaces to collect repayments. Such pro-active efforts are useful to maintain frequent contact and friendship with poor borrowers. Maintaining such friendships can strengthen the repayment discipline of poor borrowers. Moreover, to enforce loan repayments, BKKs require poor borrowers to have loan references from among village leaders. Verification from community leaders also helps screen good from bad borrowers. Thus, the involvement of village leaders and close friendships with poor borrowers highlights the importance of social capital in the BKK lending process.

4.4.4 VILLAGE CREDIT INSTITUTIONS *(BADAN KREDIT DESA/BKD)*

Badan Kredit Desa (BKDs) were originally known as village banks or paddy banks *(Bank Desa* or *Lumbung Desa)*, and were first formed in the nineteenth century. Historically, this village bank was started and managed by Indonesian officials under the Dutch colonial welfare policy. In 1929, the village banks were supervised by the *Algemeene Volkscredietbank (AVB-bank)*,

later to be known as the BRI-unit (Kuiper 1999). In the post-colonial era, the 1967 Banking Law did not regulate the BKDs, but the Ministry of Finance granted a collective licence to existing BKDs and regarded them as people's credit banks (BPRs). Hence, it was though that the BKDs' operation should be subject to banking supervision and regulation. However, as most BKDs do not mobilise public savings, the BRI-unit was assigned to supervise them on behalf of the central bank. In practice, the BRI staff at the district level informally supervise the BKDs. The supervisory focus is on reviewing the BKD's cash flows and loan portfolio quality. In reviewing cash flows, any liquidity surplus of the BKDs is to be placed in deposits of the BRI district branch. On the other hand, if the BKDs require additional funds, the BRI would provide loans to fulfil the liquidity shortage (Ravicz 1998).

By 2004, BKDs numbered 5,345 units distributed across villages in Java, with total assets of approximately Rp 286 billion (US$31.7 million) (Martowijoyo 2007). The average assets of each BKD were small accounting for Rp 53.1 million (US$5,800). In 2004 the total loan portfolio of the BKDs had served about 400,000 poor clients. Most loans had a short-term maturity of 2 to 3 months, with weekly instalments. The lending interest rate was in the range of 10 to 28 percent per month. Agricultural loans accounted for 20 percent of total loan portfolio, and these mostly required seasonal instalments every 3 to 4 months (Martowijoyo 2007). Most loan portfolios of BKDs were financed by their own capital plus compulsory savings of borrowers. The compulsory savings are collected from 10 percent of loans disbursed, and are deductible when the loan is paid off. Martowijoyo (2007) calculates that total voluntary savings of BKDs amounted to less than 5 percent of their loan portfolio. Saving interest rates of BKDs are set in a range of 9 to 10 percent per year; being more or less equal to inflation rates, this creates zero real interest rate returns. Hence, this leads to the incapacity of BKDs to mobilise voluntary savings from the rural poor.

However, the BKDs can minimise the rate of loan defaults through linking microfinance services to the social networks of the poor. As the BKDs' staff are local villagers, their familiarity with the borrowers' socioeconomic activities lowers the cost of gathering information about the creditworthiness of poor borrowers. Being operationally linked to community networks, close relationships between the BKDs' staff and poor clients can be developed and maintained at a low cost. The face-to-face contacts with poor borrowers benefit the BKD through lessening the likelihood of dishonourable behaviour by poor borrowers. The involvement of village leaders as loan witnesses also encourages poor borrowers to repay their loans. Considering *Hypothesis* H_2, the lending of BKDs which employs social collateral indicates that social capital plays an important role in microfinance.

BKDs are recognised as favourable MFIs in delivering microfinance services to the rural poor. They have been located in almost 5,000 villages in Java (Christen 1995). The outreach of BKDs' microfinance service is highly developed through small-scale loans. The average loan size of BKDs accounts for Rp 173,000 (US$74), which is suitable to the needs of the poor (Martowijoyo 2007). With relatively low costs of operation, the BKDs are appropriate MFIs for isolated (rural) areas. Regarding *Hypothesis H_3*, BKDs have the potential to deepen outreach as well as engage in profitable operations. This is the case because BKDs can maintain high repayment rates by lending small amount to the poor.

4.4.5 COOPERATIVES

Cooperatives have a long history in the economy of Indonesia, dating back to the Dutch colonial era. They are vital for Indonesia's political economy as the Indonesian constitution states that cooperatives are the foundation of the national economy (Article 33 of the 1945 constitution). During more than 30 years in power, the former president Soeharto used cooperatives to deliver a large number of credit-subsidised programs for agricultural production. However, most credit programs failed due to low repayment rates. Combined with widespread corruption and mismanagement, the failure of such credit programs undermined the role of cooperatives in providing microfinance services to the poor. As a result, one may conclude that cooperatives never developed into a 'real' microfinance institution for the poor (BI and GTZ 2000; Charitonenko and Afwan 2003).

Cooperatives are regulated by the Ministry of Cooperative and Small Business Promotion under the *Government Regulation No. 9 of 1995* and *Ministerial Decree No. 351 of 1998*. Under these regulations, microfinance services can only be provided by multipurpose cooperatives with savings and credit units or *Unit Usaha Simpan-Pinjam Koperasi* (USP) and credit cooperatives or *Koperasi Simpan-Pinjam* (KSP). According to Ministerial Decree No. 351, the establishment of USP and KSP should meet the minimum capital requirement of Rp 15 million (US$1,600) for primary cooperatives and Rp 50 million (US$5,500) for secondary cooperatives. The cooperative sector in Indonesia is hierarchically structured as primary and secondary cooperatives. The lowest level of cooperative is a primary cooperative (e.g., KUDs), whose members usually number less than 30 people who are mostly localised at a village or sub-district level. The secondary cooperative comprises some primary cooperatives and is usually localised within a district.

Cooperatives are favourable to the poor, as they are based on the moral value of 'the community'. This is the case as cooperatives originally emerged from self-help support institutions in the community. The norms of friendships and solidarity underpin the working of cooperatives. These community-based values create moral sanctions for any opportunistic

behaviour of cooperative members. For instance, gossip tends to encourage cooperative members to prudently manage their loans. A loan default by one member reduces access of other members to loans. Hence, cooperative members are encouraged to voluntary monitor the use of loans by other members. As a result, cooperatives can utilise effective screening and monitor the creditworthiness of borrowers at low cost (Guinanne 2001). This indicates that cooperatives can generate social collateral to encourage cooperative borrowers to prudently manage their loans. This 'solidarity' principle of cooperatives can also provide incentives to borrowers for avoiding loan defaults as these will reduce access of other members to loans (Krahnen and Schmidt 1995). Thus, the working of social collateral in the lending practices of cooperatives indicates the importance of social capital in microfinance (see *Hypothesis* H_2).

Table 4.5 presents summary accounts of cooperatives for 2006. Cooperatives are shown to have numbered 36,376 institutions with 10.4 million members. Loan portfolios were estimated to be Rp 5,273 billion (US$555 million) with savings mobilisation of Rp 1,593 billion (US$167.7 million). Loans and savings mobilisation capacities for each cooperative were estimated to be Rp 145 million (US$15,263.15) and Rp 43 million (US$4,526.32) respectively, with the ratio of savings to loans at 30 percent. This indicates that cooperatives have a limited capacity to finance loans by savings mobilisation. However, the ability of cooperatives to reach the very poor people is considerable. It is estimated that the average size of cooperatives' loans for each member was Rp 0.5 million (US$52.63) in 2006. Regarding *Hypothesis* H_3, the small size of loans potentially enables cooperatives to serve the poor, while maintaining profitable operations.

Table 4.5 Credit Cooperatives in Indonesia in 2006

Indicator	2006	Mean Per Cooperative in 2006
Number of Cooperatives	36,376	
Number of Members	10,420,582	286
Total Assets	Rp 6,197 billion	Rp 170 million
Loan Portfolio	Rp 5,273 billion	Rp 145 million
Savings Mobilisation	Rp 1,593 billion	Rp 43 million

Source: Ministry of Cooperative and MSEs (2006)

4.4.6 INFORMAL MFIS

Informal MFIs, such as moneylenders, rotating saving and credit associations (ROSCAs) and credit unions, have long been microfinance providers to the rural poor in Indonesia. Under Indonesian law, moneylending is illegal, and hence no official data is recorded on the number of moneylenders. However, moneylending has long been recognised since Dutch colonial time. For instance, the predecessor of the BRI, the *Hulp-en Spaarbank*, was originally set up to protect Indonesian

officials of the Dutch's colonial government against their indebtedness to moneylenders (Kuiper 1999; Martowijoyo 2007).

Although they are difficult to quantify, traditional lending activities, such as *Tebasan* and *Ijon,* are widespread in rural areas of Java. These lending systems take the form of trade–credit linkages, in which traders provide loans to farmers against their growing crop. In the *Tebasan* system, the growing crop is purchased a few weeks before harvest, while in the *Ijon* system, the crop is sold long before harvest. In these systems the price of the crop is fixed at the time of lending and is often far below the prevailing market price. Consequently, these systems effectively constitute high interest rates. In rural areas of Java, lending is also often linked to land tenancy agreements. For instance, through the *Sewa* system, farmers lease their farmland to the landlord for a fixed number of crop seasons. The main reason for leasing the land is that farmers need immediate cash due to sickness, death or harvest failures (Martowijoyo 2007).

Moneylenders have a comparative advantage over formal MFIs because their loans are small and flexible to meet the heterogeneous motives of the poor for seeking finance. Poor people need loans not only to support production, but also to meet consumption and emergencies. They need small loans to secure their vulnerable income. Lending from formal MFIs (e.g., microbanks) is inflexible due to rigid rules set by banks and regulators, such as the requirement of collateral, financial reports and a business plan. Moneylenders thus have an advantage over microbanks due to their informal lending procedures, minimal paperwork and the absence of the need for collateral. These less stringent conditions are possible because the lending activity of moneylenders is carried out within close social networks and friendships with poor clients. Hence, physical or monetary collateral may not be necessary because moneylenders have sufficient social collateral in forms of borrowers' creditworthiness from friends, neighbours and business associates. Social collateral in the form of friendship and association can also enforce repayment, as poor borrowers recognise that loan defaults can result in loss of reputation and social exclusion. The working of social collateral in the lending practices of moneylenders supports our hypothesis that social capital is an important factor in microfinance (*Hypothesis* H_2).

A traditional ROSCA, locally known as an *Arisan*, is also a very common informal financier in rural areas of Java. There is no official data on ROSCAs in Indonesia. In 2006 BI and GTZ (2000), however, estimated that the number of ROSCAs was about 250,000, serving about 1,000,000 poor people. These self-help groups usually consist of around 10 to 30 members that pool a fixed amount of funds every month. They use a rotating rule, so that the group ends when the last member receives his or her funds. According Besley et al. (1993), ROSCAs are inflexible in meeting urgent needs of members for cash. Because of the rotating rule, members

are unlikely to receive funds from the ROSCA concurrent with their extreme need for cash. However, the survey carried out for this thesis found that when one member is facing serious financial difficulty due to sickness or death, ROSCA funds are provided. This indicates the functioning of the norms of solidarity and friendship in the financial practices of ROSCAs. In this respect, being a self-help group among poor people, ROSCAs play a role in the reproduction of social capital of the poor. Not surprisingly, to some extent ROSCAs have been utilised by many NGOs to empower the rural poor.

As membership of ROSCAs is voluntary and non-binding, individual members have the freedom to withdraw membership at any time. ROSCAs are thus vulnerable to non-repayment due to the withdrawal of membership. However, high repayment rates among ROSCAs provide grounds for this study to recognise that social capital plays a vital role in microfinance *(Hypothesis H_2)*. Social capital matters in the functioning of ROSCAs as membership is based on face-to-face contact and close networks, such as those that exist among relatives, neighbours and co-workers. Such close networks discourage ROSCA members from behaving dishonestly. They recognise that violating ROSCA agreements can result in loss of reputation, public humiliation and social exclusion. This indicates that the norms of trust, friendship, solidarity and reciprocity underpin the functioning of ROSCAs. The norms and values of the community thus generate social collateral in the form of social pressure and sanctions against any untrustworthy behaviour. For instance, a ROSCA set up within members of a particular church can create strong social sanctions on loan defaulters. Social sanctions brought to bear upon dishonest members can take many forms, including gossip, exclusion from future membership, and exclusion from religious and other social activities of the community.

Regarding *Hypothesis H_3*, that a contradiction exists between profitability and outreach of MFIs, we propose that informal MFIs (e.g., moneylenders and ROSCAs) are capable of serving the poor in conjunction with achieving profitable operations. These informal MFIs can maintain profitable operations as their financial services are linked closely to the social networks of the poor. Lending-based friendships, for instance, enable moneylenders to overcome informational and enforcement problems of lending to the poor. This is the case since personal contacts with poor borrowers can help moneylenders gather information about their creditworthiness. Profitable operations of informal MFIs are unlikely to reduce outreach to the poor, as loans are small. The extent to which informal MFIs can maintain profitability, while serving the poor in the survey area is investigated further in Chapter 7.

4.5 THE IMPACT OF MICROFINANCE ON POOR HOUSEHOLDS

This section reviews the previous research associated with the impacts of microfinance on the poor in Indonesia. It is linked to *Hypothesis* H_4, that microfinance contributes to the welfare of the poor. The impacts of microfinance on the poor are considered because this study seeks to investigate the extent to which access to microfinance can help the poor move out of poverty.

Studies of the impacts of microfinance on the welfare of the poor in Indonesia are rare. A few general studies include those by Gertler et al. (2003), Panjaitan-Drioadisuryo and Cloud (1999), Mosley (1996), MSI/HASFARM (1992), BRI (1990), and Goldmark and Rosengard (1983). These studies stress the welfare impact of formal MFIs, such as BRI-units, BPRs and BKKs. Gertler et al. (2003), for instance, reveal that access to microbanks positively impacts the ability of clients to smooth consumption against illness. Similarly, MSI/HASFARM (1992) and BRI (1990) conclude that access to loans from BRI-units and BKKs contributes to increased employment and incomes. According to Mosley (1996), microfinance programs have greater income-generating effects on the better-off-poor and the non-poor, as they tend utilise microfinance services for productive purposes, such as purchasing new equipment and other necessary inputs (see also, Hulme and Mosley 1996a).

According to Armendariz de Aghion and Morduch (2005), microfinance impacts the welfare of poor people beyond economic and employment measures. Microfinance affects poor people in many ways, including enhancing nutrition, children's education, fertility, family planning, and female empowerment. For instance, Panjaitan-drioadisuryo and Cloud (1999) and Johar and Rammohan (2006) investigate the impact of microfinance on poor women in Indonesia. These studies conclude that access to loans contributes to greater income among poor women through self-employment. Poor women thus become more capable of influencing household decisions, particularly in relation to family size, children's education and nutrition. In the health sector in Indonesia, Gertler et al. (2003) reveal that access to microfinance services can reduce the financial distress of poor households in the face of the sickness of family members. They also conclude that health shocks (e.g., sickness) do not significantly affect household consumption patterns of the poor who have greater access to loans.

The above studies show that microfinance impacts the welfare of the poor through an increase in income and employment, levels of children's education and health, and female empowerment. However, this study emphasises three aspects of the impact of microfinance on the poor: (1) an increase in the level of children's education, (2) a reduction in the probability of experiencing household financial problems, and (3) an increase in confidence in dealing with other people. As has been

emphasised by many studies, access to micro loans can improve children's education through an increase in household incomes (e.g., Islam 2007; Johar and Rammohan 2006; Holvoet 2004; Panjaitan-drioadisuryo and Cloud 1999). Loans from MFIs can also be disbursed by the poor to support their children's education, by means such as financing tuition fees, textbooks and school uniforms. As Johar and Rammohan (2006) point out, failures of the poor to access loans can have adverse effects on their children's schooling.

In Indonesia, financing the higher education of children is problematic for poor families because only primary school and junior-high school are free. Thus the poor need to pay for higher secondary and university education from their own funds. Not surprisingly, the survey conducted for this thesis revealed that a large percentage of children of the poor only have a junior high school education or less. Many children of the poor cannot complete their high school education due to their family having insufficient incomes. The majority of children with higher education belong to better-off-poor and non-poor households. It is important therefore for this study to investigate further the extent to which access to microfinance can improve the education of children of the poor.

Several studies have investigated microfinance effects on the income of the poor (e.g., Khandker 2003; McKernan 2002; Snodgrass and Sebstad 2002; Mosley 1996). In the studies cited above, higher income is seen as a key indicator of the welfare impact of microfinance. The logic is that access to microfinance can lead to greater income, thereby enhancing the capacity of the poor to finance household consumption (Zeller 2003; Zeller et al. 1997; Matin et al. 2002). However, this study examines the welfare impact of microfinance through its reducing the probability of the poor facing household financial problems. The reason for this approach is that the incidence of financial distress stems from subsistence incomes and unpredictable shocks. For instance, sickness of one family member can lead the poor to face household financial problems as funds are urgently needed for medication. In the absence of savings, access to loans can thus help to finance medication and protect household consumption, thereby reducing the probability of financial distress (see Gertler et al. 2003). However, loans for an emergency can be problematic when poor borrowers fail to repay them. In dense networks, for instance, failures to repay loans can lead the poor to face public humiliation, loss of reputation and social dislocation.

In the context of social capital, the incidence of poverty increases when the poor are unable to access social networks. In this regard, some scholars have examined the extent to which access to microfinance services enhances social networks of the poor. Mosley et al. (2004), for instance, reveal that microfinance has helped the poor to expand business networks in Russia and other Eastern European countries. In Senegal, Kah et al. (2005) have found that group lending programs empower female members

to expand social networks with NGOs and political regimes. Access to loans enables female members of group lending schemes to earn independent incomes that enhance their social mobility (Kah et al. 2005). However, the scope of the current study is broader in which we seek to investigate the extent to which access to microfinance services enhances the self-confidence of the poor in dealing with other people. The reason is that such confidence provides a foundation for the poor to expand social networks. The interlinkage between microfinance and the confidence of the poor in dealing with others has not been explored by other microfinance scholars in Indonesia.

The present study proposes that microfinance has contradictory effects on the poor's confidence in dealing with others. On the one hand, access to loans can strengthen self-confidence through income-generating effects. For instance, the utilisation of loans for productive purposes can result in higher income and greater prosperity of the poor, leading to more confidence in dealing with other people. This is the case as higher incomes can lead to the possession of luxury goods through the "conspicuous and emulative" effects of consumption (Veblen 1899 [1975]). In rural communities, the ownership of "luxury" goods (e.g., motorcycles and stereos) may enhance the social status and prestige of individuals, thus strengthening the self-confidence in dealing with others. However, loans can also reduce confidence, especially when they are not repaid. In dense social networks, loan defaults can damage reputations, thereby reducing confidence in dealing with others. Many factors contribute to the failure of the poor to repay their loans, such as low income, mini-scale production and imprudent uses of loans. Loans for consumption also tend to have a greater probability of default because they are unlikely to increase the production and income of poor borrowers. The welfare impacts of microfinance on the poor in the survey area are examined further in Chapter 7.

4.6 CONCLUDING DISCUSSION

This chapter has described the financial practices and progress of MFIs in Indonesia. The aim has been to provide useful insight and background for investigating further the hypotheses of this study in the context of Boyolali. The microfinance industry in Indonesia encompasses a wide array of MFIs, constituting a pyramid-like structure. In relation to *Hypothesis* H_1, such a pyramid-like structure indicates that the microfinance industry in Indonesia is segmented, with diverse MFIs having different target clients. The top of the pyramid comprises a small number of formal MFIs, penetrating up-market segments (non-poor clients). At lower levels of the pyramid, a large number of semi-formal and informal MFIs focus on serving the (very) poor. Chapter 5 will investigate further market segmentation in microfinance in the research area. Regarding *Hypothesis* H_2, microfinance

practices undertaken on the basis of social capital contribute to the success of MFIs in financing the poor. For instance, building close relationships with the poor enables MFIs to screen creditworthy applicants. Utilising community leaders as loan co-signers or witnesses can stimulate poor borrowers to repay their loans. The extent to which social capital affects microfinance performance in the survey area is examined further in Chapter 6.

Microfinance policy in Indonesia is more likely to follow the commercialisation path. It is believed that the for-profit focus of formal MFIs (e.g., microbanks) can be achieved in conjunction with increased outreach to the poor. However, there is no convincing evidence that the achievement of profitability goes hand-in-hand with the capacity to serve the poor. In this regard, Chapter 7 will examine further *Hypothesis* H_3, that commercialisation of MFIs increases financial performance but reduces outreach to serve the poor in the specified research area. Furthermore, previous research reveals the positive impacts of microfinance on the welfare of the poor in Indonesia. Yet, they mostly focus on the impacts of microfinance on income and employment. The present study will investigate *Hypothesis* H_4, that access to microfinance services contributes to an improvement in the welfare of the poor in the survey area. Here, the microfinance impacts on children's education, the degree of confidence in dealing with others, and the likelihood of experiencing household financial problems are emphasised.

CHAPTER FIVE

HETEROGENEOUS CLIENTS AND INSTITUTIONS AND MARKET SEGMENTATION IN THE MICROFINANCE INDUSTRY

5.1 INTRODUCTION

Microfinance businesses are multifaceted activities that link financial intermediaries to socioeconomic activities of poor clients. Microfinance clients encompass various individuals demanding financial services to finance not only production and consumption, but also to support child education, medication and many other social and religious activities. Similarly, micro-financiers are heterogeneous, covering individuals providing loans to one another, moneylenders, ROSCAs, cooperatives, microbanks, NGOs and the like. These MFIs also diverge with respect to operational scale, scope and objectives that lead to their diverging capacities to deal with informational and enforcement problems of lending. The question arises as to what extent such heterogeneous characteristics of clients and institutions affect microfinance markets. The microfinance literature suggests that the microfinance industry constitutes market segmentations or fragmentations due to the presence of informational and enforcement problems of lending (Johnson 2005; Hoff and Stiglitz 1993, 1997; Aleem 1993).

Regarding to the above, the purpose of the present chapter is to investigate the institutional characteristics of microfinance in Boyolali. It is linked to *Hypothesis* H_1, that the heterogeneousness of clients and MFIs leads to market segmentation in the microfinance industry. To comprehend this general hypothesis, the extent to which various motives and constraints of the poor in utilising microfinance services lead to market segmentation are closely examined *(Sub-hypothesis* H_{1A}*)*. Various motives for utilising loans, for instance, can cause MFIs to face informational problems due to the interchangeability of loan useses. Many factors inhibit access of the poor to formal MFIs (e.g., microbanks), such as low levels of education, skills, income and assets. As a result, microfinance markets tend to be segmented because, on the one hand, the poor can only access informal and semi-formal MFIs, while, on the other hand, the non-poor prefer to utilise the microfinance services of formal MFIs. In terms of lenders, we

examine *Sub-hypothesis* H_{1B}, that the ability of MFIs to deliver microfinance services is limited by geographical boundaries, their small-scale of operation, and diverging capacities to gather information about the creditworthiness of the poor. Even though microbanks have financial resources to lend, they often fail to gather information about the creditworthiness of poor borrowers, due to being operationally distant from social networks of the poor. In response, microbanks prefer to penetrate up-market segments (non-poor clients). They are unwilling to serve the poor because doing so will worsen their loan portfolio. In contrast, moneylenders and cooperatives focus on low-market segments to serve the poor. These MFIs are capable of overcoming informational problems of lending to the poor, due to living and working in villages.

This chapter is organised as follows. The next section reviews the socioeconomic characteristics of Boyolali and its poverty-related issues. Section 5.3 examines the extent to which various motivations and constraints of the poor in utilising microfinance services can lead to market segmentation in the microfinance industry. Section 5.4 analyses the heterogeneous characteristics of the microfinance business of MFIs. In this section we review the extent to which the differences in business operations and targeted clients of MFIs result in market segmentation in the microfinance industry. Section 5.5 examines market segmentation in the microfinance industry in terms of diverse interest rates charged to clients. Section 5.6 concludes this chapter.

5.2 SOCIOECONOMIC CHARACTERISTICS AND POVERTY IN BOYOLALI

The research location of this study is the district of Boyolali, one among thirty five districts in the Central Java Province. The district government of Boyolali is divided into nineteen sub-district levels of administration, encompassing 267 villages. The geographic area of the district covers 1,015.10 km^2. One-third of the area has a topography from 400m to 1,300m above sea level (BPS Boyolali 2006). During the dry season, water shortages are common problems in the hill areas, including some areas within the district capital. Most areas within the district of Boyolali are considered rural, with the majority of the people engaging in traditional farming. Table 5.1 summarises the socioeconomic characteristics of the Boyolali District. It shows that with a population of 935,768 in 2006, the population density of the Boyolali District was 925 people per km^2. However, in the district capital of Boyolali the density of population can reach 2,197 people per km^2. The ethnic majority is Javanese and very few others are Chinese and Arabic. Muslims are the religious majority, accounting for 97.3 percent of the population.

Table 5.1 also reveals that 66.9 percent of the population above 5 years of age have a primary education or less, while only 2.5 percent have a university education. The low quality of human resources has made the

Boyolali District less attractive for large-scale manufacturing investment. Manufacturing development in Boyolali is far behind neighbouring districts, such as *Sukoharjo, Klaten,* and *Salatiga*. In 2006 there were 27 medium- and large-scale manufacturing companies in Boyolali, employing around 19,041 labourers (2.5 percent of total employment in 2006). With a growth rate of 1.97 percent annually, the manufacturing development in Boyolali has been far from sufficient to provide employment for local job seekers (BPS Boyolali 2006).

Table 5.1 Socioeconomic Characteristics of Boyolali, 2006

Indicator	
1. Land size (km^2)	1,015.10
2. Population size	935,768
3. Population density	925/km^2
4. Ethnic majority	Javanese
5. Religious majority	Islam (97%)
6. Proportion of population age of above 5 years by education levels (%)	
- University and Diploma	2.5
- Junior and Senior high school	30.6
- Primary school or less	66.9
7. Proportion of population age of above 10 years by occupation (%)	
- Agriculture	40.2
- Industry	5.4
- Trade and services	23.4
- Others	31.0
8. Number of Villages	267
9. Real GDP per capita (Rp)	1,114,312
10. Real GDP growth (%)	4.49
11. Manufacturing sector growth rate (%)	1.97
12. Savings per capita (Rp)	419,729.0
13. Credit per capita (Rp)	554,677.0
14. Number of Banks	67

Source: BPS Boyolali (2006) and Bank Indonesia Surakarta (2006)

Agriculture is the main source of income for most villagers in Boyolali. As Table 5.1 shows, 40 percent of the population above 10 years of age earned incomes from agricultural activities in 2006. Items of agricultural production include rice, local fruits and vegetables, livestock and fisheries. Traditional farming techniques, rain-fed watering systems and small farmlands characterise the agricultural production in Boyolali. As a consequence, the agricultural production in Boyolali is prone to seasonality. Hence, cash surplus in the post-harvest seasons and cash scarcity in the pre-harvest seasons are common for rural farmers in this area. In the dry season, many farmers engage in non-agricultural activities, particularly as construction labourer and petty trader. Their trading commodities include

vegetables, local fruits (e.g., papaya and coconut) and wood. Raising animals, such as local cows and goats, is a common practice for poor farmers during the off-season. Wealthier farmers buy and sell livestock.

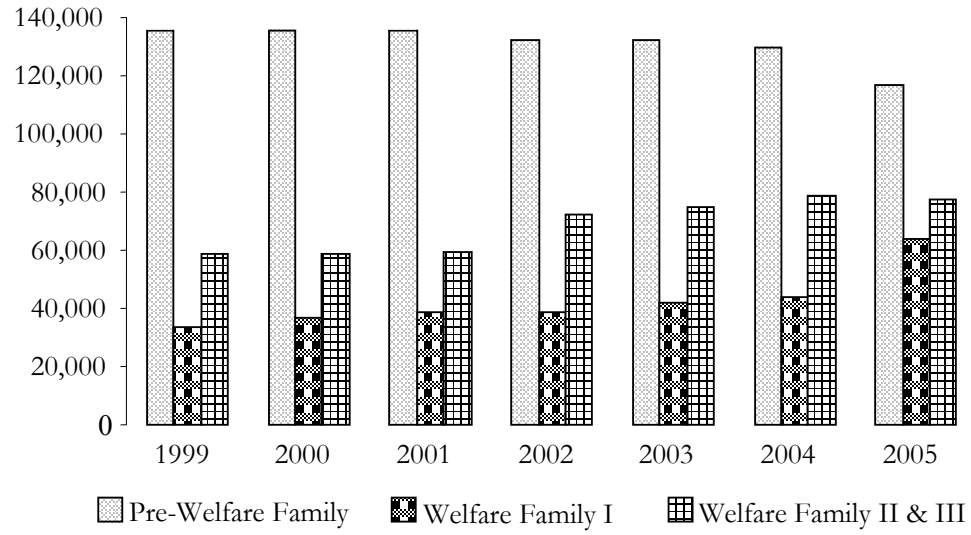
Three private national banks (Bank BCA, Bank LIPPO, and Bank Bukopin) and two state-owned banks (Bank BNI and Bank Mandiri) have established branches in the district capital of Boyolali. These commercial banks are the dominant players in the financial business in Boyolali. In 2006, their financial intermediation reached Rp 582.15 billion (US$61.3 million), well above that of microbanks, which accounted for Rp 235.0 billion (US$24.7 million) (BI Surakarta 2006). Despite the progress of commercial banks, savings per capita in the Boyolali district remained low, accounting for Rp 419,729 (US$44.20) in 2006. Credit per capita was slightly higher, reaching Rp 554,677 (US$58.39) (see Table 5.1). Such low rates of savings and credit per capita questions whether the development of commercial banks in Boyolali promotes accessibility of the poor to financial services. Because of the remoteness of rural areas, poor people face significant transportation costs in utilising the financial services of commercial banks. Such costs can be too high to allow the poor to travel from their homes in remote areas to the banks' offices within the district capital of Boyolali. The rural poor are also unlikely to access bank loans due to a lack of collateral, low income, and unfamiliarity with formal banking procedures.

In the context of poverty, Figure 5.1 presents the number of households according to welfare status: the Pre-welfare Family and the Welfare Family I, II, and III in Boyolali[5]. As was discussed in Chapter 3, households falling within the categories of the Pre-welfare Family and Welfare Family I constitute the very poor and the moderately-poor, respectively. Welfare Family II and III refer to the not-so-poor and the better-off-poor, respectively. Figure 5.1 shows that in the period of 1999 to 2005, the number of Pre-welfare Families (the very poor) and Welfare Family I (the moderately-poor) moved in opposite directions. While the number of Pre-welfare Family tended to decrease, the number of Welfare Family I indicated a positive trend. The proportion of Pre-welfare Families gradually decreased from 14.74 percent in 1999 to 12.41 percent in 2005. In contrast, the proportion of Welfare Family I nearly doubled from 3.67 percent to 6.78 percent in the same period. In the period of 2002 to 2005, the number of households in the categories of Welfare Family II and III (the moderately-poor and the not-so-poor) were relatively unchanged. As the Pre-welfare Family and Welfare Family I (the very poor and moderately-poor) represent the number of poor households, the incidence of poverty in Boyolali increased from 18.41 percent in 1999 to 19.19

[5] A detailed discussion of the household classification based on welfare status is presented in Chapter 3.

percent in 2005. This indicates that poverty remains a major problem in Boyolali.

Figure 5.1 The Number of Poor People in Boyolali, 1999 – 2005



Source: BPS Boyolali (2006)

Table 5.2 outlines the percentage of respondents by income group and occupation. It shows that 43.7 percent of respondents considered their main occupation to be that of farmers, while 25.1 percent and 19.5 percent of respondents designated themselves as traders and manufacturers, respectively. The remaining 11.7 percent of respondents listed their main occupation as non-farm labourers. In terms of income, the largest percentage (13.4) of farmer respondents falls within the category of poor households, having monthly incomes in the range of Rp 250,000 to Rp 499,900 (US$26.31–US$52.62). This is consistent with a poverty study conducted by World Bank (2001) in Indonesia, which found that most poor respondents surveyed relied for their income on agricultural activities, such as farming and farm labouring.

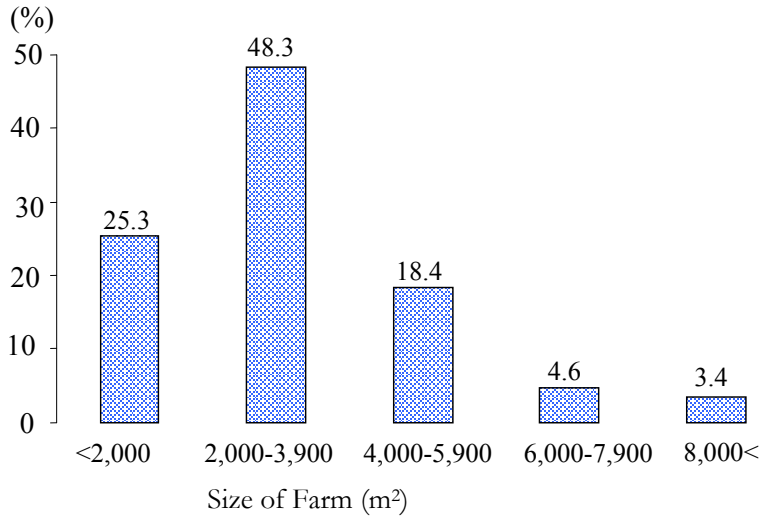
Table 5.2 Percentage of Respondents by Income Group and Occupation in Boyolali

Monthly Income Group (Rp thousand)	Farmer	Trader	Manufacturer	Non-farm Labourer
Less than 250	0.87	0.87	1.30	0.43
250 to 499.9	13.42	9.96	3.90	3.46
500 to 749.9	6.93	2.60	1.30	1.73
750 to 999.9	6.93	3.03	2.16	2.60
1,000 to 1,249.9	4.76	0.43	0.43	0.87
1,250 to 1,499.9	3.03	2.60	1.73	0.00
1,500 to 1,749.9	2.16	2.16	2.60	0.43
More than 1,750	5.63	3.46	6.06	2.17
Percent of Respondents (100%)	43.7%	25.1%	19.5%	11.7%
Number of Respondents [N=231]	[101]	[58]	[45]	[27]

Source: Author's field survey (processed)

Poor farmers are vulnerable to poverty for many reasons. From the economic point of view, rural poverty stems from the low income of poor farmers. Good harvest seasons barely improve farm incomes because the excess supply depresses the price of agricultural commodities. In Indonesia, the government actively controls the price of food commodities, particularly rice; it also plays a role in weakening the terms of trade of agricultural output. Such policies disadvantage farmers by reducing the probability of gaining surplus value due to an increase in the price of agricultural commodities. However, rural poverty in Boyolali is mainly associated with small farms. Figure 5.2 shows the percentage of farmer respondents by the size of farm. It can be seen that around 48.3 percent of respondents have an average farm size in the range of 2,000m^2 to 3,900m^2, while 25.3 percent of respondents have farms smaller than 2,000m^2. Combined with traditional farming techniques, the small size of farms constrains agricultural production and the income of poor farmers. The other constraining factor of agricultural production is insufficient irrigation. As a result, agricultural production in the survey area is highly prone to major climate variation. In the dry season, for example, the long drought can lead to harvest failures due to water shortage. As a result, the agricultural productivity in Boyolali is considerably low, leading to the low income of farmers.

Figure 5.2 Percentage of Respondents by Size of Farm in Boyolali



Source: Author's field survey (processed)

One representative indicator of social incapability is a low level of education. Table 5.3 outlines the percentage of respondents by income group and educational achievement. It shows that 19.45 percent of poor respondents with monthly incomes of Rp 250,000 to Rp 499,900

(US$26.31–US$52.62) have only completed primary education or less.[6] In contrast, less than 5 percent of poor respondents in this income category have a senior-high school education. Thus it can be said that a link exists between the incidence of poverty and low levels of education in the survey area. In the famous work, *Asian Drama*, Myrdal (1968) proposes that poor people are trapped in a poverty cycle, due to interrelated factors. Using a circular causation hypothesis, Myrdal (1968) argues that the poverty cycle stems from the interconnected effects of low labour productivity and income levels of the poor. For instance, insufficient income leads to poor health and insufficient education, dampening the labour productivity of the poor. The low productivity, then, affects the low income of poor people, sustaining the poverty cycle. Low levels of education can trap the poor into a poverty cycle by contributing to low levels of knowledge, skills and entrepreneurships. In contrast, higher levels of education can generate positive attitudes towards hygiene and nutrition (among other things), increasing the labour productivity of the poor (see Myrdal 1968).

Table 5.3 Percentage of Respondents by Income Group and Education Level in Boyolali

Monthly Income Group (Rp thousand)	Primary School or less	Junior High School	Senior High School	University/ Diploma	Total Percentage
Less than 250	3.46	0.00	0.00	0.00	3.46
250 to 499.9	19.48	6.93	4.33	0.00	30.74
500 to 749.9	7.36	2.60	3.03	0.43	13.42
750 to 999.9	6.49	3.46	4.33	0.43	14.72
1,000 to 1,249.9	4.33	1.30	1.73	0.00	7.36
1,250 to 1,499.9	4.76	0.43	2.16	0.00	7.36
1,500 to 1,749.9	3.03	1.73	0.87	0.43	6.06
More than 1,750	5.20	3.46	6.06	2.16	16.88
Total Percentage	54.1%	19.9%	22.5%	3.5%	100%
Number of Respondents	[125]	[46]	[52]	[8]	[N=231]

Source: Author's field survey (processed)

A lack of access to microfinance also contributes to the incidence of rural poverty in Boyolali. Microbanks, for instance, tend to financially exclude poor farmers due to their low ability to repay. Low levels of education and poor communication skills also inhibit the poor from enhancing networks to access microbanks. Our own survey found that the majority of respondents (35 percent) with only primary education or less have never gained access to microbank loans, compared to 19 percent of respondents with high school education (see Table 5.6 in the next section). In contrast, all respondents having a university education were capable of accessing microbank loans. Coupled with the lack of financial input, then, low levels of education and poor skills inhibit the entrepreneurship of the

[6] This finding is consistent with a study by ADB (2006) in Indonesia that the majority of poor male population in rural areas have a primary education or less.

poor through their unwillingness to take investment risks in non-farm activities. As a result, poor farmers are unlikely to increase their income above the subsistence level. Consequently, the low level of income discourages microbanks from serving the poor. This indicates that a lack of access to microfinance can trap the poor in a poverty cycle. Chapter 7 will investigate further the extent to which access to formal finance can improve the welfare of the poor.

5.3 HETEROGENEOUS CHARACTERISTICS OF MICROFINANCE CLIENTS

5.3.1 VARIOUS MOTIVES OF THE POOR IN UTILISING LOANS

According to Hoff and Stiglitz (1993, 1997) and others, market segmentation in microfinance is associated with the presence of informational and enforcement problems. These problems arise because MFIs cannot distinguish "good" from "bad" borrowers. Armendariz de Aghion and Morduch (2005) point out that, prior to extending loans, MFIs often have little information about the quality of poor borrowers due to the absence of accounting records. Moreover, once loans have been granted, MFIs are exposed to enforcement problems as the poor lack collateral to secure repayments. As a result, microfinance markets are segmented, because in response to such problems MFIs charge different interest rates to clients (Hoff and Stiglitz 1993, 1997; Aleem 1993).

In this thesis, however, informational and enforcement problems are linked to various motives and constraints of poor borrowers in utilising loans *(Sub-hypothesis H_{1A})*. Table 5.4 outlines the usage of loans from the different sources of borrowing. It shows that the majority of respondents (50 to 74 percent) utilise loans for production purposes. However, 20.44 percent of the respondents utilise loans from relatives to support their children's education, while 11.05 percent and 9.94 percent use loans to finance social activities and medication, respectively. As well as financing production, 64.6 percent of respondents utilise loans from friends to finance social activities. Similarly, loans from moneylenders, cooperatives and microbanks have been utilised to finance not only production, but also child education, social activities, medication and household consumption. As Johnson et al. (2005) concludes, the poor utilise microfinance services for a wide range of purposes, including financing investment, consumption, and risk management (insurance). This confirms *Sub-hypothesis H_{1A}*, that the poor in Boyolali have various motives in utilising microfinance services. Such various motivations arise due to the interchangeability of loan usage (Adams and Vogel 1986). For instance, the poor can utilise loans to purchase necessary inputs to support production. They may also use loans partly to support production, and partly to finance consumption. Loans can also be disbursed by the poor to develop human and social capital, such as financing child education, maintaining kinship and friendship, and participating in local community associations.

Table 5.4 Percentage of Respondents by Borrowing Sources and Usages of Loans in Boyolali

Indicator	Relative	Neighbour	Friend	Money-lender	Coop-erative	Micro Bank
Working capital	50.28	4.97	60.23	50.50	59.86	74.71
Child Education	20.44	12.42	13.64	16.83	12.24	6.47
Social Activities	11.05	64.60	12.50	1.98	4.76	1.18
Medication	9.94	0.62	5.11	1.98	12.93	12.35
Buying land/house	4.42	3.73	1.14	2.97	4.76	2.94
Repay other loans	0.55	5.59	0.57	3.96	0.68	1.18
Household consumption	2.21	6.21	6.25	18.81	4.08	0.59
Others	1.10	1.86	0.57	2.97	0.68	0.59
Total Percentage (%)	100	100	100	100	100	100
[Number of Respondents]	[181]	[161]	[176]	[101]	[147]	[170]

Source: Author's field survey (processed)

In lending contracts, the various motivations of the poor in utilising loans may not be a relevant issue, as long as they consistently repay their loans. Various motives for utilising loans do impose informational and enforcement problems on MFIs because the different purposes of loans can affect the ability of the poor to repay. Loans for consumption, for example, tend to have a greater probability of default due to their low income-generating effects on borrowers. In contrast, the use of loans for productive purposes has the potential to increase the income of poor borrowers, leading to lower rates of default. Hence, the variety of loan usage can impose informational problems on MFIs, as they are unlikely to recognise how and for what purposes poor borrowers will utilise their loans.

MFIs also face enforcement problems as they often fail to encourage the poor to comply with the terms and conditions of lending contracts. For instance, a lending contract may require poor borrowers to utilise loans only for production purposes. However, once such loans have been granted, the poor can use them for consumption, instead of financing production. MFIs are unlikely to recognise such a change in loan usage because most poor borrowers do not properly record their business activities. Overlapping production and consumption activities of the poor also potentially hinders MFIs from monitoring the use of loans. For example, if the poor seek a loan for a motorcycle, they would like to use this vehicle for dual purposes. On the one hand, they could use it for productive purposes (e.g., transporting their product to markets). On the other hand, they could use the vehicle for leisure activities, stimulating consumption rather than production. In this case, loans for a motorcycle are less likely to increase the production of poor borrowers, leading to a greater probability of default. As a result, the interchangeability of loan usage can lead to high risks of lending to the poor.

Microfinance markets thus tend to be segmented, as MFIs undertake different strategies to cope with informational and enforcement problems. Microbanks tend to set lending contracts in favour of non-poor clients, such as requiring standard accounting reports, good investment plans and collateral. Unlike microbanks, informal and semi-formal MFIs (e.g., moneylenders and cooperatives) are more capable of coping with such problems. They can effectively monitor and assess the ability of poor borrowers to repay, due to living and working in the network areas of the poor. For instance, moneylenders can encourage the poor to repay by frequently visiting their homes and workplaces to collect repayments. Being involved in the same social networks, such as attending the same church or mosque, moneylenders can also effectively monitor the creditworthiness of poor borrowers. To encourage repayment, moneylenders often link loans to the social capital of the poor. Loans extended only to friends, neighbours and business associates are one way moneylenders utilise social capital, such as the norms of friendship and reciprocity to enforce repayments.

5.3.2 CONSTRAINTS OF THE POOR IN UTILISING LOANS

As well as various motives for utilising microfinance services, this study proposes that market segmentation in microfinance is associated with access constraints of the poor to microfinance *(Sub-hypothesis H_{1A})*. Poor people are not homogeneous in terms of access to finance. While some can utilise microbanks, many others are only capable of accessing informal MFIs, such as moneylenders and ROSCAs. Table 5.5 presents data on the percentage of respondents by income group and access to loans from different sources of borrowing in Boyolali. It shows that poor respondents tend to have greater access to loans from relatives, neighbours and friends. For instance, around 20 to 25 percent of respondents with monthly incomes between Rp 250,000 and Rp 499,900 (US$26.31–US$52.62) obtain loans from relatives, neighbours and friends, compared to those with access to microbank loans, accounting for 14.7 percent. In contrast, the largest percentage (16.02 percent) of respondents who access microbank loans have monthly incomes above Rp 1,750,000 (US$180.20). This implies that the poor tend to have a low ability to access formal loans due to insufficient income to secure repayments.

Table 5.5 Percentage of Respondents by Income Groups and Borrowing from Various MFIs in Boyolali

Monthly Income Group (Rp thousand)	Relative	Neighbour	Friend	Money-lender	Coop-erative	Micro Bank
Less than 250	2.16	2.60	1.73	2.60	1.30	1.73
250 to 499.9	25.54	25.11	20.78	14.29	17.75	14.72
500 to 749.9	11.26	9.09	10.82	3.46	9.52	10.39
750 to 999.9	11.26	11.26	11.69	6.06	10.82	10.39
1,000 to 1,249.9	5.19	5.19	4.76	4.33	3.03	6.93
1,250 to 1,499.9	6.06	5.19	5.19	4.33	4.33	5.63
1,500 to 1,749.9	4.33	3.46	5.19	3.90	5.63	7.79
More than 1,750	12.98	7.36	15.58	4.76	11.26	16.02
Total Percentage	78.79	69.26	75.76	43.72	63.64	73.59
[Number of Respondents]	[182]	[160]	[175]	[101]	[147]	[170]

Source: Author's field survey (processed)

Table 5.6 outlines the percentage of respondents by education and borrowing sources in Boyolali. It shows that 44.0 percent of respondents with only primary education or less obtain loans from moneylenders, compared to 13.5 percent of respondents with university education. Around 64.8 percent of respondents with only primary education or less have received loans from microbanks. This percentage is lower than that for respondents with education up to only senior high school level who accounted for 80.8 percent. This indicates a link between low education levels and a lack of access of the poor to loans from microbanks. Having low levels of education can cause the poor to lack knowledge about banking procedures, discouraging them from utilising microbank loans. Having low levels of education, the poor also tend to lack communication skills, and hence fail to expand their social and business networks to access microbank loans. In contrast, respondents with higher levels of education tend to have broader networks which help them to access microbank loans. In Chapter 6 we explore further the extent to which the poor fail to utilise social and business networks to access microbanks.

Table 5.6 Percentage of Respondents with and without Borrowing from MFIs by Education Achievement in Boyolali

	Moneylender		Cooperative		Microbank	
Level of Education	No	Yes	No	Yes	No	Yes
Primary School or less	56.0	44.0	42.4	57.6	35.2	64.8
Junior High School	50.0	50.0	26.1	73.9	15.2	84.8
Senior High School	57.7	42.3	32.7	67.3	19.2	80.8
University/Diploma	87.5	13.5	25.0	75.0	0.0	100

Source: Author's field survey (processed)

The above discussion tends to support *Sub-hypothesis* H_{1A}, that the capacity of the poor to access microfinance services is constrained by low levels of income and education, and limited networks. The failure of the poor to access formal finance is because microbanks consider low incomes to be associated with a greater probability of loan default. Moreover, limited education constrains the poor from accessing formal loans through their unfamiliarity with the borrowing procedures of microbanks. The logic is that limited education can cause the poor to have inadequate skills of communication, and hence fewer networks to access microbank loans.

The question arises as to what extent these constraints on the access of the poor to formal finance lead to market segmentation in microfinance. Two scenarios are plausible. Firstly, in response to financial exclusion from microbanks, the poor utilise cooperatives, moneylenders and other informal MFIs as alternative sources of borrowing. These MFIs are accessible by the poor because their lending contracts are based on social collateral, such as mutual trust, friendship and the norms of reciprocity, rather than physical collateral. In contrast, non-poor people prefer to utilise microbanks over informal and semi-formal MFIs due to the larger loans provided with lower interest rates. Secondly, the poor develop informal financial arrangements, such as ROSCAs, funeral funds and credit unions, to enhance their access to finance. Being self-help support institutions, the financial services of these MFIs are designed to suit the socioeconomic conditions of the poor, such as their need for non-collateral loans, simple borrowing procedures, and informal approaches. Thus, microfinance markets in the survey area tend to be segmented because for two reasons. The first is that the poor are only capable of accessing small-scale loans of semi-formal and informal MFIs, with high interest rates. The second is that the non-poor prefer to utilise microbanks due to greater loans with lower interest rates.

5.4 Heterogeneous Characteristics of Microfinance Institutions

In the previous section, market segmentation in the microfinance industry was linked to various motivations for and constraints in utilising loans. The present section seeks to investigate *Sub-hypothesis* H_{1B}, that the ability of MFIs to deliver microfinance services is limited by geographical boundaries, their small-scale of operation, and difficulties in gathering information about the creditworthiness of the poor. In so doing, we scrutinise the operational characteristics and financial performance of MFIs in Boyolali. Then we examine that extent to which differences in scope, scale and targeted clients among MFIs have the potential to result in market segmentation in microfinance.

5.4.1 FORMAL MFIS

Microbanks are the major microfinance providers in the district of Boyolali and they comprise BRI-units, BPRs, BKKs and Bank Pasar. The BRI-units are national government-owned microbanks, while BKKs and Bank Pasar are the district government-owned microbanks. The owners of BPRs are private individuals. In terms of geographical operation, BPRs and Bank Pasar are concentrated in the district capital of Boyolali, delivering their financial services to semi-urban markets. Business operations of BRI-units and BKKs cover rural and semi-urban areas. They have at least one microbank office in every sub-district within Boyolali. Table 5.7 presents a financial breakdown of microbanks in Boyolali in 2006. It shows that BRI-units and BPRs are the dominant players, with saving mobilisation amounting to 72.94 percent of total micro-savings in 2006. Similarly, their loan portfolios accounted for 77.38 percent of total micro loans.

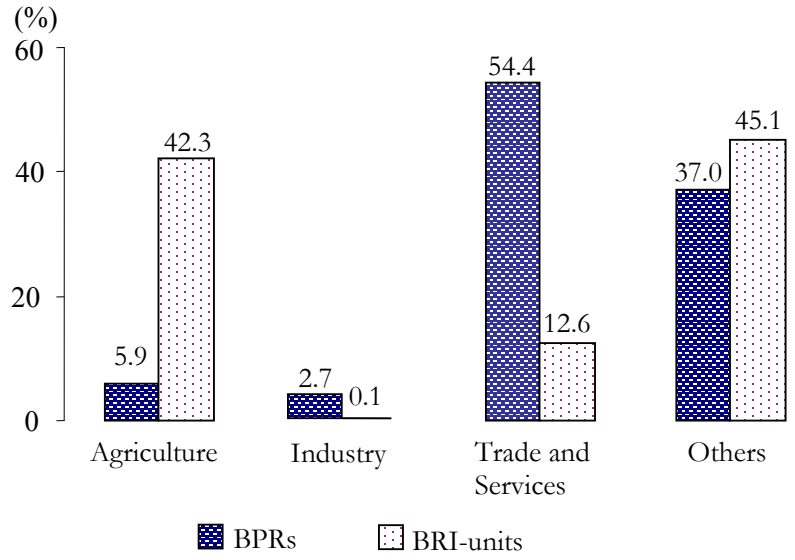
Table 5.7 Financial Intermediary of Formal MFIs in Boyolali, 2006

Formal MFIs	Savings (Rp million)	(%)	Loan Portfolio (Rp million)	(%)
BRI-units	140,413	(39.29)	193,483	(47.05)
BPRs	120,250	(33.65)	124,708	(30.33)
BKKs	35,219	(9.86)	37,243	(9.06)
PD Bank Pasar	61,476	(17.20)	55,751	(13.56)
Total MFIs	357,358	(100)	411,185	(100)

Source: BPS Boyolali (2006) and Bank Indonesia Surakarta Office (2006)

Figure 5.3 presents the loan portfolio of BRI-units and BPRs by economic sectors in 2006. It can be seen that the BRI-units allocated the largest share of their loan portfolios to agricultural activities, while loans from BPRs were mostly delivered to trade and service sectors. This indicates the different market orientation of BRI-units and BPRs. The wider microbanking networks enable BRI-units to serve the dispersed rural markets. In 2006 the microbanking network of BRI-units consisted of 25 units, covering all sub-district areas within Boyolali (BPS Boyolali 2006). As a result, the BRI-units have been the major microfinance providers in the rural areas of Boyolali. In contrast, most BPRs operate in the district capital of Boyolali, where trade and service activities are concentrated. The targeted clients are small traders and service operators. Being operationally concentrated in urban areas, the lending staff of BPRs lack business experience in lending to rural borrowers. Regarding *Sub-hypothesis* H_{1B}, the ability of MFIs to deliver microfinance services to clients is limited by geographical boundaries. In the case of microbanks, while most BRI-units and BKKs are operationally concentrated in rural areas, BPRs have a focus on serving urban market segments. As geographical boundaries can reduce the degree of competition among microbanks, they can lead to market segmentation in microfinance.

Figure 5.3 Percentage of Loan Portfolio by Sectors in Boyolali, 2006



Source: BPS Boyolali (2006) and Bank Indonesia Surakarta Office (2006).

5.4.2 SEMI-FORMAL MFIS

The Ministry of Cooperative and Small Business identifies cooperatives specialising in financial services as *Koperasi Simpan Pinjam* (KSPs). Islamic-based cooperatives (BMTs) are also registered in this category. Multipurpose cooperatives that undertake microfinance services are known as cooperatives with savings and credit unit functions *(Koperasi dengan Unit Usaha Simpan-pinjam* (USPs). However, in terms of ownership, cooperatives can be divided into three categories: (1) local government-sponsored cooperatives, (2) private-owned cooperatives, and (3) member-based cooperatives.

Table 5.8 summarises the operational characteristics of these three different types of cooperative. Here, four characteristics of the cooperatives are considered: Firstly, the owners of government-sponsored cooperatives and member-owned cooperatives are the cooperative members. The government-sponsored cooperatives, officially known as *Koperasi Unit Desa* (KUDs), are established by the local government in each sub-district within the Boyolali District. A top-down approach characterises the establishment of KUDs, in that initial funds are provided to the community members to run the KUDs. The membership of KUDs is restricted to community members living in the sub-district area where they operate. Member-owned cooperatives arise from the need of a village community to set up self-help groups to provide finance. Hence, the moral values of the community, such as mutual trust, friendship, and the norms of solidarity and reciprocity, underpin the establishment of these cooperatives. Member-owned cooperatives have independently grown on a communal basis, with a heavy reliance on their own resources. Because membership is restricted to one or

two villages, a small-scale of operations characterises the microfinance businesses of member-owned cooperatives.

Table 5.8 Major Characteristics of Cooperatives in Boyolali

Characteristics	Local Government-sponsored Cooperative	Private-owned Cooperative	Member-owned Cooperative
Ownership and membership	▪ Community members ▪ Membership is limited to a sub-district area	▪ Private individuals ▪ Non-limited membership	▪ Community members ▪ Membership is limited within a village area
Objective	▪ Socioeconomic benefits to the members ▪ Profitability is not the main concern	▪ Financial benefits to the owner ▪ Profitability is the main concern	▪ Socioeconomic benefits to members ▪ Profitability is not the main concern
External Funding	▪ Compulsory savings of the members ▪ The government funding subsidies and office facilities	▪ Compulsory and voluntary savings and loans from financial institutions	▪ Compulsory savings of the members ▪ Irregular funding subsidies
Financial Intermediary	▪ Permanent offices provided by the local government ▪ Financial services are done in conjunction with other services ▪ Clients are usually large ▪ Non-collateral loans with low interest rates	▪ Permanent offices are located in the district capital ▪ Financial services are the core business ▪ Clients are large ▪ Interest rates charged are significantly high	▪ Without permanent office, daily administration is undertaken in the home of cooperative leader Financial services are done in conjunction with other services ▪ Clients are usually small ▪ Non-collateral loans with low interest rates

Source: Author's analysis

Private-owned credit cooperatives or private cooperatives (for short), are owned and managed by a small group of private individuals[7]. This group is usually considered to be the cooperatives' founders. In the survey they preferred to be seen as the core members of the cooperative, to distinguish them from general cooperative members. The general members are the cooperative clients and there is no limit on membership. The core members of private cooperatives are limited to the cooperative founders. The clients are registered as cooperative members because under present regulations, financial services of a cooperative should only be provided to its members (Government Regulation No. 9 of 1995). The financial services of private cooperatives are akin to those of microbanks, as they can mobilise savings from and make loans to the public. The only difference is that cooperative clients (e.g., savers and borrowers) are registered as cooperative members.

Secondly, profitability is not the main concern of KUDs and member-owned cooperatives. These cooperatives are set up to help members to access agricultural inputs. Profits are distributed to cooperative members

[7] Having similar ownership characteristics, Islamic-based cooperatives (BMTs) fall within the category of private-owned cooperatives.

each year, which enable members to engage in savings. Apart from providing access to finance, member-owned cooperatives can facilitate social capital accumulation in the form of strengthening mutual trust, friendship and solidarity among community members. Our survey found that profits of membership-owned cooperatives are often utilised to support communal activities, such as religious ceremonies, funerals and other social gatherings. From the perspective of the local government, these cooperatives can help educate members of the rural community in dealing with microfinance businesses. In contrast, profitability is the main objective of private cooperatives. They are purely commercial investors that provide microfinance services for profit.

Thirdly, external financing from commercial capital (e.g., savings and bank loans) to cooperatives is limited. A lack of professionalism, a small scale of operation, and unregistered operations discourage the public from placing their savings in KUDs and member-owned cooperatives. Given this situation, these cooperatives also often have little access to loans from commercial banks. Hence, most loanable funds of KUDs and member-owned cooperatives are obtained from the compulsory savings of their members. Many KUDs often gain access to subsidised funds, due to their close links with the local government. However, the member-owned cooperatives obtain irregular funding support, as they are distant from local political circles. Although limited, private cooperatives have gained access to bank loans. Having sound business records and a personal guarantee from the owner, some private cooperatives have been capable of accessing bank loans and mobilising savings from local wealthy people.

Fourthly, the financial services of KUDs are undertaken in permanent offices, while most member-owned cooperatives surveyed operate in the homes of cooperative leaders. However, KUDs and member-owned cooperatives share similar business characteristics, such as informal borrowing procedures and non-collateral loans. Interest rates charged by these cooperatives are often lower than those of private cooperatives. The low interest rate charged on loans is because the microfinance services of KUDs and member-owned cooperatives do not aim to maximise profits. However, loan repayment rates of these cooperatives remain high, as they operate within the dense networks of the rural community. The rural borrowers have incentives to repay because they consider these cooperatives to be self-help institutions. The borrowers will avoid loan delinquency to ensure the access of other members to loans. This indicates that social capital in the form of friendship, solidarity and reciprocity underpin the functioning of cooperatives.

In contrast, microfinance services are the core business of private cooperatives, and are undertaken in permanent offices to attract customers. Interest rates charged on loans are high as they need to be to ensure profitable operation. The high interest rates are also associated with the

significant cost and risk of lending to the poor. In order to minimise loan default, private cooperatives need to expend more resources to maintain close networks with their poor customers. This includes transportation costs to frequently visit the homes and workplaces of poor clients to collect repayments. Private cooperatives recognise that having frequent contacts with poor clients is vital to maintain customer loyalty to their services. Such friendships, to some degree, can also lead poor borrowers to consider the moral values of friendship, such as honesty, trustworthiness and reciprocity, hence enhancing their willingness to repay loans. The benefit of having close friendships with poor borrowers is that it also enables private cooperatives to closely monitor their ability to repay. The utilisation of social capital thus has the potential to enhance loan repayment, yet it increases the operational cost of private cooperatives, leading to high interest rates charged on loans.

The above description of the operational characteristics of cooperatives supports *Sub-hypothesis* H_{1B}, that the ability of MFIs (cooperatives) to deliver microfinance services is limited by their geographical boundaries, small-scale operations and diverging capacities to gather information about the creditworthiness of the poor. Member-owned cooperatives tend to have small-scale operations due to limited funds, compared to private cooperatives. They also have a limited geographical coverage because their financial services are often restricted to members with one of tow villages. Because the business objective of member-owned cooperatives is not purely to maximise profits, they tend to set low interest rates on their financial services. Coupled with small-scale operation and simple administrative procedures, these cooperatives can lower operational costs, leading to low interest charged on their clients.

In contrast, being purely commercial entities, the financial services of private cooperatives are delivered to clients for profit. They tend to have a wider coverage, due to unlimited members (clients) and greater financial resources, compared to member-owned cooperatives. Private cooperatives are also more capable of serving greater loans, as they can mobilise savings, and have greater access to bank loans. However, private cooperatives tend to charge higher interest rates than member-owned cooperatives, as they need to expend more resources to overcome informational and enforcement problems of lending to the poor. Overall, microfinance markets in Boyolali tend to be segmented because the different types of cooperatives have diverging operational scale and scope, as well as setting different interest rates on their financial services.

5.4.3 INFORMAL MFIS

Informal MFIs remain an important source of financing for the poor in Boyolali. They include relatives, friends, neighbours, ROSCAs and moneylenders. Figure 5.4a presents the percentage of respondents

providing loans to relatives, neighbours and friends. It shows that more than 85 percent of respondents have provided loans to their relatives, friends and neighbours. Similarly, most respondents have borrowed money from relatives, friends and neighbours (Figure 5.4b). Many respondents obtaining loans from and lending to relatives, friends and neighbours suggests two things. Firstly, reciprocal lending among relatives, neighbours and friends can be seen as a self-help support mechanism among the poor to cope with a lack of formal finance (e.g., microbank loans). This lending behaviour stems from the existence of social cohesion, mutual trust and reciprocity within the rural community. Short-term financial benefit is not the objective of lenders. In contrast, gaining the social benefits of friendship, neighbourhood, and fulfilling the norms of solidarity and reciprocity are of supreme importance. These communal values are highly esteemed because fulfilling them can serve economic ends through the gaining of a good reputation and receiving appreciation from the community (see Polanyi 1944).

Figure 5.4a Percentage of Respondents Providing Loans to Relatives, Friends and Neighbours in Boyolali

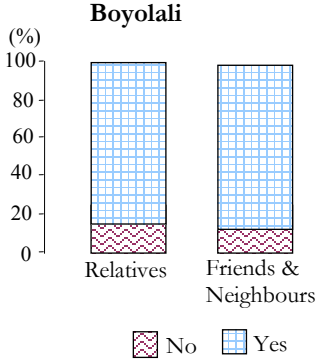
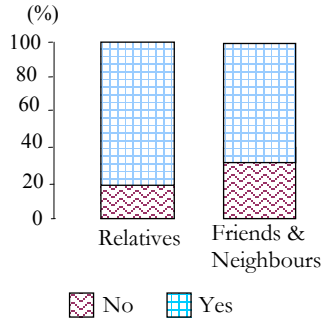


Figure 5.4b Percentage of Respondents Having Loans from Relatives, Friends and Neighbours in Boyolali



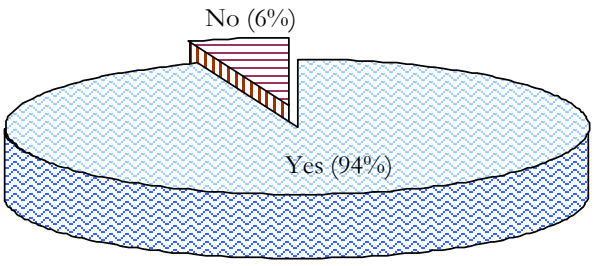
Source: Author's field survey (processed)

Secondly, the utilisation of loans from socially close lenders (e.g., friends and neighbours) indicates the need of the poor for small and non-collateral loans. These loans are accessible by the poor because they do not require physical or monetary collateral, and they utilise informal procedures of borrowing with very little paperwork. This type of loan is in contrast to loans from microbanks that impose significant transaction costs on poor borrowers, due to high transportation costs, lengthy appraisal process, and complicated document requirements. However, loans from socially close lenders do impose significant reciprocal obligations on poor borrowers. These reciprocal obligations mean that borrowers should provide loans to lenders some time in the future. A failure to fulfil the reciprocal obligation would put severe pressure on borrowers, such as financial exclusion and loss of reputation within the community. Overall, social capital in the form of social trust, friendship and reciprocity plays a role in informal lending

among relatives, neighbours and friends. The extent to which social capital affects reciprocal lending among the poor will be investigated further in Chapter 6.

Figure 5.5 shows the percentage of respondents who are involved in rotating savings and credit associations (ROSCAs). It illustrates that more than 90 percent of respondents have been involved in ROSCAs. ROSCAs, locally known as *Arisan,* are favourable to the poor because they can provide savings facilities and non-collateral loans to members. The financial services of ROSCAs are needed by the poor to smooth consumption, in response to unpredictable falls in income. ROSCAs also help to finance life-cycle expenditures, associated with child education, social and religious ceremonies. Yet, the lending capacity of ROSCAs is considerably small due to small-scale operations, such as among relatives, neighbours and co-workers, and heavy reliance to compulsory savings of members. However, loans from ROSCAs have low default rates. Being provided only within the close networks of the rural community, loans from ROSCAs impose moral obligations on borrowers. The borrowers are encouraged to repay because loan delinquency could potentially lead to exclusion from ROSCA membership. As with loans from socially close lenders (e.g., relatives, neighbours and friends), the failure to honour loans from ROSCAs can result in social punishment, such as being the subject of gossip within kinship networks and neighbours.

Figure 5.5 Percentage of Respondents by membership in Rotating Savingsand Credit Associations (ROSCAs) in Boyolali

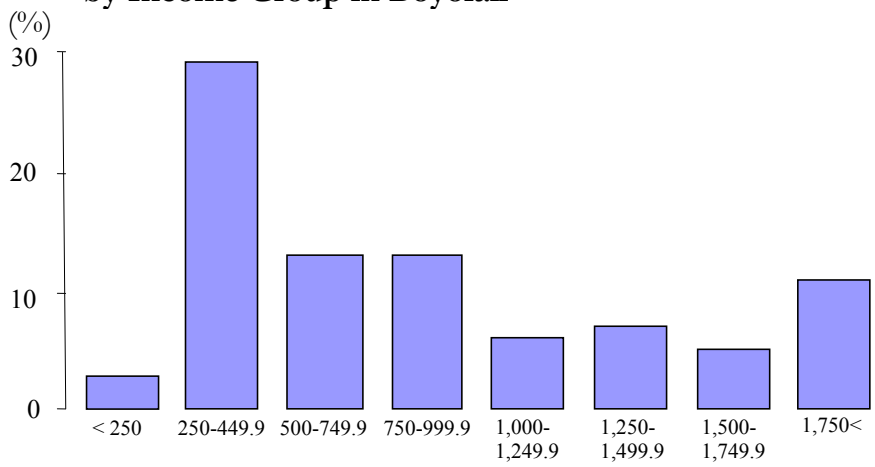


Source: Author's field survey (processed)

Moving to moneylenders, Figure 5.6 presents the income details of respondents obtaining loans from moneylenders. The majority of respondents (30 percent) that utilise moneylenders' loans are poor people with monthly income in the range of Rp 250,000 to Rp 499,900 (US$26.31–US$52.62). This figure also shows that an increase in monthly income is accompanied by a decrease in the percentage of respondents who borrow money from moneylenders. This indicates that loans from moneylenders are more favourable to the poor than non poor households. Moneylenders can be divided into non-professionals and professionals (see Robinson 1997). In the survey area non-professional moneylenders provide small

loans only to persons who have business networks, such as employees and work partners. Typically, these moneylenders provide loans to support their business activities. In handicraft production our survey found that large-scale manufacturers often provide loans to home-based manufacturers in exchange for the products they make. The home manufacturers act as the subcontracting producers for the larger scale manufacturers. When the subcontracting agreement has been set, the large manufacturers provide loans to subcontractors to purchase material inputs. Hence, the amount of the loans will never exceed the value of subcontracted products. Loan interest rates are implicitly determined by the large manufacturers, such that the subcontractors rarely enjoy profits. The only financial benefit they gain is the surplus value of the labour used to produce the subcontracted product.

Figure 5.6 Percentage of Respondents Having Loans from Moneylenders by Income Group in Boyolali



Source: Author's field survey (processed)

However for home manufactures, maintaining friendships with larger scale manufacturers goes beyond the interest rate charged on the loans. Considering the lack of financial inputs, maintaining such friendships can secure the production of the home manufacturers through their ability to access loans from the large manufacturers. For instance, the home-based manufacturers can borrow money from the large manufacturers when cash is urgently required to purchase material inputs. The overarching aim is to avoid delays in fulfilling the production contract with customers. The principal sum plus interest repayments can be made to the lenders, once payments have been received from customers. Such non-collateral loans have a low rate of default. This is the case as the borrowers have a large incentive to repay the loans. The failure to repay loans can damage their relationship with lenders. Loan delinquency can also inhibit access of small manufacturers to future loans from large manufactures. From the

perspective of large-scale manufacturers, mutually beneficial friendships through loans will sustain their production through subcontracting agreements. Such lending provisions indicate the functioning of social capital (e.g., mutual trust, friendship and the norms of reciprocity) in informal loans.

Money-lending is the only business of professional moneylenders. Hence, they actively engage in marketing their lending services to poor clients. In the survey, most professional moneylenders responded that they travelled from one place to another to approach clients. These moneylenders can be divided into two categories. The first is moneylenders that operate in marketplaces. In many cases they have financial business operations in more than one marketplace. The working hours of these moneylenders will vary, depending on the business hours of the marketplace. Most, if not all, clients are petty traders. The second category is moneylenders that operate in non-marketplaces. They will visit the homes or workplaces of clients to extend loans and collect repayments. As the locations of poor clients are geographically dispersed, this second category of moneylenders mostly uses motorcycles to travel from one client to another. The clients vary and include small farmers, traders, labourers, manufactures and the like. These two types of moneylenders share a common characteristic of providing small and non-collateral loans to the poor. They explicitly charge high interest rates on loans, so as to gain profits.

It is evident that lending without collateral induces moneylenders to face enforcement problems. They are also exposed to informational problems as poor borrowers do not have financial records of their business activities. To overcome these problems, moneylenders link loans to the social networks of poor borrowers. For instance, building close relationships with friends, neighbours and relatives of the poor, moneylenders can gather information about the creditworthiness of potential borrowers. To encourage repayment, moneylenders employ intensive loan collection procedures by frequently visiting the homes and workplaces of poor borrowers. Face-to-face interaction can build close friendships, and strengthen the loyalty and trustworthiness of poor borrowers. Such friendships can encourage loan repayments because the poor consider the long-term benefits of having close relationships with moneylenders. The poor recognise that loan defaults can damage their relationships with moneylenders, thereby constraining access to future loans. In the dense networks of rural communities, loan delinquency can cause poor borrowers to face social punishment, because unpaid lenders can inform the public of their dishonest behaviour. This indicates that social capital is an important factor in the lending practices of moneylenders.

Regarding *Sub-hypothesis* H_{1B}, the ability of informal MFIs (e.g., moneylenders and ROSCAs to deliver microfinance services is constrained by their geographical coverage and small-scale of operations, due to limited financial resources. However, having small-scale operations benefits informal MFIs through enhancing close contact and relationship with poor borrowers. Maintaining close relationship with poor borrowers, for instance, can help moneylenders strengthen the degree of monopoly powers. This then leads to segmented markets of informal microfinance because moneylenders may limit their operational scope of lending only to friends, neighbours, co-workers, and interlink loans with other forms of contracts (e.g., trade–credit linkage and subcontracting production). This lending behaviour enables moneylenders to limit the entry of competitors into their market segments, thereby reducing the degree of competition among them. Borrowers are discouraged from shifting to other moneylenders because they have been locked in to other contracts, such as advance purchases of their commodity production. Moneylenders also tend to limit the scope of lending only to whom they have close contact (e.g., friends and neighbours) in order to create patron–client relationships, thereby sustaining their market segments.

5.4.4 MICROFINANCE INSTITUTIONS AND TARGETED CLIENTS

The above sub-sections have outlined the diverging characteristics of business operations across formal, semi-formal and informal MFIs in Boyolali. This current sub-section seeks to examine *Hypothesis* H_1, that such diverse operational characteristics can lead to market segmentation in the microfinance industry in Boyolali. Table 5.9 compares the major operational characteristics of MFIs in Boyolali in terms of financial intermediation, loan size and targeted clients. It shows that profit-oriented practices exist not only within formal MFIs (microbanks), but also in semi-formal and informal MFIs. For instance, private cooperatives and moneylenders provide microfinance services to poor people for profit. In contrast, member-based cooperatives and ROSCAs are non-commercial MFIs as they are developed to be self-help mechanisms against a lack of access to formal finance. However, the financial business of member-based cooperatives and ROSCAs remains profitable, due to low operational costs, simple administrative procedures and small areas of operation. Having small areas of operation, member-based cooperatives and ROSCAs can minimise loan default through the functioning of social sanctions. However, the financial services of these MFIs are constrained by inadequate funds, due to their lack of access to commercial capital, such as bank loans.

Table 5.9 Comparative Characteristics of MFIs in Boyolali

Type of MFI	Institutional Provider	Lending Mobilisation	Loan Size	Targeted Clients
Formal	1. Commercial MFI: - BRI-units - BPRs	Rp 4 – Rp 7 billion, covering 500 – 1,000 clients Collateral loans	Average loan: Rp 5.0 – Rp 6.0 million Minimum Loan: Rp 400,000 – Rp 500,000	Non-poor Clients
	2. Non-commercial MFI: - BKKs	Rp 1 – Rp 2.5 billion, covering 500 – 1,000 clients Collateral and non-collateral loans	Average loan: Rp 250,000–Rp 500,000 Minimum Loan: Rp 50,000 – Rp 100,000	Non-poor and Poor Clients
Semi-formal	1. Commercial MFI: - Private Cooperative - BMTs	Rp 100 million – Rp 1 billion, covering 500 – 1,000 clients Collateral and non-collateral loans	Average loan: Rp 1.0 – Rp 1.5 million Minimum Loan: Rp 100,000 – Rp 250,000	Non-poor and Poor Clients
	2. Non-commercial MFI: - Member-based Cooperatives - KUDs - BKDs	Less than Rp 100 million, covering 100 – 500 clients. Non-collateral Loans	Average loan: Rp 250,000–Rp 500,000 Minimum Loan: Rp 100,000 – Rp 250,000	Poor Clients
Informal	1. Commercial MFI: - Moneylenders	Rp 70 – Rp 100 million, covering 50 – 100 clients. Collateral and non-collateral loans	Average loan: Rp 250,000 – Rp 500,000 Minimum Loan: Rp 50,000 – Rp 100,000	Poor Clients
	2. Non-commercial MFI: - ROSCAs	Rp 7 – Rp 20 million, covering 20 – 30 clients Non-collateral loans	Average loan: Rp 250,000 – Rp 500,000 Minimum Loan: Rp 50,000 – Rp 100,000	Poor Clients

Source: Author's field survey (processed)

Microbanks, such as BRI-units and BPRs, have much greater operational scale than semi-formal and informal MFIs. On average, the lending capacity of microbanks has reached the range of Rp 4 billion to Rp 7 billion (US$421,052–US$736,842), compared to private cooperatives which have the range of Rp 100 million to Rp 1.0 billion (US$10,526–US$105,263). In contrast, the lending capacity of informal MFIs is less than Rp 100 million (US$10,526). This is not surprising as microbanks are capable of mobilising savings from the public, while semi-formal and informal MFIs face operational constraints when engaging in savings mobilisation. However, the number of borrowers served by microbanks is similar to that served by private cooperatives, ranging from 500 to 1,000 clients. This indicates that private cooperatives are more capable of penetrating low-market segments of poor clients who demand small loans, than are microbanks. Regarding *Sub-hypothesis* H_{1B}, cooperatives face financial constraints to serve up-market segments (non-poor).

Microbanks face operational constraints to serving the rural poor for two reasons. The first reason is that, being commercial entities, microbanks should maintain reasonable profits to cover the cost of their operations. Profitable operations are also supremely important for microbanks to

comply with the rules set by regulators and to meet the expectations of shareholders. As a result, microbanks are discouraged from lending small amounts to the poor due to the high cost of managing such loans. Secondly, lending to the rural poor imposes high operational costs on microbanks, especially BPRs, whose business operations are concentrated in urban areas. Being operationally distant from rural communities, BPRs face high costs of gathering information about the creditworthiness of rural borrowers. Regarding *Sub-hypothesis* H_{1B}, the capacity of BPRs to deliver microfinance services is limited by the high costs of gathering information about the creditworthiness of poor borrowers. Such costs then lead to high interest charged on lending to clients.

Table 5.9 also shows that semi-formal and informal MFIs, such as cooperatives, moneylenders and ROSCAs, are more capable of providing small loans to the poor than are microbanks. The average size of loans of private cooperatives falls within the range of Rp 1 million to Rp 1.5 million (US$105.26–US$157.89), and for moneylenders, ROSCAs, member-owned cooperatives and KUDs, it is Rp 250,000 to Rp 500,000 (US$26.31–US$52,63). In contrast, the average size of loans of microbanks is in the range of Rp 5 million to Rp 6 million (US$526.31–US$631.57). Similarly, the minimum size of loans provided by microbanks is also significantly greater than that of semi-formal and informal MFIs. This indicates that cooperatives, moneylenders and ROSCAs have a focus on poor clients who demand small-scale loans. Because these MFIs live and work in villages, they can effectively monitor the creditworthiness of poor borrowers, and are able to minimise the risks of lending. Cooperatives and ROSCAs stem from collective actions among the poor to cope with a lack of access to finance. Being self-help institutions, these MFIs can lend on the basis of social collateral, rather than monetary or physical collateral. Social collateral in the form of mutual trust, friendship and solidarity can encourage repayments because the poor recognise that disregarding these communal values can result in social punishment.

However, the financial practices of cooperatives, moneylenders and ROSCA are constrained by their geographical boundaries and small-scale operation. As member-owned MFIs, cooperatives and ROSCAs are permitted to provide loans only to their members. In many cases, membership of ROSCAs and cooperatives is restricted to a village. By law, cooperatives cannot mobilise public savings, leading to low lending capacity. Cooperatives and ROSCAs also often fail to access bank loans due to insufficient income and lack of collateral. Similarly, moneylenders are unlikely to enhance business operations because they are regarded as an illegal business in Indonesia. Given this situation, the ability of such MFIs to deliver microfinance services is limited by geographical boundaries and small-scale of operations, supporting *Sub-hypothesis* H_{1B}. In response to such operational constraints, informal and semi-formal MFIs tend to focus on

providing small loans to the poor. In contrast, formal MFIs (microbanks) prefer to serve the non-poor, given the high costs and risks of lending to the poor. Overall, the difference in the targeted clients across formal, semi-formal and informal MFIs thus leads the present study to support *Hypothesis* H_1, that the heterogeneousness of operational characteristics of MFIs underpins the presence of market segmentation in microfinance in Boyolali.

5.5 The Cause of Market Segmentation in Microfinance: A Summary

As has been emphasised in the previous sections, two major features characterise microfinance clients in the survey area. The first is that poor people tend to have a low capacity to access microbanks due to low levels of income and education, and an inadequate knowledge of banking procedures. In contrast, the non-poor have greater access to microbanks, due to the ownership of collateral and higher incomes to ensure repayments. This fact indicates that the poor in Boyolali face various constraints in utilising microfinance services, thereby supporting *Sub-hypothesis* H_{1A}. As a result, microfinance markets in Boyolali tend to be segmented because the majority of poor people can only access semi-formal and informal MFIs, such as cooperatives and moneylenders. In contrast, the non-poor prefer to utilise formal MFIs (microbanks) who provide larger loans and charge less interest. The non-poor are unwilling to utilise loans from moneylenders due to their much higher interest rates than microbanks.

The second factor is associated with the various motives of the poor in utilising microfinance services. As was emphasised earlier, the poor utilise small loans to finance not only production, but also to support consumption, child education, medication, and many other social activities, supporting *Sub-hypothesis* H_{1A}. Coupled with the overlapping activities of production and consumption, such various motivations for utilising loans can impose informational and enforcement problems on MFIs. As a result, microfinance markets tend to be segmented as MFIs have diverging abilities to cope with such problems. In response to informational and enforcement problems, for instance, formal MFIs (microbanks) prefer to set low levels of interest rates on lending. According to Hoff and Stiglitz (1997), setting higher interest rates causes microbanks to face adverse selection effects through which only risky borrowers are willing to borrow. Higher interest rates also generate adverse incentive effects, as borrowers are encouraged to take riskier investment (Stiglitz and Weis 1981). As a result, microbanks prefer to provide larger loans to non-poor clients with low interest rates. Unlike microbanks, informal and semi-formal MFIs, such as moneylenders and credit cooperatives, charge higher interest rates to poor clients. Thus, microfinance markets are segmented; and, further, in the same location MFIs charged different interest rates on different clients.

Johnson (2005) put forward the notion that moneylenders charge higher interest rates than formal MFIs because they face high risks of default and lack the legal means of enforcing the poor to repay.

According to Hoff and Stiglitz (1993), Johnson (2005) and others, indicative of market segmentation in microfinance is that interest rates charged on loans tend to vary across different types of MFIs. Table 5.10 presents the percentage of MFIs by interest charged on loans. It shows that most formal MFIs (e.g., BRI-units, BPRs and BKKs) charge loan interest rates in the range of 20 to 24.9 percent. Interest rates also diverge significantly across cooperatives. While 37.9 percent of cooperatives surveyed set interest rates between 20 and 24.9 percent, 24.14 percent charge interest rates in the range of 30 to 34.9 percent. Most Islamic-based cooperatives set interest rates in the range of 30 to 39.9 percent. The loan interest rates of moneylenders are set significantly higher than those of microbanks and cooperatives. The interest rates of loans from moneylenders range from 30 to 50 percent. In contrast, 66.7 percent of ROSCAs set loan interest rates at less than 20 percent, while the other 33.3 percent charge loan interest in the range of 20 to 24.9 percent. Such diverging interest rates charged on clients thus indicates market segmentation in microfinance in the survey area. In up-market segments, for instance, the non-poor clients utilise formal loans from microbanks with low interest rates charged. In contrast, in lower-market segments the poor encounter high interest rates in utilising loans from informal MFIs, such as moneylenders.

Table 5.10 Percentage of MFIs by Interest Rates Charged on Loans in Boyolali

Annual Loan Interest Rate (%)	Formal MFI			Semi-formal MFI		Informal MFI	
	BRI-units	BPRs	BKKs	Coop-eratives	BMTs	ROSCAs	Money-lenders
Less than 20	0.0	0.0	0.0	6.90	0.0	66.7	0.0
20-24.9	100	58.3	87.5	37.9	18.2	33.3	0.0
25-29.9	0.0	25.0	8.3	13.8	13.6	0.0	0.0
30-34.9	0.0	16.7	0.0	24.1	22.7	0.0	17.4
35-39.9	0.0	0.0	0.0	3.5	27.3	0.0	34.8
40-44.9	0.0	0.0	4.2	10.3	4.5	0.0	17.4
45-49.9	0.0	0.0	0.0	0.0	9.1	0.0	30.4
More than 50	0.0	0.0	0.0	3.45	4.6	0.0	0.0
Total Percentage	100	100	100	100	100	100	100

Source: Author's field survey (processed)

Market segmentation in microfinance is also associated with the geographical boundaries of microfinance operations. Our survey found that informal MFIs (e.g., ROSCAs and moneylenders) have small areas of operation, such as within neighbourhoods and villages. Similarly, many member-owned cooperatives provide financial services to members within

one or two villages. In contrast, the financial services of microbanks, such as BRI-unit, BKKs and BPRs, are mostly delivered within sub-districts. This fact supports *Sub-hypothesis* H_{1B}, that the ability of MFIs to deliver microfinance services is limited by geographical boundaries, their small-scale of operation, and difficulties in gathering information about the creditworthiness of the poor. Such differences in geographical coverage, and operational scale and scope thus have the potential to reduce the degree of competition among MFIs, leading to market segmentation in microfinance. Moreover, market segmentation in microfinance can also be linked to the market specialisation of MFIs. While microbanks tend to penetrate up-market segments (non-poor clients), semi-formal and informal MFIs, such as moneylenders and cooperatives, focus more on lower-market segments (poor clients). Microbanks prefer to serve the non-poor, rather than the poor, as the former can provide good collateral and stable income to secure repayment. In contrast, moneylenders and cooperatives often fail to provide larger loans to the non-poor due to their limited funds. Hence they prefer to penetrate lower-market segments that comprise the poor clients demanding small-scale loans. Moneylenders and cooperatives can overcome informational and enforcement problems of lending because they live and work in the network areas of the poor. As such, they can effectively monitor and screen potential borrowers, and are able to utilise personal and friendship approaches to generate incentives for poor borrowers to repay their loans.

5.6 CONCLUDING DISCUSSION

This chapter has investigated the socioeconomic characteristics of microfinance clients and institutions in the survey area. It has shown that rural poverty remains a major issue in Boyolali. This rural poverty is associated with low levels of education, subsistence incomes and a lack of access to finance. Overall, this chapter supports *Hypothesis* H_1, that the heterogeneous characteristics of clients and institutions tend to lead to market segmentation in microfinance. Indicative of this is that interest rates charged diverge across MFIs. In the same location, interest rates charged by moneylenders can be twice that of microbanks. On average, interest rates of microbank loans are lower than those of credit cooperatives. Consistent with other studies (Hoff and Stiglitz 1993, 1997; Aleem 1993; Stiglitz and Weis 1981), market segmentation in the microfinance industry in Boyolali is associated with the presence of informational and enforcement problems. Unlike previous studies, however, this study emphasises that informational and enforcement problems arise in relation to the poor having various motives for utilising microfinance services, thus supporting *Sub-hypothesis* H_{1A}. Such heterogeneous motivations create informational problems as MFIs, particularly microbanks, find it difficult to monitor the usage of

loans. Microbanks are unlikely to enforce the poor comply with terms and condition of loan contracts, due to the interchangeable uses of loans.

Market segmentation in microfinance in the survey area also arises in relation to the diverging capacities of borrowers to access microfinance services. In this chapter we support that the ability of the poor to utilise formal finance is constrained by low levels of education, income and assets, and limited social networks. Insufficient education can lead to inadequate communication skills, inhibiting the poor from expanding their social networks to access microbanks. Subsistence incomes hence exclude the poor from accessing microbanks. In response, the poor tend to utilise financial services from moneylenders and cooperatives. These MFIs work well for the poor as their lending provisions are undertaken on the basis of social collateral, rather than monetary or physical collateral. In contrast, the non-poor can utilise loans from microbanks because they can provide collateral to insure their loans. Regarding *Hypothesis* H_1, microfinance markets in Boyolali thus tend to be segmented because, on the one hand, the non-poor can utilise formal MFIs and, on the other hand, the poor are only capable of accessing informal MFIs.

This chapter also supports *Sub-hypothesis* H_{1B}, that the ability of MFIs to deliver microfinance services is limited by their geographical boundaries, small scale of operations, and diverging capacities to gather information about the creditworthiness of the poor. Because microbanks are operationally distant from the social networks of the poor, they are often unable to overcome informational problems. As a result, they tend to focus on serving non-poor clients who have stable incomes and are able to provide good collateral. Microbanks are unlikely to increase loan supply to the poor through raising interest rates as doing so could deteriorate their loan portfolios (see Stiglitz and Weis 1981). In contrast, moneylenders and cooperatives can link their loans to the social networks of the poor, and hence are able to overcome informational and enforcement problems. However, these MFIs tend to charge clients high interest rates because additional resources need to be spent to maintain close contact and friendship with the poor. To sum up, such diverging operational scale, scope and capacities of MFIs to deliver financial services can lead to market segmentation in the microfinance industry in Boyolali, supporting *Hypothesis* H_1. Here, market segmentation occurs because, in response to informational and enforcement problems, formal MFIs (e.g., microbanks) prefer to penetrate up-market segments, comprising non-poor clients. On the other hand, semi-formal and informal MFIs penetrate low-market segments (poor clients), due to limited financial resources. Unlike microbanks, however, these MFIs are capable of overcoming informational and enforcement problems of lending through linking loans to the social networks of the poor.

CHAPTER SIX
THE IMPACT OF SOCIAL CAPITAL ON MICROFINANCE

6.1 INTRODUCTION

Considerable research has shown that social capital contributes to the performance of group lending methods (e.g., the Grameen Bank model) through the functioning of peer selection and monitoring, as well as group sanctions (Karlan 2007; Armendariz de Aghion and Morduch 2005; Goenka 2005; Grootaert et al. 2002). However, whether social capital enhances access of the poor to microfinance has not been explored in depth. In this regard, this chapter seeks to examine *Hypothesis* H_2, that social capital plays an important factor in microfinance. To comprehend this general hypothesis, we investigate the extent to which lending and borrowing among relatives, friends and neighbours are not strongly affected by specific characteristics of lenders and borrowers *(Sub-hypothesis* H_{2A}*)*. Then we examine *Sub-hypothesis* H_{2B}, that social and business networks increase the access of the poor to microfinance. This chapter also examines *Sub-hypothesis* H_{2C}, that lending provision in conjunction with the development of social networks among the poor contributes to the loan performance of MFIs.

This chapter is organised as follows. The next section reviews the extent to which social trust and networks can improve the access of the poor to microfinance services. Then, Section 6.3 analyses the socioeconomic determinants of the borrowing of the poor. Here, the way economic endowments and social networks of poor people affect their demand for commercial and non-commercial loans is emphasised. Section 6.4 investigates the extent to which the poor can utilise social networks to overcome problems of credit rationing from formal MFIs. Section 6.5 examines the impact of social capital on rates of loan repayment rates to MFIs. Section 6.6 concludes this chapter.

6.2 SOCIAL TRUST, NETWORKS AND THE ACCESS OF THE POOR TO MICROFINANCE

The central issue of credit contracts is the matter of trust between lender and borrower. This, in turn, depends upon two factors: information and sanctions (Edgcomb and Barton 1998; Guinnane 2005). Lenders will trust borrowers for credit if they can gather information about their creditworthiness and impose effective sanctions on loan defaulters. Collateral can provide information about the repayment capacities of borrowers (Edgcomb and Barton 1998). It can also enable sanctions to be enforced, as lenders can seize collateral from the defaulting borrowers

(Guinnane 2005). This conception of trust in credit relies on an individualistic approach, highlighting the failure of banks to serve the poor. Banks typically distrust poor borrowers because they lack information about their creditworthiness, and are unable to enforce sanctions due to the absence of collateral.

However, trust as a social behaviour often goes beyond individualistic motives and actions. Bebbington and Gomez (2006) define trust using a Mexican term as *Confianza*, referring not only to the notion of trust but also to kindness, generosity and individuals' personal interest in one another (p.116). According to Fukuyama (1995), the norms of tolerance and reciprocity provide the basis for social trust. Uslaner (2002) puts forward the notion that social trust is the core element of civic engagement and sociality. In the context of microfinance, social trust underpins lending contracts among relatives, neighbours and friends, as loans are often provided without requiring physical or monetary collateral. In contrast, socially close lenders seek to fulfil norms of reciprocity, friendship and solidarity. For instance, people provide loans to relatives and friends because they expect to receive similar loans in the future (La Ferrara 2003; Zeller 2003). They consider the norms of friendship and solidarity when engaging in mutual insurance against financial difficulties (Reinke 1998; Dercon 2002). Borrowers are unlikely to violate loan contracts secured in this manner because they recognise that social sanctions can have severe repercussions for them.

The survey conducted for this thesis asked respondents how often they borrowed from and lent money to relatives, neighbours and friends. The results are tabulated in Table 6.1. It shows that 20.34 percent of respondents who borrow money from relatives also often provide loans to them. This percentage is greater than the number of respondents who never provide loans to their relatives, accounting for 11.26 percent. As seen in the second row of Table 6.1, 23.81 percent of respondents who frequently lend money to neighbours and friends also borrow money from them. The other 20.78 percent irregularly provide loans to their neighbours and friends. In contrast, only 5.63 percent of respondents who borrow money from neighbours and friends never provide loans to them. As such loans are typically collateral-free at zero or very low interest, it is probable that such reciprocal lending among relatives, neighbours and friends emerges because of social-capital-related factors, such as trust, friendships and reciprocity. In the next sub-sections, we will scrutinise further the extent to which these elements of social capital influence such lending behaviour.

Table 6.1 Percentage of Respondents by Borrowing from and Lending to Relatives in Boyolali

Borrowing from Relatives	Lending to Relatives				Total Percentage
	Never	Not-so-often	Often	Very Often	
No	3.03	12.55	4.33	1.30	21.21
Yes	11.26	38.10	20.34	9.09	78.79
Borrowing from Neighbours & Friends	Lending to Neighbours and Friends				
	Never	Not-so-often	Often	Very Often	Total Percentage
No	6.49	29.44	6.06	7.79	49.78
Yes	5.63	20.78	11.26	12.55	50.22

Source: Author's field survey (processed)

6.2.1 THE WILLINGNESS TO PROVIDE LOANS TO RELATIVES, NEIGHBOURS AND FRIENDS

Recalling Chapter 2 of this thesis, the difference between an individualistic approach and a moralistic (social) approach to trust is as follows. Whereas the former argues that trusting others makes sense only if it is based on available information about their trustworthiness, the latter is based more on the moral values of a community, such as friendships, acceptance, reciprocity and solidarity. According to Uslaner (2002), if people hold to these common values in their social life, trusting others is not overly risky, even though there may be insufficient information about their trustworthiness. Because social trust is a product of social interaction, it comes from generalised norms of morality, such as friendship, kindness, generosity and reciprocity (Weber and Charter 2003; Heldey and Newton 2002). To investigate whether the behaviour of lending among relatives, neighbours and friends is more likely based on an individualistic or a moralistic (social) conception of trust, this section utilises chi-square and correlation analyses. If social trust and reciprocity are examined, the willingness to provide loans to relatives, neighbours and friends may not be affected by the specific characteristic of lenders. To examine this issue, income, gender, occupation, levels of education and age of lenders are considered.

Data were obtained by asking respondents how often they lent money to their relatives, neighbours and friends. The possible answers were: (1) never, (2) not-so-often, (3) often, and (4) very often. We propose the *null hypothesis* (H_o) that the willingness to provide loans to relatives, neighbours and friends is not affected by certain specific characteristics of lenders (e.g., income, education). The *alternative hypothesis* (H_a) is that the willingness to provide loans to relatives, neighbours and friends is affected by specific characteristics of lenders. Table 6.2 reports the results of the chi-square and correlation analyses on the willingness to provide loans to relatives. It reveals that the variables of gender, education and age result in the

coefficient of the *p*-value being greater than 0.05. This means we accept the null hypothesis *(H_o)* that the willingness to provide loans to relatives is not significantly affected by gender, levels of education and age of lenders.

Table 6.2 Chi-square and Correlation Analyses of the Willingness to Provide Loans to Relatives in Boyolali

Variable	χ^2 [*p*-value]	Hypothesis	Conclusion
Income	55.59 [0.00]	H_o: The willingness to provide loans to relatives is not affected by the income level of lenders.	Accept H_a: *p*-value = 0.00 < 0.05
(r)	(0.26) [0.00]	H_a: The willingness to provide loans to relatives is affected by the income level of lenders.	
Gender	1.17 [0.75]	H_o: The willingness to provide loans to relatives is not affected by the gender status of lenders.	Accept H_o: *p*-value = 0.75 > 0.05
(r)	(0.001)[0.22]	H_a: The willingness to provide loans to relatives is affected by the gender status of lenders.	
Occupation	20.16 [0.02]	H_o: The willingness to provide loans to relatives is not affected by the occupation of lenders.	Accept H_a: *p*-value = 0.02 < 0.05
(r)	(–0.08) [0.22]	H_a: The willingness to provide loans to relatives is affected by the occupation of lenders.	
Education Level	12.35 [0.41]	H_o: The willingness to provide loans to relatives is not affected by the education level of lenders.	Accept H_o: *p*-value = 0.41 > 0.05
(r)	(0.05) [0.44]	H_a: The willingness to provide loans to relatives is affected by the education level of lenders.	
Age	14.90 [0.45]	H_o: The willingness to provide loans to relatives is not affected by the age of lenders.	Accept H_o: *p*-value = 0.45 > 0.05
(r)	(–0.09) [0.17]	H_a: The willingness to provide loans to relatives is affected by the age of lenders.	

Note: (r) is coefficient of correlation.
Source: Author's analysis

However, the *p*-values of the variables of income and occupation are smaller than 0.05. Thus, we accept the alternative hypothesis *(H_a)* that the willingness to provide loans to relatives is affected by the income and occupation of lenders. Yet, the correlation analysis indicates that the willingness to provide loans to relatives is not statistically associated with the different occupations of lenders. The coefficient of correlation between income and the willingness to provide loans to relatives is small (r = 0.26). This indicates that higher levels of income are not a major reason for the willingness to provide loans to relatives. This implies that social trust and reciprocity may be considered as an important factor in stimulating the willingness to provide loans to relatives, rather than the specific characteristics of lenders. For instance, the norms of reciprocity may be considered because lenders expect to gain similar loans from their relatives in the future. In our survey, when we asked respondents the reason for providing loans to relatives, they indicated that they sough to maintain close relationships with their relatives.

Table 6.3 presents the chi-square and correlation analyses between income, gender status, occupation, education and age of lenders, and the willingness to provide loans to neighbours and friends. The chi-square

analysis results in the coefficients of *p*-value greater than 0.05 for the variables of gender or the age of lenders. This indicates that the willingness to provide loans to neighbours and friends is not affected by the gender status and age of lenders. In contrast, the chi-square analysis for the variables of income, occupation and education computes coefficients of *p*-value which are smaller than 0.05. This leads to a rejection of the null hypothesis (H_o), and an acceptance of the alternative hypothesis (H_a), that the willingness to provide loans to neighbours and friends is affected by different levels of income and education, as well as by the occupation of lenders. However, the correlation coefficients of these variables are statistically insignificant at the 95 percent level. A notable exception is the variable of income. The correlation coefficient of 0.24 implies that differing income is not a significantly major contributor to the willingness to provide loans to neighbours and friends.

Table 6.3 Chi-square and Correlation Analyses of the Willingness to Provide Loans to Neighbours and Friends in Boyolali

Variable	χ^2 [*p*-value]	Hypothesis	Conclusion
Income	62.56 [0.00]	H_o: The willingness to provide loans to neighbours and friends is not affected by the income level of lenders.	Accept H_a: *p*-value = 0.00 < 0.05
(r)	(0.24) [0.00]	H_a: The willingness to provide loans to neighbours and friends is affected by the income level of lenders.	
Gender	4.16 [0.24]	H_o: The willingness to provide loans to neighbours and friends is not affected by the gender status of lenders.	Accept H_o: *p*-value = 0.24> 0.05
(r)	(–0.06)[0.41]	H_a: The willingness to provide loans to neighbours and friends is affected by the gender status of lenders.	
Occupation	22.44 [0.01]	H_o: The willingness to provide loans to neighbours and friends is not affected by the occupation of lenders.	Accept H_a: *p*-value = 0.01 < 0.05
(r)	(–0.07)[0.32]	H_a: The willingness to provide loans to neighbours and friends is affected by the occupation of lenders.	
Education Level	23.47 [0.02]	H_o: The willingness to provide loans to neighbours and friends is affected by the education level of lenders.	Accept H_a: *p*-value = 0.02 < 0.05
(r)	(–0.001)[0.98]	H_a: The willingness to provide loans to neighbours and friends is not affected by the education level of lenders.	
Age	21.19 [0.38]	H_o: The willingness to provide loans to neighbours and friends is not affected by the age of lenders.	Accept H_o: *p*-value = 0.38 > 0.05
(r)	(0.03) [0.66]	H_a: The willingness to provide loans to neighbours and friends is affected by the age of lenders.	

Note: (r) is coefficient of correlation.
Source: Author's analysis

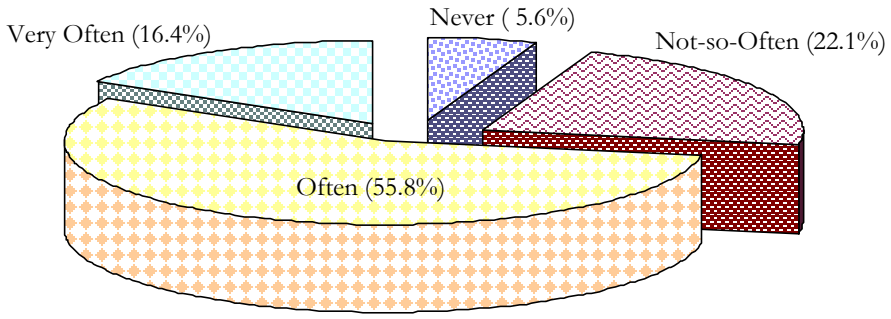
The above findings indicate that people in the survey area are willing to provide loans to relatives, neighbours and friends because they generally consider social trust, friendships and reciprocity as important, rather than being influenced by individual characteristics, such as gender, education and occupation. Gender is not shown to statistically affect lending behaviour, probably because the traditionally patriarchal nature of the Javanese family has deteriorated in the survey area. As the husband is not the sole wage earner, the wife has a greater capacity to influence the decisions about providing loans to others. Such lending behaviour is also not correlated

with levels of education, while higher income only slightly affect the willingness of people to provide loans to relatives, neighbours and friends.

6.2.2 The Willingness to Repay Loans to Relatives, Neighbours and Friends

Loans from socially close lenders (e.g., relatives, neighbours and friends) are said to have low rates of default. La Ferrara (2003) calculates the default rate of kinship loans in rural Ghana as being 6 percent. This survey asked respondents how often they made in-time repayments of loans to relatives, neighbours and friends. Four possible answers were provided: (1) never, (2) not-so-often, (3) often, and (4) very often. Figure 6.1 shows the percentage of respondents who make in-time repayments of loans to socially close lenders. The majority of respondents (55.8 percent) often make in-time repayments of loan to relatives, neighbours and friends. In contrast, there are only 5.6 percent of respondents who never meet in-time repayments of such loans. When the respondents were asked the reason for the willingness to make in-time repayment to socially close lenders, they claimed that they seek to avoid feeling disgraced as loan defaulters. They also sought to circumvent social sanctions, such as being the subject of gossip, due to loan delinquency. Default borrowers seldom avoid such punishment by migrating to other regions. Further, a permanent migration is not likely possible because the poor tend to be closely attached to their farmland, relatives and community. Low levels of education and skills also prevent the poor from permanently migrating to the city.

Figure 6.1 Percentage of Respondents by Frequency of Making In-time Repayments of Loans to Relatives, Friends and Neighbours in Boyolali



Source: Author's field survey (processed)

The chi-square and correlation analyses are employed to investigate whether the willingness to make in-time repayments of loans to relatives, neighbours, and friends is statistically affected by specific characteristics of borrowers. Income, gender, occupation, levels of education, and age of borrowers are analysed. If the willingness to repay such loans is not strongly affected by specific characteristics of borrowers, there is the

possibility that borrowers take into account the moral value of a community, such as social trust, friendship and reciprocity in their decision to repay such loans. Correlation analyses are used to examine the degree of relationship between the specific characteristics of borrowers and their willingness to make in-time repayments of loans. We propose the *null hypothesis (H_o)* that the willingness to make in-time repayments of loans to relatives, neighbours and friends is not affected by specific characteristics of borrowers. The *alternative hypothesis (H_a)* is that the willingness to make in-time repayments of such loans is affected by specific characteristics of borrowers (see the last column of Table 6.4).

Table 6.4 Chi-square and Correlation Analyses of the Willingness to Make In-time Repayments of Loans to Relatives, Neighbours and Friends in Boyolali

Variable	χ^2 [*p*-value]	Hypothesis	Conclusion
Income (r)	54.17 [0.00] (0.27)[0.00]	H_o: The willingness to make in-time repayment of loans to relatives, neighbours and friends is not affected by the income of borrowers. H_a: The willingness to make in-time repayment of loans to relatives, neighbours and friends is affected by the income of borrowers.	Accept H_a: *p*-value = 0.00 < 0.05
Gender (r)	4.77 [0.19] (–0.14)[0.03]	H_o: The willingness to make in-time repayment of loans to relatives, neighbours and friends is not affected by the gender of borrowers. H_a: The willingness to make in-time repayment of loans to relatives, neighbours and friends is affected by the gender of borrowers.	Accept H_o: *p*-value = 0.19 > 0.05
Occupation (r)	6.12 [0.74] (–0.09)[0.15]	H_o: The willingness to make in-time repayment of loans to relatives, neighbours and friends is not affected by occupation of borrowers. H_a: The willingness to make in-time repayment of loans to relatives, neighbours and friends is affected by the occupation of borrowers.	Accept H_o: *p*-value = 0.74 > 0.05
Education Level (r)	25.49 [0.01] (0.15) [0.02]	H_o: The willingness to make in-time repayment of loans to relatives, neighbours and friends is affected by the education level of borrowers. H_a: The willingness to make in-time repayment of loans to relatives, neighbours and friends is not affected by the education level of borrowers.	Accept H_a: *p*-value = 0.01 < 0.05
Age (r)	17.17 [0.31] (–0.34)[0.61]	H_o: The willingness to make in-time repayment of loans to relatives, neighbours and friends is not affected by the age of borrowers. H_a: The willingness to make in-time repayment of loans to relatives, neighbours and friends is affected by the age of borrowers.	Accept H_o: *p*-value = 0.38 > 0.05

Note: (r) is the coefficient of correlation.
Source: Author's analysis

Table 6.4 presents the results of chi-square and correlation analyses of the relationship between the specific characteristics of borrowers and the willingness to make in-time repayments of loans to relatives, neighbours and friends. It shows that the chi-square analysis of the variables of gender, age and occupation result in the coefficients of *p*-values being greater than 0.05. This means that we accept the null hypothesis *(H_o),* that the willingness to make in-time repayments of loans to relatives, neighbours and friends is not significantly affected by gender, age and occupation of

borrowers. However, for the variables of income and education, the coefficients of *p*-values are smaller than 0.05. This leads to a rejection of the null hypothesis *(H_0)*, and the acceptance of the alternative hypothesis *(H_a)*, that the willingness to make in-time repayments of loans is affected by the income and education levels of borrowers. However, the correlation test does not indicate a strong relationship between income and the willingness to make in-time repayments of loans. The computation results in the correlation coefficient of 0.276. The coefficient of correlation between the level of education and in-time repayments of such loans is 0.156. This statistical finding indicates that differing income and education are not significantly the major reason for the willingness to make in-time repayments of loans. Thus there is the possibility that the willingness of borrowers to make in-time repayment of loans to relatives, neighbours and friends is more likely affected by social-capital-related factors, such as trust and reciprocity.

This section has examined social capital in the context of non-commercial lending practices among relatives, neighbours and friends. Overall, we support *Sub-hypothesis* H_{2A}, that lending and borrowing among relatives, friends and neighbours are not strongly affected by specific characteristics of lenders and borrowers. In this regard, social capital in the form of trust, friendships and the norms of reciprocity may be considered as important in influencing the lending behaviour among relatives, neighbours and friends. These elements of social capital contribute to the functioning of informal lending for two reasons. The first reason is that the willingness of lenders to provide loans to others is not to maximise their individual self-interest. Indicative of this outlook is the fact that loans are typically charged at zero or very low interest. Social trust and friendships are generally considered more important than physical collateral. The norms of reciprocity may also be considered because lenders expect to receive similar loans from borrowers in the future.

The second reason for the functioning of social capital is associated with the willingness to make in-time repayments, which is not strongly correlated with specific characteristics of borrowers. This implies that the moral values of the community, such as social trust, friendships and reciprocity may be considered, and may underpin the decision of borrowers to make in-time repayment of loans. Borrowers are aware that delinquency of loans from socially close lenders (e.g., relatives, neighbours and friends) can lead them to face social punishment, such as being the subject of gossip and exclusion from communal activities. In Section 6.4 we will explore further the importance of social capital in enhancing access to microfinance.

6.2.3 SOCIAL NETWORKS AND THE ACCESS OF THE POOR TO MICROFINANCE

Poor people use various strategies to cope with a lack of financial capital. For example, the poor establish informal financial arrangements, such as ROSCAs and reciprocal lending, to increase their access to finance. Dercon (2002) observes that such financial arrangements often perform well within extended families, and among neighbours and local business networks (e.g., farmers' associations). Hence, maintaining relationships with relatives, neighbours and others is vital for the poor to be able to participate in such arrangements. Being included in local community networks also enables the poor to gather information about banking procedures from their communication and interaction with others.

Table 6.5 presents cross-tabulation analyses of the relationship between frequency of visits to relatives and gaining assistance from relatives to access microbank loans. It shows that 28 percent of respondents who frequently visit relatives gain help from them to obtain microbank loans. This percentage is greater than that of respondents who never obtain help from relatives to access microbank loans, amounting to 19 percent. Respondents who infrequently visit relatives are found to be less likely to have gained help from them to access microbank loans. As Table 6.5 shows, the percentage of respondents who seldom visit relatives and never obtain help from them to access bank loans is 11.26 percent, compared to 7.36 percent for those who obtain help from relatives to access microbank loans. This implies that respondents who consistently maintain kinship relationships have a greater probability of obtaining help from relatives to access formal loans. According to respondents, relatives help to obtain microbank loans by acting as loan references, by providing introductions to banking officers, and by assisting with document preparation. Acting as loan references, relatives provide social collateral as a substitute for physical collateral.

Table 6.5 Percentage of Respondents by Frequency of Visits to Relatives and Obtaining Help from Relatives to Access Formal Loans in Boyolali

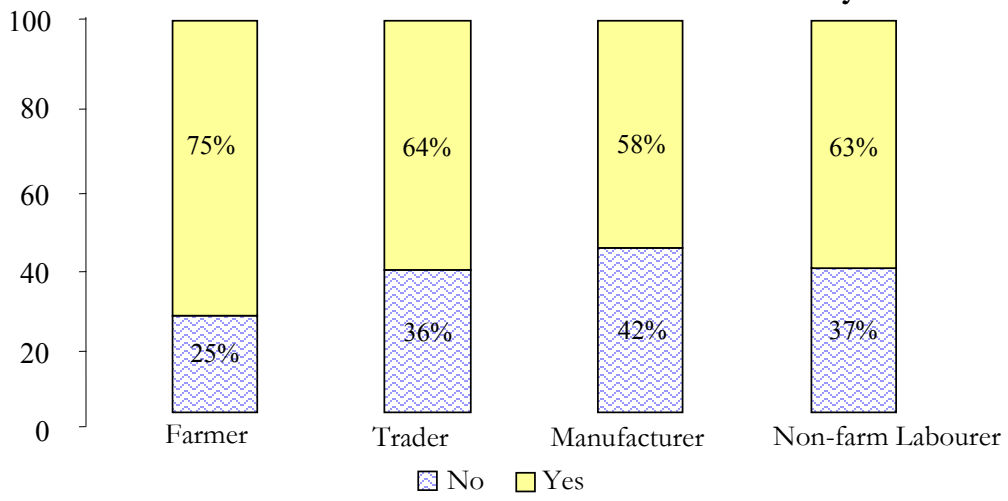
Frequency of Visit to Relative	Relatives do not Help to Obtain Loans	Relatives Help to Obtain Loans
Never	0.87	0.43
Not-so Often	11.26	7.36
Often	19.05	28.14
Very Often	15.15	17.75
Total Percentage	46.32	54.78

Source: Author's field survey (processed)

Moreover, Figure 6.2 below presents the percentage of respondents by occupation and perception of the benefit of involvement in social and

business associations. It shows that the majority of respondents (58 to 75 percent) across different occupations consider that involvement in social and business associations help them to access microbank loans. This is probably because membership in such associations (e.g., ROSCAs and farmers' associations) can help individuals gather information about the borrowing procedures of microbanks from their friends and business associates. Thus, credit constraints from microbanks can potentially be resolved by active participation of the poor in social and business associations. This implies that building up social capital in the form of wider networks potentially contributes to greater access to microfinance. We will investigate further the extent to which membership in social and business associations can reduce credit rationing from microbanks in Section 6.4.

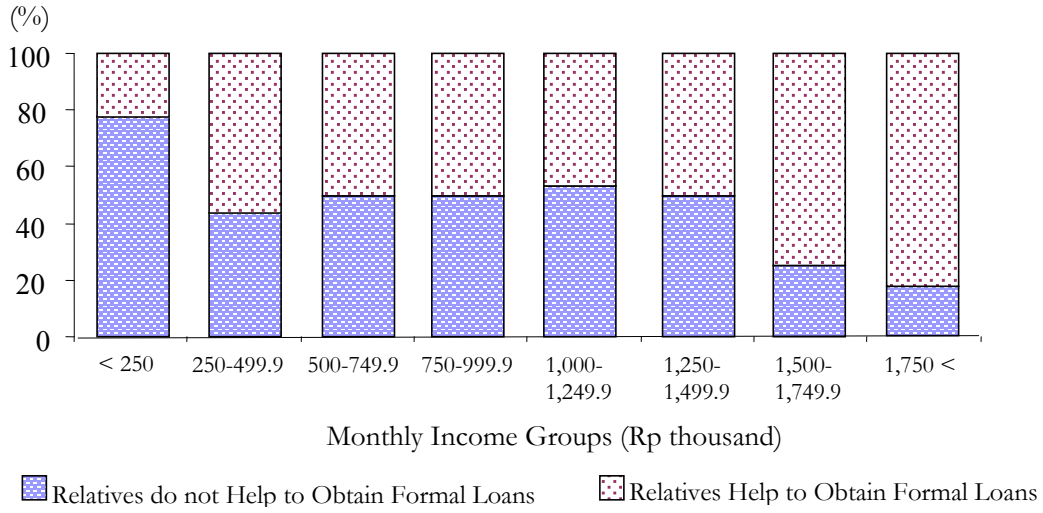
Figure 6.2 Percentage of Respondents by Perception of the Benefit of Involvement in Social and Business Associations to Access Formal Loans in Boyolali



Source: Author's field survey (processed)

However, the capacity of individuals to utilise familial social capital diverges across social classes (O'Hara 2007). In our survey, we asked respondents whether they gained help from relative to access microbank loans. The result is presented in Figure 6.3. It shows that respondents with higher income tend to claim that they have obtained help from relatives to access loans from formal MFIs. In contrast, respondent with lower income claim that they do not obtain help from relatives to access such loans. This is probably because poor respondents obtained formal loans less often than those with higher income. However, this is also probably because the non-poor gain more advantages from having close relationships with relatives than do the poor. Higher levels of education and better communication skill lead the former to extract benefits from interaction with their relatives. In contrast, the latter fail to maximise the benefits of kinship relationships, due to the lower quality of human capital and communication constraints.

Figure 6.3 Percentage of Respondents by Income Group and Likelihood of Obtaining Help from Relatives to Access Formal Loans in Boyolali



Source: Author's field survey (processed)

In addition, our survey found respondents with higher levels of income tend to gain greater advantages by being involved in social and business associations. For instance, 44.4 percent of respondents with monthly incomes less than Rp 250,000 (US$26.31) state that memberships in social and business associations do not help them to access formal loans. In contrast, 75 percent of respondents with monthly incomes in the range of Rp 500,000 to Rp 749,900 (US$52.63–US$78.93) benefit from being involved in such associations in terms of improved access to formal loans. Similarly, the majority of respondents with monthly incomes between Rp 1,000,000 and Rp 1,249,900 (US$105.63–US$131.56) state that memberships in social and business associations contribute to their access to loans from formal MFIs. This implies that the ability to extract benefits from engaging in social and business associations diverges across different income groups. The lower social classes, particularly the very poor, fail to maximise the benefits of being involved in social and business associations, due to their low levels of income and education and communication difficulties. In contrast, having better educational standard and communication skills, the non-poor can extract greater benefits from being involved in social and business associations. For example, the non-poor can enhance access to formal loans by gathering knowledge of banking procedures from their business associates.

6.3 Determinants of the Borrowing Practices of Poor People

It is evident that poor people utilise loans from different sources. Apart from microbanks, farmers in rural Vietnam utilise loans from relatives, moneylenders and ROSCAs (Duong and Izumida 2002). According to Johar and Romanu (2006), loans from ROSCAs and moneylenders contribute 31 percent of household borrowings in Indonesia. La Ferrara

(2003) estimates that loans from relatives and friends (non-moneylenders) compose 67 percent of borrowings of the poor in Ghana.

This section examines the determinants of borrowing from: (1) relatives, (2) neighbours, (3) friends, (4) moneylenders, (5) cooperatives, and (6) microbanks. The logit regression method is employed as the dependent variables are binary (dummy). In the model, the dependent variables take a value of one (1) if respondents borrow money from considered lenders (e.g., microbanks), and zero (0) otherwise. The explanatory variables include monthly income *(Income)*, size of house *(House)*, and the value of assets *(Asset)*, representing the ownership of physical or financial capital. The explanatory variables of years of an enterprise's establishment *(Year)* and child education *(ChildEdu)* indicate the quality of human capital. The impact of social capital on borrowing is represented by the variables frequency of visit to relatives *(Visit)*, frequency of lending to relatives *(Flend2R)*, and of to neighbours and friends *(Flend2NF),* membership in business associations *(Basoc)* and rotating savings and credit associations *(Rosca)*.

6.3.1 Estimated Results of Borrowing from Socially Close Lenders

Table 6.6 reports the estimated results of borrowing from relatives, neighbours and friends. The logit estimation results in 78 percent of correct predictions on the probability of borrowing from relatives. The probabilities of borrowing from neighbours and friends are correctly predicted at 73 and 76 percent, respectively. This indicates that the logit estimations fit relatively well to the distribution of the data. The diagnostic test for heteroskedasticity indicates that we reject any heteroskedasticty problem in the logit estimations of borrowing from relatives and neighbours. However, the diagnostic test for the logit regression of borrowing from friends is inconclusive. While Harvey and Koenker tests do not indicate any heteroskedasticity problem, the Arch test shows the existence of this problem.

Considering the *t*-statistic, the variable of 'child education' statistically affects the demand for loans from neighbours, but it has no effect on borrowing from relatives and friends. The negative sign of the coefficient indicates that an increase in the level of child education reduces the likelihood of borrowing from neighbours. This is probably because higher levels of child education benefit the poor in the form of income transfers from children to parents. The income transfers can, in turn, fulfil the needs of the poor for cash, thereby reducing the demand for loans from neighbours.

As expected, an increase in monthly income reduces the demand for loans from relatives and neighbours. This is the case as loans from relatives and neighbours are for consumption purposes. Hence, an increase in

income enables the poor to secure consumption, thereby reducing their willingness to borrow from relatives and neighbours. The ownership of liquid assets (e.g., savings) does not statistically affect the likelihood of borrowing from relatives and neighbours. Therefore, one cannot conclude that an increase in the ownership of liquid assets reduces the willingness to borrow money from relatives and neighbours. Loans from relatives and neighbours remain important to finance immediate consumption, while liquid assets are accumulated to secure emergency expenditures (e.g., medication). In fact, an increase in liquid assets often gives rise to the demand for loans from friends. This is probably because the ownership of liquid assets enhances the capacity of the poor to repay their loans.

Table 6.6 Logit Estimates of Borrowing from Relatives, Neighbours and Friends in Boyolali

Explanatory Variable	Relative		Neighbour		Friend	
	Coefficient	[*t*-Statistic]	Coefficient	[*t*-Statistic]	Coefficient	[*t*-Statistic]
Childedu	–0.168	[–0.91]	–0.503	[–2.81][a]	0.254	[1.40][c]
Lincome	–0.458	[–1.61][c]	–0.814	[–2.95][a]	0.265	[0.92]
Lasset	0.000	[0.00]	–0.021	[–0.54]	0.047	[1.47][c]
Visit	0.295	[1.35][c]	–0.291	[–1.37][c]	0.226	[1.01]
Rosca	0.236	[0.33]	0.350	[0.09]	–0.025	[–0.01]
Basoc	0.269	[0.76]	0.966	[2.72][a]	–0.509	[–1.49][c]
Flend2R	0.285	[1.33][c]				
Flend2NF			0.375	[2.03][b]	0.459	[2.34][a]
Constant	6.443	[1.70]	13.742	[3.71]	–5.081	[–1.3]
Log-Likelihood = –116.38			Log-Likelihood = –122.09		Log-Likelihood = –114.99	
Likelihood Ratio = 8.58			Likelihood Ratio = 40.86		Likelihood Ratio = 23.59	
Correct Prediction = 78.35%			Correct Prediction= 73.6%		Correct Prediction = 76.6%	
Heteroskedasticity Test:			*Heteroskedasticity Test:*		*Heteroskedasticity Test:*	
Arch Test: 3.64 (0.056)			Arch Test: 4.12 (0.042)		Arch Test: 0.84 (0.357)	
Harvey Test: 31.29 (0.000)			Harvey Test: 131.6 (0.000)		Harvey Test: 81.66 (0.000)	
Koenker: 220.66 (0.000)			Koenker Test:166.5 (0.000)		Koenker: 198.65 (0.000)	

Note:

[a], [b] and [c] indicate statistically significant at 1%, 5% and 10% level, respectively.

t-table for 1% level of significance with d.f. = ∞ is 2.32; 5% is 1.64 and 10% is 1.28.

Capital letter 'L' in explanatory variables indicates computation of logarithmic value.

Childedu: Child education (1 = primary school or below, 2 = junior high school, 3 = senior high school, and 4 = university and diploma).

Lincome: Monthly income in rupiah (Rp).

Lasset : The amount of asset ownership in rupiah (Rp).

Visit : Frequency of visit to relatives (1 = never, 2 = not so often, 3 = often and 4 = very often).

Rosca : Membership of rotating and saving association (1 = yes, and 0 otherwise).

Basoc : Membership of business association (1 = yes, and 0 otherwise).

Flend2R: Lending to relatives (1 = never, 2 = not-so often, 3 = often, and 4 = very often).

Flend2NF: Lending to neighbours and friends (1 = never, 2 = not so often, 3 = often, and 4 = very often).

Source: Author's analysis

Frequent visits to relatives increase the demand for loans from relatives, but reduce the willingness to borrow money from neighbours.

This implies that frequent visits to relatives provide more opportunities for the poor to obtain loans from relatives. As a result, access to kinship loans reduces the demand for loans from neighbours. This indicates that loans from relatives have substitute effects on the demand for loans from neighbours. Moreover, frequent visits to relatives statistically increase the likelihood of borrowing from friends. This implies that frequent visits to relatives improve the social networks of poor people. By visiting relatives who live in different places, for instance, people can make new friends and expand their social networks, leading to more chances to obtain loans from friends. Statistically, this indicates that the utilisation of social capital can lead to a greater access of the poor to informal finance.

Membership in ROSCAs does not affect the borrowing of poor people from relatives, neighbours and friends. The estimated coefficients are statistically insignificant at the 5 percent level. This implies that access to loans from ROSCAs is not a substitute for loans from relatives, neighbours and friends. As loans from ROSCAs are small, they may complement loans provided by relatives, neighbours and friends. In contrast, membership in business associations significantly affects the probability of borrowing from neighbours and friends. The positive sign of the coefficient implies that membership in business associations increase the demand for loans from neighbours. This is likely the case, as membership of business associations, such as farmers' associations, is among neighbours. Thus, being involved in business associations, the poor can maintain friendships with neighbours to access loans from them. Loans provided by business associations are not a substitute for loans from neighbours, as they are used for different purposes. Loans from business associations are used to support production, while loans from neighbours are mainly for consumption purposes.

However, membership in business associations reduces the demand for loans from friends. This indicates that loans from business associations have substitution effects on the demand for loans from friends. This is the case as the utilisation of loans from friends and business associations has the same purpose: to finance production. Hence, an increase in access to loans from business associations potentially reduces the demand for loans from friends.

Interestingly, providing loans to relatives increases the probability of borrowing from them. Similarly, frequently providing loans to neighbours and friends also gives rise to borrowing from neighbours and friends. This indicates that a reciprocal obligation characterises lending and borrowing among relatives, neighbours and friends. This result confirms that lending provisions for socially close lenders do not aim to maximise profits. Instead, they carry reciprocal obligations to borrowers (e.g., Zeller 2003; La Ferrara 2003). Hence, the more frequently poor people provide loans to relatives, neighbours and friends, the larger the probability of obtaining

loans from them. This statistical finding indicates that social capital in the form of friendships and the norms of reciprocity underpins lending practices among relatives, neighbours and friends.

6.3.2 Estimated Results of Borrowing from Commercial Lenders

Table 6.7 reports the logit estimates of borrowing from commercial lenders: microbanks, cooperatives and moneylenders. The estimate model results in a 79 percent correct prediction for the probability of borrowing from microbanks. The probabilities of borrowing from cooperatives and moneylenders are correctly predicted at 69 percent and 60 percent, respectively. The heteroskedasticity tests utilised in the regression computation indicates that the estimated models do not face any heteroskedasticity problem. Regarding the *t*-statistic of the estimated coefficients, the variable of child education positively affects the likelihood of borrowing from microbanks, although it is not statistically significant at the 90 percent level. The positive sign of the coefficient indicates that an increase in the level of child education potentially enhances access to microbank loans. This is probably because children with higher levels of education can provide information about banking procedures, enhancing access to microbank loans. In contrast, the level of child education is negatively associated with the likelihood of borrowing from moneylenders. This implies that the higher incomes of children, resulting from higher levels of eduction, can fulfil the needs of their parents for finance. Financial support from children, then, reduces the willingness to borrow from moneylenders.

Experience in undertaking enterprising activities does not statistically affect the likelihood of borrowing from microbanks, cooperatives and moneylenders. This is not surprising as over time the business activities of poor people have not significantly progressed. For instance, 46 out of 87 farmer respondents have the same size farm since they had begun farming. However, an increase in incomes enhances borrowing from microbanks and cooperatives, but reduces the demand for loans from moneylenders. This indicates that the demand for microbank and cooperative loans is to support production. An increase in business incomes enhances the ability to repay, and thus encourage the borrowing of loans from microbanks and cooperatives. Conversely, an increase in income reduces the willingness to utilise loans from moneylenders.

Greater ownership of liquid assets (e.g., jewellery and savings) is positively correlated with the likelihood of borrowing from microbanks, cooperatives and moneylenders. The ownership of liquid assets enhances the repayment capacity of borrowers, hence increasing their demand for commercial loans. Similarly, the size of home owned has a positive impact on the likelihood of borrowing from microbanks. This is not surprising as

lending provisions of microbanks require borrowers to provide loan collateral. Hence, an increase in the size of housing property enables borrowers to provide sufficient collateral to apply for microbank loans. In contrast, the size of house does not affect the level of borrowing from cooperatives and moneylenders. This is the case as loans from these MFIs do not require collateral.

Table 6.7 Logit Estimates of Borrowing from Microbanks, Cooperatives and Moneylenders in Boyolali

Explanatory Variable	Microbank		Cooperative		Moneylender	
	Coefficient	[*t*-Statistic]	Coefficient	[*t*-Statistic]	Coefficient	[*t*-Statistic]
Childedu	0.253	[1.15]	0.180	[0.95]	–0.019	[–0.11]
Lyear	–0.429	[–1.05]	–0.523	[–1.44][c]	0.071	[0.22]
Lincome	0.573	[1.71][b]	0.145	[0.55]	–0.468	[–1.90][b]
Lasset	0.042	[1.23]	0.087	[2.53][a]	0.026	[0.82]
Lhouse	1.234	[4.21][a]	–0.058	[–0.24]	–0.019	[–0.09]
Visit	0.543	[2.23][b]	0.080	[0.39]	–0.360	[–1.87][b]
Rosca	0.838	[1.15]	–1.167	[–1.43][c]	0.825	[1.19]
Basoc	0.730	[1.91][b]	1.658	[4.60][a]	–0.487	[–1.62][c]
Constant	–16.448	[–3.49]	–1.544	[–0.43]	6.438	[1.87]
Log-Likelihood = –104.48			Log-Likelihood = –31.61		Log-Likelihood = –151.16	
Likelihood Ratio = 57.74			Likelihood Ratio = 39.61		Likelihood Ratio= 14.27	
Correct Prediction = 79.2 %			Correct Prediction=69.3%		Correct Prediction= 60.1%	
Heteroskedasticity Test:			*Heteroskedasticity Test:*		*Heteroskedasticity Test:*	
Arch Test: 8.61 (0.003)			Arch Test: 6.79 (0.009)		Arch Test: 18.65 (0.009)	
Harvey Test: 89.39 (0.000)			Harvey Test:127.03 (0.000)		Harvey Test: 48.97 (0.000)	
Koenker Test:164.56 (0.000)			Koenker Test:164.6(0.000)		Koenker Test:131.6(0.000)	

Note:

[a], [b] and [c] indicate statistically significant at 1%, 5% and 10% level, respectively.

t-table for 1% level of significance with d.f. = ∞ is 2.32, 5% level is 1.64 and 10% level is 1.28.

Capital letter 'L' in explanatory variables indicates computation of logarithm value.

Childedu: Child education level (1 = primary school or below, 2 = junior high school, 3 = senior high school, and 4 = university and diploma).

Lyear : Years of business establishment.

Lincome: Monthly income in rupiah (Rp).

Lasset : The amount of asset ownership in rupiah (Rp).

Lhouse : The size of house in m^2.

Visit : Frequency of visit to relatives (1=never, 2 = not-so often, 3 = often, and 4 = very often).

Rosca : Membership of rotating savings and credit associations (1 = yes, and 0 otherwise).

Basoc : Membership of business association (1 = yes, and 0 otherwise).

Source: Author's analysis

Frequent visits to relatives contribute to the likelihood of borrowing from microbanks. This implies that kinship networks play a role in accessing microbank loans. Frequent visits to relatives, for instance, enable the poor to gather information about banking procedures from their relatives. Maintaining kinship relationships also enhances access to microbank loans through relatives acting as loan references. In contrast, frequent visits to relatives reduce borrowing from moneylenders and have no impact on borrowing from cooperatives. This is probably because

maintaining relationships with relatives enhances the access of the poor to kinship loans, reducing their willingness to borrow from moneylenders.

Membership in ROSCAs does not statistically affect the likelihood of borrowing from microbanks and moneylenders, but it does negatively affect the likelihood of borrowing from cooperatives. This indicates that access to loans from ROSCAs exerts a substitution effect on the demand for loans from cooperatives. Poor people prefer to borrow money from ROSCAs, due to their simple borrowing procedures. In contrast, membership in business associations has a positive impact on borrowing from microbanks. This implies that being involved in a local business association can lead to knowledge of banking procedures being gained from business associates, and thus enhance access to microbank loans. In contrast, membership of business associations has a negative impact on the demand for loans from moneylenders. This indicates that participation in business networks increases access to various sources of finance, and thereby reduces the demand for loans from moneylenders. To sum up, the utilisation of kinship relationships, social and business networks can enhance access to microfinance. Overall, this section supports *Hypothesis* H_2, that social capital plays an important factor in microfinance. Similar to the ownership of physical and human capital (e.g., income and skills), social capital in the form of trust, friendships and networks potentially contributes to greater access to microfinance. In the next section we investigate further the extent to which social capital can reduce the likelihood of facing credit rationing from formal MFIs (e.g., microbanks).

6.4 Social Networks and Credit Rationing By Formal MFIs

One can apply to banks to access loans. Based on the information provided, banks will make a decision to approve or decline the loan application. Potential borrowers who apply for loans from banks, but fail to get loan approval, are said to face credit rationing. The cause of credit rationing is banks being unable to gather information about the quality of borrowers (Zeller et al. 1997; Zeller 2003; Izumida 2004; Armendariz de Aghion and Morduch 2005). However, credit rationing can also arise because the poor lack information about and knowledge of banking procedures. According to Aleem (1993), the absence of advertising inhibits the access of the poor to bank loans. Low levels of education and inadequate knowledge of banking procedures also prevent the poor from utilising bank loans (Baydas et al. 1997). In this case, the cause of credit rationing stems from borrowers' lack of incentive to borrow due to inadequate skills and poor knowledge of banking procedures, with the result that poor people rely on loans from informal sources, such as relatives and moneylenders. We focus here on poor borrowers' inadequate knowledge of banking procedures as a factor that restricts access to microbank loans.

In this study, respondents face credit rationing if they only have access to loans from informal MFIs (e.g., relatives, friends and moneylenders). Conversely, respondents who can access loans from banks and cooperatives do not face credit rationing. Furthermore, respondents who face no credit rationing have the value of one (1) and zero (0) otherwise. Based on this definition, our survey found that 47.6 percent of 231 respondents faced credit rationing in the sense that they only had access to informal loans. The other 53.4 percent did not face credit rationing from formal MFIs. The logit model is employed to estimate the probability of facing credit rationing (Ration). The logit (Ration) is, then, a function of the following explanatory variables: level of education *(Edu)*; monthly income *(Income)*; ownership of liquid assets *(Asset)*; size of home(s) *(House)*; discussions with family members before borrowing *(Discus)*; frequency of visits to relatives *(Visit)*; membership in ROSCAs *(Rosca)*; and membership in business associations *(Basoc)*. In a functional form,

Logit (Ration) = *F* (Edu, Income, Asset, House, Discus, Visit, Rosca, Basoc).....(1)

Levels of education indicate the quality of human capital, while the receipt of income and the ownership of liquid assets and a house represent the quality of physical capital. Here, it is hypothesised that an improvement in the quality of human and physical capital reduces the likelihood of the poor facing credit rationing from formal MFIs. For instance, higher levels of education enable the poor to gather information about and improve their knowledge of banking procedures. The ownership of physical capital (e.g., higher incomes and more liquid assets) enhances the loan repayment capacity of poor people. Hence, it reduces the probability of facing credit rationing, as formal MFIs recognise the poor as creditworthy borrowers.

Moreover, discussion with family members before borrowing, frequent visits to relatives, membership in ROSCAs and business associations represent the quality of social capital of the poor. For instance, discussions about borrowing plans with other family members indicate potential borrowers have a sound familial relationship. Such relationship can reduce the likelihood of facing credit rationing, as microbanks will regard them as creditworthy borrowers. The majority of microbanks surveyed recognised familial relationships of borrowers as an important factor in their lending decision. They pointed out that unstable familial relationships can reduce the ability to repay as they can adversely affect the labour productivity of borrowers. Frequent visits to relatives and membership in ROSCAs and local business associations can also help the poor to access formal loans. As has been stated, relatives can facilitate the access of the poor to formal loans by acting as loan references. Membership of ROSCAs and business associations can expand networks to access formal MFIs. Intensive interaction and communication with

business associates, for instance, can lead the poor to gather knowledge of the borrowing procedures of microbanks. Hence, it is hypothesised that maintaining kinship relationships and membership of ROSCAs and business associations reduces the likelihood of the poor facing credit rationing from formal MFIs.

Table 6.8 reports the estimated regression of the probability of facing credit rationing from formal MFIs. This probability is correctly predicted at a 66.7 percent level. This means that the logit estimate fits with the data satisfactorily. The estimated coefficient of likelihood ratio is 52.82, indicating that the explanatory variables used in the logit model are statistically acceptable. The diagnostic test using the Harvey and Koenker tests conclude that the regression does not suffer such problems, while the Arch method indicates the existence of this problem. Except for membership of ROSCAs, all other estimated coefficients of the explanatory variables have the expected signs. This means that improvements in human, physical and social capital have the potential to reduce the probability of facing credit rationing from formal MFIs.

Concerning *t*-statistic, however, the variable of education does not statistically reduce the likelihood of facing credit rationing from formal MFIs. This is probably because level of education does not lead to better skills of communication, which are important for the poor to gather knowledge about banking procedures. Similarly, the variable of income also does not statistically reduce the likelihood of facing credit rationing from formal MFIs. This is probably associated with unstable income flows discouraging the poor from taking the risk of borrowing from microbanks. The poor recognise that unstable incomes can lead to their uncertain capacity of repaying loans. However, the ownership of liquid assets and housing significantly decrease the probability of facing credit rationing. With more liquid assets (e.g., savings), for instance, the poor become more capable of repaying loans from formal MFIs. An increase in the value of home owned enables the poor to provide collateral to support formal loans. Regarding the odd ratio (OR) of this coefficient, the marginal effect indicates that a 10 percent increase in the value of housing will be accompanied by a 4.7 percent decline in the likelihood of facing credit rationing. This result is consistent with a study by Duong and Izumida (2002), which found that an increase in the ownership of assets reduces the likelihood of the poor facing credit rationing from formal MFIs in Vietnam.

As expected, when poor people discuss borrowing plans with other family members, they are less likely to face credit rationing from formal MFIs. Sound familial relationships can reduce the probability of facing credit rationing, as formal MFIs consider familial stability of borrowers important in securing loan repayments. Frequent visits to relatives are negatively correlated with the probability of facing credit rationing. This

implies that maintaining kinship relationships enable the poor to overcome credit rationing, as relatives can provide information and assistance to access microbank loans. Moreover, membership in business associations increases the capacity of poor people to overcome credit rationing from formal MFIs. The odd ratio of this coefficient indicates that the probability of facing credit rationing is 0.28 times lower for respondents being members of business association than non-members of such associations.

Table 6.8 Logit Estimates of Credit Rationing in Boyolali

Explanatory Variable	Coefficient	[*t*-Statistic]	Odd Ratio (OR)
Edu	–0.121	[–0.83]	0.88
Lincome	–0.240	[–0.90]	0.78
Lasset	–0.058	[–1.51][c]	0.94
Lhouse	–0.758	[–3.04][a]	0.47
Discus	–0.889	[–1.77][b]	0.41
Visit	–0.101	[–0.48]	0.90
Rosca	0.583	[0.89]	1.06
Basoc	–1.246	[–3.82][a]	0.28
Constant	9.783	[2.71]	
Log-Likelihood = –133.44			
Likelihood Ratio = 52.82			
Correct Prediction = 66.66%			
Heteroskedasticity Test:			
Arch Test:	1.119	(0.290)	
Harvey Test:	31.583	(0.000)	
Koenker Test:	80.561	(0.000)	

Note:

[a], [b] and [c] indicate statistically significant at 1%, 5% and 10% level, respectively.

t-table for 1% level of significance with d.f. = ∞ is 2.32, 5% level is 1.64, and 10% level is 1.28.

Capital letter 'L' in explanatory variables indicates computation of logarithmic value.

Edu : Education level (1 = primary school or below, 2 = junior high school, 3 = senior high school and 4 = university and diploma).

Lincome : Monthly income in rupiah (Rp).

Lasset : The amount of asset ownership in rupiah (Rp).

Lhouse : The size of house in m^2.

Visit : Frequency of visit to relatives (1 = never, 2 = not so often, 3 = often and 4 = very often).

Rosca : Membership of rotating savings and credit associations (1 = yes, and 0 otherwise).

Basoc : Membership of business associations (1 = yes, and 0 otherwise).

Discus : Discussion with family members before borrowing (1 = yes, and 0 otherwise).

Source: Author's analysis

However, involvement in ROSCAs does not lead to a reduction in the probability of facing credit rationing. This is not surprising, as membership in ROSCAs is restricted to a small group of neighbours. In contrast, business associations have a broader scope of membership, covering friends and business associates. Hence, by being involved in business associations, the poor can enhance networking access to formal MFIs. Burt (2005) argues that broader networks, such as business associations, consist of individuals with diverse backgrounds, and thus enrich information flows.

In the context of microfinance, membership of business associations enables the poor to gather knowledge of banking procedures from other members. Hence, the poor can utilise business associates to expand networks to access formal loans. Overall, we support *Sub-hypothesis* H_{2B}, that social capital in the form of social and business networks can enhance the access of the poor to microfinance by reducing the probability of them facing credit rationing from formal MFIs.

6.5 SOCIAL CAPITAL AND LENDING PERFORMANCE OF MFIS

This section examines the extent to which lending provisions, in conjunction with the development of social networks, contribute to the rates of loan repayment to MFIs. It is worth noting that data on the rate of loan repayment to MFIs are approximate. There is a significant difficulty in gathering information about the loan repayment rates for the surveyed MFIs. The rate of loan repayment rates to microbanks, for instance, cannot be accessed due to confidentiality. Because of inappropriate accounting methods and reports, ROSCAs and moneylenders cannot provide data on their loan repayment rates. To overcome this problem, we asked MFIs to select from a list of loan repayment rates. Each respondent chose one of the following scales of loan repayment rates: (1) 90 – 100 percent, (2) 80 – 90 percent, (3) 70 – 80 percent, (4) 60 – 70 percent, and so on through to 0 – 10 percent. Furthermore, the mean value of the selected scale is assumed to be the loan repayment rate for the MFI. For instance, MFIs that select the scale (1) 90 – 100 percent are assumed to have the loan repayment rate of 95 percent.

In regression computation, the rates of loan repayment rates to MFIs *(Rt)* are a function of the following variables: average loan size *(Avloan)*, size of loan instalment *(Instal)*, loan instalment period *(Period),* loan interest rates *(Intres)*, years of enterprise *(Year)*, proportion of lending staff living in the area of business operations *(LaborRatio)*, and the perception on the importance of social capital *(SCI)*. The method of measuring the social capital index (SCI) is presented in Chapter 3. The index of social capital (SCI) increases as MFIs regard social capital as an important factor in their lending decisions, and declines as MFIs disregard the importance of social capital. Furthermore, the extent the explanatory variables affect the loan performance of MFIs is presented as the following equation,

$$Rt = F(\text{Avloan, Instal, Period, Intres, Year, LaborRatio, SCI}) \quad \text{.....(2)}$$

The hypothesis examined here is that the variable of average loan size *(Avloan)* positively affects the rates of loan repayment to MFIs. By delivering larger loans to fewer borrowers, MFIs can reduce the cost of managing and monitoring the loans, and thereby increase loan repayment rates. However, an increase in loan instalments *(Instal)* can reduce the ability of borrowers to repay, leading to a decline in the repayment rates of loans

to MFIs. A longer period of loan instalment *(Period)* leads to higher rates of repayments, through an improvement in the ability of borrowers to repay their loans. Higher rates of loan interest *(Intres)* can have a positive or negative effect upon the repayment rates of loans to MFIs. If interest rates have been set quite high (e.g., loans from moneylenders), an increase in the rates potentially discourages borrowers from repaying loans. The result is a decrease in the repayment rates of loans to MFIs. However, an increase in interest rates will not reduce the ability of borrowers to repay, if the rates of loan interest have been set at relatively low levels. In this case an increase in interest rates does not reduce the willingness of borrowers to repay and therefore has little or no effect on the repayment rates of loans to MFIs. Hence, the impact of loan interest rates on the repayment rates of loans to MFIs is an empirical issue.

The number of years spent undertaking financial business *(Year)* enhances the ability of MFIs to recognise the characteristics of poor borrowers. As a result, they can set up lending strategies that minimise the rate of loan defaults. Hence, the number of years of experience in business hypothetically has a positive effect on the repayment rates of loans to MFIs. A larger proportion of lending staff living in the areas of business operation *(LaborRatio)* enables MFIs to gather information about the creditworthiness of borrowers. Staff of MFIs who live in the area of business operations can effectively monitor the financial performance of borrowers and thus minimise the probability of loan defaults. Hence, the variable *LaborRatio* is expected to have a positive impact on the repayment rates of loans to MFIs. The index of the perception of the importance of social capital *(SCI)* positively affects repayment rates of loans to MFIs. MFIs that consider the importance of social capital in lending decisions are more likely to create lending innovations that link loans with social networks of poor borrowers.

Table 6.10 reports the results of regression estimates using the ordinary least square (OLS) method. Since the regression computation uses the logarithmic value of the variables, the estimate coefficients indicate the marginal effects of explanatory variables on the dependant variable. The regression computations utilise three data sets: (1) the full sample, (2) samples of formal and semi-formal MFIs, and (3) samples of informal MFIs. Regarding the *F*-statistic, the explanatory variables considered in the regressions jointly affect the explanatory variable. In other words, the selected explanatory variables in the regressions are statistically acceptable. The Brusch-Pagan (B-P) test indicates that the estimated regressions do not face heteroskedasticity problems. Considering the *t*-statistic, the average loan size positively affects the loan repayment rates of MFIs. The magnitude effect of the coefficients implies that a 10 percent increase in the average loan size gives rise to higher rates of loan repayment to MFIs in the order of 0.5 percent. However, an increase in the size of loan instalments

has a negative impact on repayment rates of loans to MFIs. This is the case as an increase in loan instalments can reduce the ability of poor people to repay due to unstable income flows.

Table 6.9 Estimated Regressions of Repayments Rates of Loans to MFIs in Boyolali

Explanatory Variable	Full Sample (N=153)		Formal and Semi-formal MFIs (N=97)		Informal MFIs (N=56)	
	Coefficient	[*t*-Statistic]	Coefficient	[*t*-Statistic]	Coefficient	[*t*-Statistic]
LAvloan	0.048	[1.97][c]	0.041	[2.00][c]	0.119	[4.42][a]
LInstal	–0.025	[–0.87]	–0.009	[–0.35]	–0.052	[–1.76][b]
LPeriod	0.262	[4.83][a]	0.189	[3.20][a]	0.078	[1.38]
LIntres	0.226	[4.47][a]	0.318	[4.98][a]	–0.022	[–0.54]
LYear	0.069	[3.21][a]	–0.004	[–0.17]	–0.007	[–0.40]
LaborRatio	0.427	[6.94][a]	0.086	[1.45][b]	0.697	[3.94][a]
LSCI	0.590	[9.53][a]	0.599	[8.52][a]	0.675	[11.05][a]
F-statistic[*p*-value]	10,219.65 [0.000]		11,149.75 [0.000]		19,422.80 [0.000]	
B-P LM test	12.32 (13 DF)		28.80 (13 DF)		15.864 (13 DF)	

Note:
[a], [b] and [c] indicate statistically significant at 1%, 5% and 10% level, respectively.
t-table for 1% level of significance with d.f. = ∞ is 2.32; 5% is 1.64, and 10% is 1.28.
Capital letter 'L' in each explanatory variable indicates computation of logarithmic value.
LAvloan: Average loan size in rupiah (Rp).
LInstal : The size of loan instalment in rupiah (Rp).
LPeriod : Instalment period (1=daily, 2=weekly, 3=fortnightly, 4=monthly).
LIntres : Interest rate on loan (%).
LYear : The period of undertaking financial business.
LaborRatio: Proportion of lending officers living in the area of operation (%).
LSCI : Index of perceptions of the importance of social capital.
Source: Author's analysis

A longer period of loan instalments (e.g., from weekly to monthly) increases the repayment capacity of poor borrowers, thereby increasing the repayment rate of loans to formal MFIs. The coefficient of the variable *LPeriod* is statistically significant at the 95 percent level. Hence, formal MFIs should consider loans with longer periods of instalment, if the aim is to improve the rate of loan repayment. However, the period of loan instalments does not statistically affect the rates of loan repayment to informal MFIs. This is the case because the loan instalments of informal MFIs are typically small. Hence, the frequency of loan instalments will not reduce the ability of borrowers to repay loans to informal MFIs. For instance, the average loan instalments of ROSCAs and moneylenders are mostly less than Rp 50,000 (US$5.26). Furthermore, an increase in loan interest rates has a positive impact upon the repayment rates of loans to MFIs. The magnitude effect of the coefficient is such that a 10 percent increase in interest rates of formal MFIs will be accompanied by a 2.2 percent improvement in loan repayment rates. However, an increase in interest rates may reduce the rates of repayment of loans to informal MFIs,

particularly as the rates have been set relatively high, such as the interest charged by moneylenders.

Moreover, the duration of business operations is positively correlated with the rates of repayment of loans to MFIs. The magnitude affect of the estimated coefficient is that a 10 percent increase in the duration of business operations will improve the rate of loan repayments by about 0.7 percent. This indicates that MFIs need a long-term presence to recognise the characteristics of poor borrowers. For instance, the BRI-unit takes more than 15 years to achieve a sound microfinance business. This microbanking system began in 1970 through the introduction of the subsidised credit program, *BIMAS*. The financial progress of BRI-units has gained momentum since the early 1990s. This suggests than MFIs need long-term presence to achieve and maintain high rates of loan repayments. This is the case as MFIs should recognise not only the economic characteristics of poor clients, but also their socio-cultural activities. This includes recognising social networks and the reasons for which the poor utilise financial services.

The proportion of lending officers living in the area of business operations *(LaborRatio)* statistically affects the repayment rates of loans to MFIs. The positive sign of the coefficient implies that an increase in the ratio lead to a rise in the repayment rates of loans to MFIs. As lending staff of MFIs live in the same network area as clients, they can maintain friendships with poor borrowers and closely monitor their financial performance. As a result, MFIs can minimise the probability of loan defaults. More interestingly, perceptions of the importance of social capital in lending decisions have a positive impact upon the rates of repayment of loans to MFIs. The estimated coefficient of the variable of social capital index *(LSCI)* is highly significant at the 99 percent level. This statistical finding supports *Sub-hypothesis* H_{2C}, that lending provisions, in conjunction with the development of social networks with poor clients, contribute to the repayment rates of loans to MFIs. This implies that MFIs that consider the importance of social capital in lending decisions are more likely to have higher rates of loan repayment.

6.6 CONCLUDING DISCUSSION

The purpose of this chapter has been to investigate *Hypothesis* H_2. Overall, this chapter concludes that social capital is an important factor in microfinance. In reciprocal lending among relatives, neighbours and friends, the willingness to provide loans to others is not strongly associated with levels of income and education or occupations of lenders *(Sub-hypothesis* H_{2A}*)*. Instead, socially close lenders may consider social trust and reciprocity, as loans carry zero or very low interest rates and are provided without physical collateral. The norms of reciprocity are more important than individual characteristics, such as gender, income and education,

because lenders expect to receive similar loans from borrowers in the future. These elements of social capital are also very likely to influence the willingness of borrowers to make in-time repayments of loans to relatives, neighbours and friends. This is the case as borrowers are aware that loan defaults can result in social exclusion and loss of reputation. This finding implies that the norms of trust, friendship and reciprocity have the potential to influence lending and borrowing among relatives, neighbours and friends.

In the case of kinship networks, relatives can facilitate access to formal MFIs through their role as loan co-signatories or witnesses and by providing information about the borrowing procedures of formal MFIs. In the broader context, social and business networks enable poor people to access loans from formal MFIs. Being a member of business associations enables the poor to gather knowledge of the borrowing procedures of microbanks from their business associates. Membership in business associations, and kinship and familial relationships can thus reduce the probability of poor people facing credit rationing. This implies that the utilisation of social and familial capital enhances the capacity of poor people to access formal MFIs, thus supporting *Sub-hypothesis* H_{2B}.

From the lenders' side, this study supports *Sub-hypothesis* H_{2C}, that lending provisions in conjunction with the development of social networks among the poor contribute to the loan performance of MFIs. Using a regression method, we conclude that MFIs that consider the importance of social capital in lending decisions tend to have higher rates of loan repayment. This is the case, as MFIs are encouraged to create innovations by linking loans with the social networks of poor borrowers. For instance, lending provisions with the support of community leaders and joint-liability loans between husband and wife can reduce the probability of loan defaults. Lending officials of MFIs who live in the area of business operations also potentially reduce the rate of loan default. As the lending officials live and work among the social networks of clients, they can closely monitor the financial performance of borrowers. Apart from the importance of social capital, an increase in the average loan size also gives rise to higher rates of loan repayment to MFIs. The longer the period of loan instalment, the higher the repayment rate of loans to MFIs. An increase in interest rates can improve the rates of repayment of loans to formal MFIs, but it adversely affects the loan repayments rates of informal MFIs. The number of years of business operation increases the repayment rates of loans to MFIs. However, MFIs need to have been in operation for long time to achieve higher rates of loan repayment. MFIs should recognise not only the economic characteristics of poor clients, but also their social networks and the way they utilise microfinance services.

CHAPTER SEVEN
THE COMMERCIALISATION–OUTREACH NEXUS AND THE WELFARE IMPACT OF MICROFINANCE ON THE POOR

7.1 INTRODUCTION

Considerable research has examined the trade-off between the profitability of MFIs and their outreach to the poor (Mosley 1996a, 2001; Lapenu and Zeller 2002; Zeller and Johannsen 2006). According to Zeller and Johannsen (2006), such a trade-off stems from the fact that the operational costs of managing small loans are considerably higher than those of large loans. However, some argue that the outreach to the poor by MFIs can be achieved in conjunction with profitability. As MFIs become financially profitable, an increase in operational scale increase their capacity to reach the poor (Christen 2001; Charitonenko et al. 2004). Moreover, contradictory views arise concerning the welfare impact of microfinance on the poor. While some scholars suggest that microfinance contributes to the welfare of the poor (Pitt et al. 2003; Khandker 1999), others are pessimistic that microfinance *alone* can reduce poverty (see Coleman 1999, 2002; Islam 2007). In this regard, this chapter has two objectives. The first is to investigate *Hypothesis* H_3, that the "commercialisation" of MFIs improve their financial performance, but reduces their outreach to the poor. The second is to examine *Hypothesis* H_4, that access to microfinance services contributes to the welfare of the poor. Regarding the broader approach to poverty, this study emphasises the impact of microfinance on (1) children's education, (2) the ability to cope with household finance difficulties, and (3) the degree of confidence in dealing with other people.

This chapter is structured as follows. The next section outlines the term "commercialisation of MFIs" utilised in this study. Then, Section 7.3 analyses the impact of commercialisation on the financial performance and outreach of MFIs. Section 7.4 examines the welfare impact of microfinance on poor people. Section 7.5 concludes this chapter.

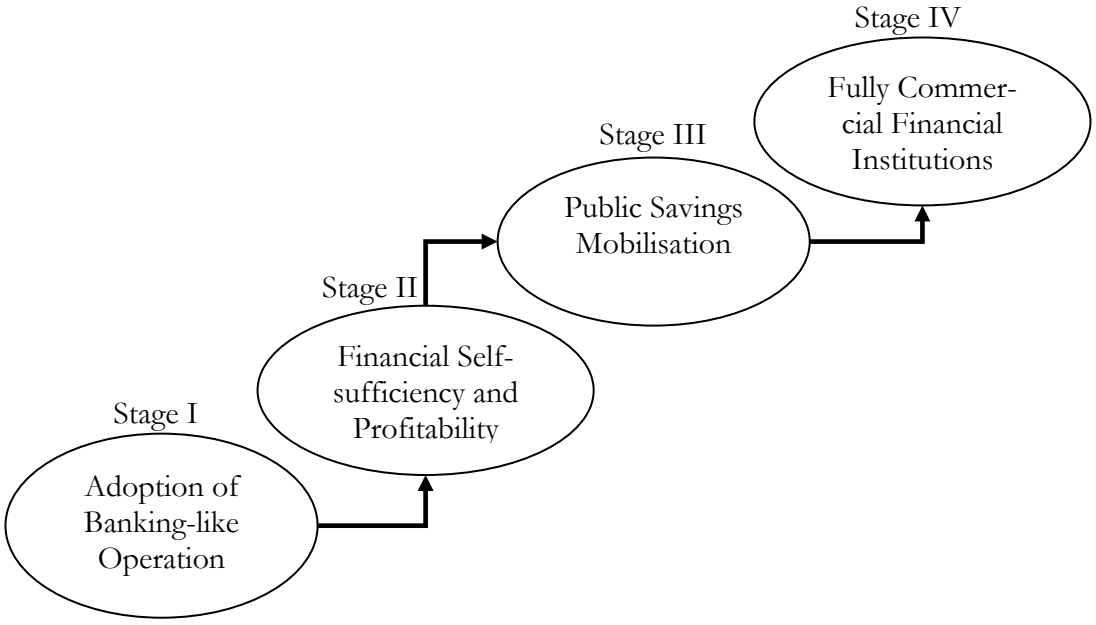
7.2 COMMERCIAL AND NON-COMMERCIAL MFIS

Before investigating the impact of commercial practices on the financial performance and outreach of MFIs, this section briefly reviews the term "commercialisation of microfinance". The literature refers to the commercialisation approach as an implementation of market-based principles in microfinance operation (Poyo and Young 1999; Christen 2001; Charitonenko et al. 2004). Market-based principles mean that the expansion of MFIs should be based upon profit-driven operations (Christen & Drake, 2002, p.4). Thus to become commercial entities, MFIs should develop good

banking practices, demonstrate operational efficiency and exercise financial discipline (Sanderatne 2002, p.2). The ultimate aim is to achieve profitability to cover the operational costs of MFIs (Charitonenko and Afwan 2003).

Figure 7.1 depicts the idealised model of the progression of MFIs towards fully commercial financial institutions. It shows that MFIs need four sequential stages to become fully-fledged commercial entities (see Charitonenko et al. 2004, p.5; Ledgerwood and White 2006, p.xxxi). The first stage is the adoption of banking-like operations, such as developing demand-driven financial products, and the implementation of market interest rates to cover operational costs. The second stage is the progression towards financial self-sufficiency by increasing operational efficiency and profitability. Operational profitability is vital for MFIs to attain the third stage of commercialisation. In this stage, MFIs should be capable of mobilising public savings, and thus become attractive for equity investments. In the fourth stage, as MFIs become profitable entities, their financial operations are subject to prudent banking provisions and regulations. In practice, the final stage of commercialisation can be accomplished by transforming MFIs into fully commercial microbanks (Ledgerwood and White 2006).

Figure 7.1 Progression Towards Fully Commercial MFIs



Source: Adapted from Charitonenko and Afwan (2003, p.3)

There is no doubt that financial businesses must have sound banking practices to sustain their operations. Commercial microbanks can implement prudent banking operations by achieving standard measures of minimum capital, capital adequacy, profitability and loan-loss provisions. However, the question arises whether such accounting measures can be adopted by semi-formal and informal MFIs, such as cooperatives,

moneylenders and ROSCAs. Having inadequate business skills and unqualified staff, these MFIs are unlikely to adopt standard measures of sound banking operations[8]. Hence, if the commercialisation approach is narrowly defined as the ability to meet such accounting measures, only microbanks can be viewed as commercial MFIs. This narrow definition is inappropriate given the heterogeneous nature of MFIs. In this regard, we define the commercialisation of microfinance as the profit-driven operations of MFIs. As has been stated earlier, the implementation of the for-profit objective plays a key role in the progression of MFIs. The reason is that the adoption of an orientation towards profitability encourages MFIs to promote demand-driven products and efficient operations. Hence, MFIs that serve poor people for profit can be regarded as commercial entities, encompassing not only microbanks but also private cooperatives and moneylenders. These MFIs are willing to provide financial services to poor people, as long as they are profitable.

In contrast, many other MFIs do not have a singular focus on profitability. In the survey area such MFIs include the local government-owned MFIs (e.g., BKKs and BKDs), member-based cooperatives, government-sponsored cooperatives and rotating savings and credit associations (ROSCAs). These MFIs seek to achieve social objectives by providing microfinance services to the poor, and hence can be termed non-commercial entities.

This study utilises a broader concept of the commercialisation of microfinance for analysing the impact of the for-profit orientation on financial performance and outreach of MFIs. Table 7.1 decomposes the surveyed MFIs into commercial and non-commercial providers. It shows that within formal MFIs, BRI-units and private microbanks (BPRs) represent purely commercial microbanks, as they have a sole focus of achieving profitability. In contrast, BKKs can be seen as non-commercial MFIs. Being a local government-owned institution, the microfinance businesses of these MFIs do not specifically seek to generate profits. BKKs, for instance, were originally set up by the provincial government of Central Java to help alleviate poverty by providing access to finance for the rural poor. Having loans less than Rp 100,000 (US$10) indicates that financial services of BKKs are provided to serve the poor.

As has been reviewed in Chapter 5, the main semi-formal MFIs in the Boyolali district are private cooperatives including Islamic-based cooperatives (BMTs), KUDs (local government-sponsored cooperatives), and member-based cooperatives. Private cooperatives and BMTs represent purely commercial MFIs, as their financial services are delivered to the poor

[8] Given their small-scale of operations, a consensus has been formed among microfinance practitioners that semi-formal and informal MFIs are excluded from prudential standards of microbanking regulation and supervision (Valenzuela and Young 1999).

for profit. In contrast, KUDs and member-based cooperatives can be regarded as non-commercial MFIs. These cooperatives do not aim to maximise profits; instead, their goal is to provide access for their members to loans. Furthermore, among the informal MFIs, moneylenders can be regarded as purely commercial, although they do not implement banking-like operations. Lending with high interest rates charged indicates that moneylenders' aim is to gain profits, while serving the poor (Hoff and Stiglitz 1997; Robinson 1997). In contrast, the financial services of ROSCAs do not focus mainly on profitability. ROSCAs emerged as a self-help support mechanism among the poor to enable them to access microfinance services (Besley et al. 1993).

Table 7.1 Commercial and Non-commercial-based MFIs in Boyolali

Type of MFIs	Commercial-based Operation	Non-commercial-based Operation
Formal	- BRI-units - Private microbank (BPRs)	- BKKs
Semi-formal	- Private cooperatives - BMTs	- Member-based cooperatives - Local government-sponsored cooperatives
Informal	- Moneylenders	- ROSCAs

Source: Author's field survey (processed)

7.3 THE COMMERCIALISATION–OUTREACH NEXUS OF MFIS

7.3.1 THE IMPACT OF COMMERCIALISATION ON THE FINANCIAL PERFORMANCE AND OUTREACH OF MICROBANKS

The chi-square analyses were employed to examine the impact of commercialisation on the financial performance and outreach of microbanks. The financial performance of microbanks was measured by lending and savings mobilisation, profitability and loan repayment rates. Two indicators are often used to measure the ability of MFIs to serve the poor: the 'breadth' and 'depth' of outreach (Charitoneko and Afwan 2003; Christen 2001). The breadth of outreach refers to the number of clients being served by MFIs. A greater number of microfinance clients indicates a higher level of outreach of MFIs (Charitonenko et al. 2004, p.23). The depth of outreach indicates the capacity of MFIs to serve a number of (very) poor clients. As poor people often require small loans, the ability of MFIs to deepen outreach can be measured by the average loan size and the minimum size of loans (Ledgerwood 1999; Charitonenko et al. 2004, p.27). Here, the smaller the average loan size, the greater the ability of MFIs to serve the poor. Similarly, a smaller size of minimum loan provided indicates a greater capacity of MFIs to serve the poor. Thus, this study utilises the variables 'average loan size', 'minimum size of loan', and 'number of savers and borrowers' to measure the ability of MFIs to serve the poor (the outreach objective). Furthermore, in the chi-square computation, BRI-units

and BPRs have the value of one (1) to represent purely commercial operations. In contrast, the value of zero (0) indicates non-commercial-based operations of BKKs.

The results of the chi-square analyses of the impact of commercialisation on financial performance and outreach of microbanks are presented in Table 7.2. This shows that the chi-square analysis of lending mobilisation results in a coefficient of 19.94, with the *p*-value of 0.001. As the coefficient of the *p*-value is smaller than 0.05 ($0.001 < 0.05$), we reject the *null hypothesis* (H_o) and accept the *alternative hypothesis* (H_a), that commercial-based practices lead to an increase in the lending mobilisation of microbanks. The capacity of BKKs to mobilise loans being lower than BRI-units and BPRs stems from two factors. Firstly, being a local government-owned MFI, BKKs have the dual functions of serving the poor and achieving profitability. In order to serve a number of poor clients, BKKs should allocate a significant amount of small loans to the poor. Secondly, apart from the high costs of managing small loans, a major constraint faced by BKKs is associated with the dispersion of poor borrowers. Hence, to serve the rural poor, BKKs face the significant costs of managing village posts in remote areas.

However, the estimated chi-square (χ^2) of savings mobilisation results in a coefficient of 7.93, with the probability value (*p*-value) of 0.160. As the *p*-value of this coefficient is greater than 0.05, we accept the null hypothesis (H_o) that commercialisation does not lead to an increase in the savings mobilisation of microbanks. This indicates that the commercialisation of microbanks does not lead to a greater capacity to mobilise savings. Similarly, the chi-square analysis results in a coefficient of 5.88 for the variable of 'profitability', and of 5.469 for the 'loan repayment rate'. As the *p*-values of these coefficients are greater than 0.05, we accept the null hypothesis (H_o), that commercial-based operations do not lead to an increase in profitability and rates of repayment of loans to microbanks. This indicates that savings mobilisation, profitability and loan repayment rate are not significantly different for commercial and non-commercial microbanks.

The non-commercial operations of BKKs, for instance, can significantly mobilise rural savings because they are operationally close to rural areas. The savings services of BKKs impose low transportation costs on rural savers, compared to BPRs whose offices are mostly located in the district capital of Boyolali. The savings products of BKKs are also more attractive because they offer higher interest rates than those of BRI-units and BPRs. Using personal approaches and guarantees from local government, the staff of BKKs can encourage rural customers to place their savings in BKKs. Moreover, BKKs can maintain higher rates of loan repayment and profitability because their lending services are linked to the social networks of the poor. Having business operations at the village level, these MFIs are capable of utilising community leaders as loan references to

encourage loan repayments. As a result, poor borrowers are encouraged to repay their loans, enhancing the profitability and loan repayment rates of BKKs. A study by Arsyad (2005) in Balinese villages revealed that social sanctions from community leaders contributed to higher rates of loan repayment in many local government-owned microbanks (LDKPs). This implies that microfinance practices linked to the pre-existing networks of the poor affect the lending performance of non-commercial microbanks, suggesting the functioning of social capital in microfinance.

Table 7.2 Chi-Square Analysis of the Impact of Commercialisation on the Financial Performance and Outreach of Microbanks in Boyolali

Variable	χ^2 [*p*-value]	Hypothesis	Conclusion
Total Savings	7.939 [0.160]	H_o: Commercialisation does not lead to an increase in the savings mobilisation of microbanks. H_a: Commercialisation leads to an increase in the savings mobilisation of microbanks.	Accept H_o: *p*-value = 0.16 > 0.05
Total Loan	19.945 [0.001]	H_o: Commercialisation does not lead to an increase in the lending mobilisation of microbanks H_a: Commercialisation leads to an increase in the lending mobilisation of microbanks.	Accept H_a: *p*-value = 0.001 < 0.05
Profitability	5.880 [0.208]	H_o: Commercialisation does not lead to an increase in the profitability of microbanks. H_a: Commercialisation leads to an increase in the profitability of microbanks.	Accept H_o: *p*-value = 0.208 > 0.05
Repayment Rate	5.469 [0.242]	H_o: Commercialisation does not lead to an increase in the repayment rate of loans to microbanks. H_a: Commercialisation leads to an increase in the repayment rate of loans to microbanks.	Accept H_o: *p*-value = 0.242 > 0.05
Average Loan Size	20.786 [0.001]	H_o: Commercialisation does not lead to an increase in the average loan size of microbanks. H_a: Commercialisation leads to an increase in the average loan size of microbanks.	Accept H_a: *p*-value = 0.001 < 0.05
Minimum Loan Size	14.186 [0.003]	H_o: Commercialisation does not lead to an increase in the minimum size of microbank loans. H_a: Commercialisation leads to an increase in the minimum size of microbank loans.	Accept H_a: *p*-value = 0.003 < 0.05
Number of Saver	9.935 [0.02]	H_o: Commercialisation does not lead to an increase in the number of savers of microbanks. H_a: Commercialisation leads to an increase in the number of savers of microbanks.	Accept H_a: *p*-value = 0.02 < 0.05
Number of Borrower	0.880 [0.839]	H_o: Commercialisation does not lead to an increase in the number of borrowers of microbanks. H_a: Commercialisation leads to an increase in the number of borrowers of microbanks.	Accept H_a: *p*-value = 0.839 > 0.05

Source: Author's analysis

Concerning the outreach of microbanks, the estimated chi-square of the variable 'average loan size' results in the coefficient of 20.786, while that of the variable 'minimum loan' is 14.186. As the *p*-values of these coefficients are smaller than 0.05, we reject the null hypothesis *(H_o)* and accept the alternative hypothesis *(H_a)*, that commercialisation leads to an

increase in the average loan size and in the minimum size of loans of microbanks. This indicates that the for-profit focus of microbanks has the potential to increase their loans, thereby reducing the depth of their outreach. Microbanks consider that lending small amounts to the poor will reduce their profitability, due to the high cost of managing such loans. Hence, the claim that the commercial practices of BRI-units increase their ability to provide small loans to the poor (Robinson 2001; Charitonenko and Afwan 2003) is contested. Our survey found that the majority of BRI-units and BPRs have an average loan size in the range of Rp 5 million to Rp 6 million (US$520.6–US$631.5). In contrast, the average loan size of BKKs ranges from Rp 2 million to Rp 3 million (US$210.5–US$315.8).

The chi-square analysis of the number of savers results in the χ^2 coefficient of 9.935. As the *p*-value of this coefficient is smaller than 0.05 (0.02 < 0.05), we accept the alternative hypothesis *(H_a)*, that the for-profit focus leads to an improvement in the number of savers of microbanks. This implies that profitability has the potential to increase the capacity of microbanks to serve a larger number of savers. However, the chi-square analysis of the number of borrowers results in the χ^2 coefficient of 0.88. As the *p*-value of this coefficient is greater than 0.05 (0.839 > 0.05), we accept the null hypothesis *(H_o)* that the for-profit focus does not lead to an increase in the number of borrowers being served by microbanks. This indicates that the number of borrowers served is not significantly different for commercial and non-commercial microbanks. Our survey found that BRI-units, private banks, and BKKs, have the same number of borrowers, in the range of 500 and 1000. Thus this finding supports *Hypothesis* H_{3A}, that the profitability of formal MFIs leads them to focus on non-poor clients, and to ignore the (very) poor clients. The for-profit focus of microbanks increases savings mobilisation, but fails to increase the number of borrowers being served.

7.3.2 The Impact of Commercialisation on the Financial Performance and Outreach of Cooperatives

Table 7.3 presents the results of the chi-square analysis of the financial performance and outreach of cooperatives. It shows that the chi-square analysis of the variables of 'savings' and 'loan' mobilisation results in the coefficient of 14.30 and 12.62, respectively. As the *p*-values of these coefficients are smaller than 0.05, we accept the alternative hypothesis *(H_a)* that the for-profit focus of cooperatives can increase their capacity of mobilising savings and loans to the poor. This confirms the positive effect of commercialisation on the financial intermediation of cooperatives.

Private cooperatives have a greater capacity for mobilising rural savings than non-commercial cooperatives due to two factors. The first factor is associated with higher interest rates of the savings products of private cooperatives, compared to those of non-commercial cooperatives,

such as KUDs and member-based cooperatives. The wider memberships and geographical coverage of private cooperatives also contribute to their ability to mobilise rural savings. The second factor is that private cooperatives actively encourage rural clients to engage in voluntary savings. In some cases this is undertaken by delivering a 'savings box' to their clients. When this occurs, the cooperative staff visit the homes of clients every week to open and record the amount of money saved in the box. This pro-active method of encouraging the poor to engage in voluntary savings, to some extent, has a positive impact on the savings mobilisation of private cooperatives. The successful mobilisation of voluntary savings then enhances the capacity of private cooperatives to provide loans to poor clients.

Table 7.3 Chi-square Analysis of the Impact of Commercialisation on the Financial Performance and Outreach of Cooperatives in Boyolali

Variable	χ^2 [*p*-value]	Hypothesis	Conclusion
Total Savings	14.306 [0.030]	H_o: Commercialisation does not lead to an increase in the savings mobilisation of cooperatives. H_a: Commercialisation leads to an increase in the savings mobilisation of cooperatives.	Accept H_a: *p*-value = 0.03<0.05
Total Loan	12.621 [0.006]	H_o: Commercialisation does not lead to an increase in the lending mobilisation of cooperatives. H_a: Commercialisation leads to an increase in the lending mobilisation of cooperatives.	Accept H_a: *p*-value = 0.003<0.05
Profitability	5.871 [0.118]	H_o: Commercialisation does not lead to an increase in the profitability of cooperatives. H_a: Commercialisation leads to an increase in the profitability of cooperatives.	Accept *Ho*: *p*-value = 0.118>0.05
Repayment Rate	5.099 [0.169]	H_o: Commercialisation does not lead to an increase in the repayment rate of loans to cooperatives. H_a: Commercialisation leads to an increase in the repayment rate of loans to cooperatives.	Accept H_o: *p*-value = 0.169<0.05
Average Loan Size	8.400 [0.038]	H_o: Commercialisation does not lead to an increase in the average loan size of cooperatives. H_a: Commercialisation leads to an increase in the average loan size of cooperatives.	Accept H_a: *p*-value = 0.038 < 0.05
Minimum Loan Size	0.919 [0.821]	H_o: Commercialisation does not lead to an increase in the minimum size of cooperative loans. H_a: Commercialisation leads to an increase in the minimum size of cooperative loans.	Accept H_o: *p*-value = 0.821>0.05
Number of Saver	11.143 [0.011]	H_o: Commercialisation does not lead to an increase in the number of savers of cooperatives. H_a: Commercialisation leads to an increase in the number of savers of cooperatives.	Accept H_a: *p*-value = 0.011<0.05
Number of Borrower	10.316 [0.016]	H_o: Commercialisation does not lead to an increase in the number of borrowers of cooperatives. H_a: Commercialisation leads to an increase in the number of borrowers of cooperatives.	Accept H_a: *p*-value = 0.016<0.05

Source: Author's analysis

However, the chi-square analysis of the variables of 'profitability' and 'loan repayment rate' result in coefficients of *p*-values greater than 0.05. Hence, we accept the null hypothesis *(H_o)* that the for-profit focus does not lead to an increase in profitability and loan repayment rates of cooperatives. This indicates that profitability and repayment rates are not significantly different for non-commercial cooperatives (e.g., member-based cooperatives) and private cooperatives. The claim that a commercial approach is a major determinant of the operational profitability of MFIs (e.g., Christen 2001; Charitonenko et al. 2004) is not found to the case for cooperatives in the survey area. Non-commercial cooperatives, such as member-based cooperatives, remain profitable, although their financial business is far from sophisticated. For instance, having very simple management structures and small-scale operations benefit member-based cooperatives by lowering their operational costs of lending to the poor. More interestingly, the incidence of misconduct and fraud by cooperative staff can be prevented by utilising open management systems. The survey carried out for this thesis found that monthly meetings among cooperative members required the lending staff of cooperatives to disclose current financial position, the names of borrowers who were in a default position, and suggestions for how to encourage repayments. Such open management encourages poor borrowers to repay, as loan defaults can lead them to be the subject of gossip. In short, the non-commercial focus of cooperatives remains profitable because lending is on the basis of social collateral, management is open and lending approaches are informal.

Looking at the outreach of cooperatives, the chi-square analysis of the variable of 'average loan size' results in the χ^2 coefficient of 8.40, with a *p*-value of 0.038. As the *p*-value of the coefficient is smaller than 0.05, we accept the alternative hypothesis *(H_a)* that a profitability focus leads to an increase in the average loan size of private cooperatives. This is probably the case because the average cost of managing large loans tends to be lower than those of small loans. However, the chi-square analysis of the variable of 'minimum size of loans' results in the coefficient of 0.919, with a *p*-value of 0.821. As the *p*-value is greater than 0.05, we accept the null hypothesis *(H_o)* that the for-profit focus of private cooperatives does not increase the minimum size of loans. Moreover, the chi-square analyses of the variables of 'saver' and 'borrower' result in the coefficients of the *p*-values being smaller than 0.05. Hence, we accept the alternative hypothesis *(H_a)* that the for-profit focus of private cooperatives leads to an increase in the number of savers and borrowers being served. Overall, these statistical findings indicate that a trade-off does not exist between commercialisation practices and the outreach of cooperatives. Although the commercial practices of private cooperatives tend to increase their loans, they remain focused on low-market segments by providing small-scale loans to poor clients. The

minimum size of loans provided by private cooperatives is relatively similar to that of non-commercial cooperatives.

7.3.3 The Impact of Commercialisation on the Financial Performance and Outreach of Informal MFIs

Table 7.4 presents the chi-square analysis of the impact of a for-profit focus on the financial performance and outreach of informal MFIs. Here, ROSCAs represent non-commercial informal MFIs, while moneylenders are purely commercial entities. The table shows that the chi-square analysis of the variable 'loan mobilisation' results in the coefficient of 45.454. As the *p*-value of the coefficient is significantly smaller than 0.05, we accept the alternative hypothesis *(H_a)* that the for-profit focus of moneylenders statistically leads to an increase in loan mobilisation to the poor. The greater capacity of moneylenders than ROSCAs to mobilise loans is associated with high interest rates. For instance, interest on loans paid by poor clients to moneylenders ranges from 30 to 45 percent, compared to 20 to 25 percent for ROSCAs. Having low rates of loan default, high loan interest rates enable moneylenders to generate significant profit, enhancing their lending capacity.

The chi-square analyses of the variables 'profitability' and 'repayment rate' result in the coefficients of the *p*-values being smaller than 0.05. This means that a profit-oriented focus can lead to an increase in profitability and rates of loan repayment informal MFIs. However, one cannot conclude that the non-commercial practices of ROSCAs result in lowering rates of loan repayments and profitability. Our survey found that the financial performance of ROSCAs was comparable to that of moneylenders. Because ROSCAs are formed within small groups of members, such as among neighbours, relatives and co-workers, they can engage in effective peer monitoring and implement social sanctions to loan defaulters. The costs of monitoring and screening loans are low because ROSCA members live close to one another. As a self-help support institution, ROSCAs also gain benefits from the presence of peer monitoring because loan defaults reduce access of other members to loans.

As expected, the profitability focus of moneylenders does not reduce their ability to serve poor people. The variable 'minimum size of loans' results in the chi-square coefficient of 3.809, with a *p*-value of 0.28. As the *p*-value of this coefficient is greater than 0.05, we accept the null hypothesis *(H_o)* that the for-profit focus of informal MFIs (moneylenders) does not statistically increase the minimum size of loans. Similarly, the chi-square analysis of 'average loan size' results in the coefficient of the *p*-value greater than 0.05. Hence, we accept the null hypothesis *(H_o)* that the for-profit focus of moneylenders does not increase their average size of loans. Our survey found that the average loan size of moneylenders was small, ranging from Rp 250,000 to Rp 499,900 (US$26.31–US$52.62). Therefore, it can be

concluded that the commercially oriented practices of moneylenders do not reduce their ability to serve the poor.

Table 7.4 Chi-Square Analysis of the Impact of Commercialisation on the Financial Performance and Outreach of Informal MFIs in Boyolali

Variable	χ^2 [*p*-value]	Hypothesis	Conclusion
Total Loan	45.454 [0.000]	H_o: Commercialisation does not lead to an increase in the lending mobilisation of informal MFIs. H_a: Commercialisation lead to an increase in the lending mobilisation of informal MFIs.	Accept H_a: *p*-value = 0.000<0.05
Profitability	16.559 [0.000]	H_o: Commercialisation does not lead to an increase in the profitability of informal MFIs. H_a: Commercialisation leads to an increase in the profitability of informal MFIs.	Accept H_a: *p*-value = 0.000<0.05
Repayment Rate	19.641 [0.000]	H_o: Commercialisation does not lead to an increase in the repayment rate of loans to informal MFIs. H_a: Commercialisation leads to an increase in the repayment rate of loans to informal MFIs.	Accept H_a: *p*-value = 0.000<0.05
Minimum Loan Size	3.809 [0.283]	H_o: Commercialisation does not lead to an increase in the minimum size of informal loans. H_a: Commercialisation leads to an increase in the minimum size of informal loans.	Accept H_o: *p*-value = 0.283>0.05
Average Loan Size	9.909 [0.078]	H_o: Commercialisation does not lead to an increase in the average loan size of informal MFIs. H_a: Commercialisation leads to an increase in the average loan size of informal MFIs.	Accept H_o: *p*-value = 0.078>0.05
Number of Borrower	16.841 [0.001]	H_o: Commercialisation does not lead to an increase in the number of borrowers of informal MFIs. H_a: Commercialisation leads to an increase in the number of borrowers of informal MFIs.	Accept H_a: *p*-value = 0.001<0.05

Source: Author's analysis

The capacity of moneylenders to serve the poor is supported by the chi-square analysis of the number of borrowers being served. The estimated chi-square coefficient of the variable 'number of borrowers' is 16.84, with a *p*-value of 0.001. As the *p*-value is smaller than 0.05, we accept the alternative hypothesis *(H_a)* that the for-profit focus of informal MFIs (moneylenders) can improve the number of poor borrowers being served. Our survey found that the majority of non-commercial informal MFIs (ROSCAs) have borrower numbers of less than 50. This figure is smaller than the number of clients of moneylenders, which ranges from 50 to 99. ROSCAs have a small number of borrowers because they lend only to members. In most cases ROSCAs' memberships are limited to neighbours, relatives, and co-workers, numbering around 20 to 30 members. Overall, these statistical findings support *Sub-hypothesis* H_{3B}, that informal MFIs are capable of serving the poor clients, while achieving profitability.

7.4 THE WELFARE IMPACT OF MICROFINANCE ON POOR CLIENTS

Whether microfinance alleviates poverty remains contested. Many have pessimistic views about the impact of microfinance on the welfare of poor people (Coleman 1999, 2002; Scully 2004; Amin et al. 2003; Data 2004). Morduch (2006) estimates that very poor clients occupy only 30 percent of worldwide microfinance clients, while most MFIs successfully reach moderately poor and non-poor people. According to Coleman (2002), non-poor clients gain more benefits from utilising microfinance services than do the poor. Many factors can exclude the poor from accessing microfinance services, such as the unwillingness of the poor to participate in microfinance programs and the preference of MFIs to serve non-poor people (Data 2004, p.66). In contrast, considerable research has revealed the positive impact of microfinance on the welfare of the poor. It is claimed that access to microfinance services can lead the poor to improve child education and nutrition (Chen and Snodgrass 2001; Pitt and Khandker 1998; Mushtaque et al. 2004; Mosley and Rock 2004; Khandker 2003). Microfinance services are also said to assist the poor smooth consumption and facilitate network expansion (Kaboski and Townsend 2005).

Regarding the above debate, this study examines *Hypothesis* H_4, that access to microfinance services can improve the welfare of the poor in the survey area. In this study we scrutinised the impact of microfinance on (1) the probability of having children with higher levels of education, (2) the likelihood of facing household financial problems, and (3) the degree of confidence in dealing with other people. The following sub-sections examine the impact of access to loans on these three important aspects of poverty.

7.4.1 THE IMPACT OF MICROFINANCE ON CHILDREN'S EDUCATION

Table 7.5 presents the percentage of respondents by levels of child education. It shows a significant contrast between the levels of children's and parent's educational achievements. While the majority of respondents have a primary education or less (54.1 percent), their children have attended senior-high school (47.6 percent). Around 12.1 percent of children have a university education, compared to only 3.46 percent of respondents. However, the greatest percentage of respondents having children with a university education is those who themselves have a university education (62.5 percent), followed by respondents with senior-high school (15.38 percent). In contrast, only 8.80 percent of respondents with a primary education or less have children with a university education. This suggests a link exists between higher levels of parental education and a positive attitude towards the importance of children's education.

Table 7.5 Respondents by Levels of Children's Education in Boyolali

Education Levels of Parent	Levels of Child Education					% as of total Respondent
	Primary Education or less	Junior High School	Senior High School	University/ Diploma	∑	
Primary Education or less	8.80	34.40	48.00	8.80	100	[54.11]
Junior High School	15.22	26.09	50.00	8.70	100	[19.91]
Senior High School	21.15	13.46	50.00	15.38	100	[22.51]
University/Diploma	25.00	0.00	12.50	62.50	100	[3.46]
% as of Total Respondent	[13.42]	[26.84]	[47.62]	[12.12]	[100]	[100]

Source: Author's field survey (processed)

To investigate the impact of access to microfinance services on the likelihood of having children with higher levels of education, the present study utilises the logit model. The dependent variable of the model takes the value of one (1) if respondents have children with a senior-high school or university education. It has the value of zero (0) if the children's education level is lower than senior-high school. Then, the logit model proposes that the probability of having children with higher levels of education is a function of the following explanatory variables: the level of parental education *(Edu)*; the period of engaging in business enterprises *(Year)*; monthly income *(Income)*; membership in ROSCAs *(Rosca)*; access to loans from friends *(Bfriend)* and moneylenders *(Blender)*; and borrowing from microbanks and cooperatives *(BFormal)*. The simple form of the logit model is shown as Equation (1):

$$\text{Logit (ChildEdu)} = F\,(\text{Edu, Year, Income, Rosca, Bfriend, Blender, Bformal}) \quad \ldots\ldots(1)$$

In the model, it is hypothesised that levels of parental education (Edu) positively affect the probability of having children with higher levels of education. This may be the case as people with higher levels of education tend to have knowledge about and positive attitudes towards the importance of education (see Myrdal 1968). Therefore, they are more likely to invest in their children's education. However, investment in child education requires the parents to be able to finance school-related expenses. Hence, a greater probability of having children with higher levels of education is hypothetically affected by household income. Managing and operating business enterprises hypothetically enhances the probability of having children with higher levels of education. From the perspective of social capital, engaging in businesses can expand networks and interaction with others. As a result, people learn not only commercial skills but also knowledge about education-related issues from their business associates. Wider social networks also enable people to recognise the importance of

education from others, encouraging investment in their children's education.

Membership in ROSCAs enables households to engage in precautionary savings, which are vital to finance child education. Hence, membership in ROSCAs is hypothesised to increase the probability of having children with higher levels of education. Similarly, access to loans from friends, moneylenders and formal MFIs increases the ability of the poor to finance expenditure associated with their children's education. In this respect, access to loans hypothetically leads to a greater probability of having children with higher levels of education.

Table 7.6 outlines the estimated results of the logit model of having children with higher levels of education. The first point to note is that the logit estimation results in a 73.16 percent correct prediction of the dependent variable. The likelihood ratio of 69.93 indicates that the selected variables in the logit model are statistically acceptable. However, the diagnostic tests for heteroskedasticity are inconclusive, as the Harvey test indicates that the estimated model does not face the problem of heteroskedasticity, but the Arch and Koenker tests indicate the existence of this problem. This implies that the variance of estimated residuals may have different means across observations. However, the estimated coefficients of all explanatory variables have the expected signs.

Regarding the *t*-statistic values, the level of parental education does not statistically affect the probability of having children with higher levels of education. This implies that the willingness to invest in children's education is not affected by the level of formal education of the parents. The use of mass media, such as television and newspapers, is probably more likely to influence the attitudes of poor households toward the importance of child education. The poor can also gain knowledge and positive attitudes toward the importance of child education through their social interaction and communication with others (see Myrdal 1968).

As expected, experience in business significantly increases the probability of having children with higher levels of education. The question is the extent to which such experience leads to the probability of having children with higher levels of education. From an economics point of view, business experience can increase household income, which then enables parents to invest in higher levels of education for their children. However, this was not found to be the case as correlation between the variables *Income* and *Year* (the number of years in undertaking business) is not statistically significant at the 95 percent level. The coefficient of correlation between these two variables is 0.05 with the *p*-value of 0.453. Hence, business experience has *the potential* to increase the level of child education through wider social and business networks, which enhance parents' perception of the importance of children's education. Not surprisingly, the variable *Income* has a statistically positive effect on the probability of having children with

higher levels of education. This implies that people with higher incomes tend to have a greater probability of having children with higher levels of education.

Table 7.6 Logit Estimate of the Probability of Having Children with Higher Levels of Education in Boyolali

Variable	Coefficient	[*t*-Statistic]	Odd Ratio
Levels of parent education *(Edu)*	0.340	[0.899]	1.405
Years of undertaking business *(Year)*	2.154	[5.420][a]	8.619
Monthly Income *(Income)*	0.712	[2.715][a]	2.038
Memberships in ROSCAs *(Rosca)*[1]	1.693	[2.410][a]	5.435
Borrowing from friends *(Bfriend)*[2]	1.401	[3.735][a]	4.059
Borrowing from moneylenders *(Blender)*[3]	0.182	[0.566]	1.199
Borrowing from formal MFIs *(Bformal)*[4]	1.071	[2.014][b]	2.918
Constant	–19.769	[–4.738]	
Log-Likelihood = –120.74 Likelihood Ratio = 69.93 Correct Prediction = 73.16 % Heteroskedasticity Test: Arch Test: 0.392, (0.531) Harvey Test: 12.403, (0.088) Koenker Test: 9.278, (0.233)			

Note:

[a] and [b] indicate statistically significant at 1%, 5% and 10% level, respectively.

t-table for 1% level of significance with d.f. = ∞ is 2.32, 5% level is 1.64 and 10% level is 1.28.

The level of parental education takes the value of 1 if primary school or less, 2 if junior high school, 3 if senior-high school, and 4 if university and diploma.

[1] Respondents who are membera of ROSCAs take a value of 1, and 0 otherwise.

[2] Respondents borrowing from friends take a value of 1, and 0 otherwise.

[3] Respondents borrowing from moneylenders take a value of 1, and 0 otherwise.

[4] Respondents borrowing from banks and cooperatives take a value of 1, and 0 otherwise.

Source: Author's analysis

Except for borrowing from moneylenders, all other microfinance-related variables statistically affect the probability of having children with higher levels of education. As these variables are dummies, the magnitude of effect on the dependant variable can be recognised through the computation of the odd ratio (OR) of the estimated coefficients (Hosmer and Lemeshow 2000). The odd ratio measures the extent to which the probability of the dependent variable is affected when the dummy explanatory variable has the value of one (1), compared to those of with a value of zero (0). In this case, the odd ratio can identify the probability of having children with higher levels of education for people with access to microfinance service (e.g., loans), compared to those without access to microfinance. The computation of the odd ratio for the variable *Rosca* results in the value of 5.4. This implies that the probability of having children with higher levels of education is 5.4 times greater for respondents who are members of ROSCAs than for non-members of ROSCAs. This

confirms that membership in ROSCAs enables the poor to engage in precautionary savings, which are perceived as important to support children's education (see Dercon 2002; Holvoet 2004, p.47).

The computation of the odd ratio for the variable *Bfriend* results in the value of 4.0. This indicates that the probability of having children with higher levels of education is approximately 4 times greater for households with access to loans from friends, compared to those without such access. Thus, maintaining friendship networks has the potential to enhance access to loans to finance children's education. Considering the odd ratio of the variable *Bformal*, households with access to loans from microbanks and cooperatives have a three times greater chance of having children with higher levels of education, compared to those without access to such loans. Overall, this statistical finding supports *Sub-hypothesis* H_{4A}, that access to microfinance services can lead to a greater capacity of poor people to improve the education levels of their children. This is consistent with previous studies which have found that microfinance services play an important role in improving children's education (Pitt and Khanker 1998; Pitt et al. 2003; Helm 2003; Holvoet 2004).

7.4.2 The Impact of Microfinance on the Likelihood of Having Household Financial Problems

Poor households are highly vulnerable to external shocks, such as natural disasters, sicknesses and death. For instance, an unexpected drought can cause harvest failures, leading poor farmers to face household financial difficulties. Similarly, sickness and death can also put downward pressure on the welfare of the poor in the absence of government social programs and life insurance. This section examines the link between access to microfinance services and the likelihood of facing household financial problems. Data was obtained by asking how often respondents faced household financial problems. The possible answers were: (1) never, (2) not-so often, (3) often and (4) very often.

Table 7.7 presents the percentage of respondents by income group and frequency of facing household financial difficulties. It shows that 41 percent of respondents often face household financial problems. In terms of income, households within the monthly income group of Rp 250,000 to Rp 499,900 (US$26.31–US$52.62) states that they often face financial difficulties, accounting for 17.75 percent of respondents. Only 3.90 percent of poor households in this group states that they never face financial difficulties. In contrast, 13.6 percent of respondents without financial problems are non-poor, with monthly incomes above Rp 1,750,000 (US$182.21). This indicates that a link exists between the incidence of having financial difficulties and lower levels of household income.

Table 7.7 Percentage of Respondents by Income Group and Frequency of Having Household Financial Problems in Boyolali

Income Group (Rp thousand)	Never	Not-so-Often	Often	Very Often
Less than 250	0.43	0.00	3.46	0.00
250 − 499.9	3.90	3.90	17.75	3.46
500 − 749.9	4.33	3.46	5.19	0.87
750 − 999.9	5.63	4.33	3.90	0.87
1,000 − 1,249.9	2.16	2.60	1.73	0.00
1,250 − 1,499.9	1.73	1.30	4.76	0.00
1,500 − 1,749.9	2.60	1.73	2.60	0.00
More than 1,750	13.42	1.30	1.73	0.86
Total Percentage	34.20	18.61	41.13	6.06

Source: Author's field survey (processed).

The logit model is employed to examine the relationship between access to loans and the incidence of facing household financial difficulties. The dependent variable is constructed by taking the value of one (1) if respondents had faced financial difficulties and zero (0) otherwise. The following explanatory variables are included in the model: levels of child education *(ChildEdu)*; monthly income *(Income)*; multiple sources of income *(OtherIncome)*; membership in ROSCAs *(Rosca)* and business associations *(Basoc)*; plus access to loans from different sources, such as neighbours *(Bneighbor),* moneylenders *(Blender)*, and microbanks *(Bbank)*. The logit model is formulated as equation (2) below:

Logit (Financial problem) = *F* (ChildEdu, Income, OtherIncome, Rosca, Basoc, Bneighbor, Blender, Bbank).....(2)

In the model, it is hypothesised that higher levels of child education reduce in the probability of facing household financial problems. Children with higher levels of education may give benefits to their poor parents in the form of income transfers which help them to cope with financial problems. This is the case as having higher levels of education can lead to well-paid employment, enhancing the capacity of children to give or lend money to their parents. In the survey area, it is a religious obligation for children with well-paid jobs to help their parents when they face financial distress. Furthermore, higher income is expected to reduce the probability of facing household financial difficulties. Higher income enables poor people to accumulate savings, which are important to smooth consumption in response to unpredictable shocks, such as sickness or death. Multiple income sources are also expected to increase the capacity of households to cope with financial difficulties. Having multiple occupations, for instance, can lead the poor to have higher incomes, which are useful to insure against unpredictable shocks, thus lowering the likelihood of having financial problems.

From the perspective of social capital, membership in ROSCAs and business associations can reduce the probability of household financial problems. Membership in such associations can lead the poor to expand social and business networks. To some extent, wider networks have the potential to enhance access to loans from friends and business associates, which is useful to cope with financial difficulties. There is evidence that reciprocal loans among neighbours and friends enable the poor to insure against financial difficulties. Hence, the variable *Bneighbor* (borrowing from neighbours) is hypothesised to reduce the probability of facing financial difficulties. However, the variables encompassing 'borrowing from commercial sources', such as microbanks *(Bbank)* and moneylenders *(Blender)*, may have positive or negative effects on the probability of having financial problems. They have positive effects as repayment obligations of loans can put downward pressure on the income of poor people. However, access to commercial loans may reduce the probability of facing financial problems if such loans are used for productive purposes. This is probably the case as loans for productive purposes have the potential to increase income and allow households to engage in precautionary savings. This savings then enables the poor to cope with unpredictable shocks, such as harvest failures and sickness.

Table 7.8 outlines the estimated results of the logit model of the probability of facing financial problems. It shows that the logit model successfully predicts the probability of the explanatory variable at the 77.05 percent level. This means that the model fits the data satisfactorily. The likelihood ratio of 70.72 indicates that the selected explanatory variables in the model are statistically acceptable. The diagnostic test for heteroskedasticity indicates that the estimated model does not face any heterosekasticity problem. Considering the value of the *t*-statistic, the variable *ChildEdu* is not statistically significant at the 95 percent level. This indicates that the level of child education does not reduce the probability of facing household financial problems. This is probably because the majority of children of poor respondents only have high school education. Having only a high school education, the children of poor households would gain access to relatively low quality employment, such as working as urban labourers. As urban labourers, they would earn a small salary and be unable to provide income transfers to their parents. Instead, the parents are often forced to sell parts of their farmland to help their children permanently migrate to the city. The proceeds of the sale of farmlands would serve such purposes as providing start-up funds to apply for mortgage loans.

As expected, higher levels of income statistically reduce the probability of facing financial problems. The estimated coefficient of the variable *Income* results in the *t*-statistic of –5.148, which is significantly greater than the *t*-table at the 99 percent level. The magnitude of the coefficient indicates that an increase in income of 10 percent will be accompanied by a

reduction in the likelihood of facing financial problems by 5 percent. Similarly, having multiple sources of income also reduces the probability of facing financial difficulties. The computation of the odd ratio of this variable results in the coefficient of 1.762. This indicates that the probability of facing financial difficulties is 1.76 times lower for households with multiple sources of income than those with a single income source. This statistical finding is consistent with a study by ADB (2006) in Indonesia which found that maintaining stable income flows is essential for the poor to cope with poverty.

Table 7.8 Logit Estimate of the Probability of Facing Household Financial Problems in Boyolali

Variable	Coefficient	[*t*-Statistic]	Odd Ratio
Levels of child education *(ChildEdu)*	–0.216	[–0.583]	1.241
Monthly income *(Income)*	–1.612	[–5.148][a]	5.012
Multiple sources of income *(OtherIncome)*[1]	–0.567	[–1.619][c]	1.762
Memberships in business association*(Basoc)*[2]	–0.799	[–2.174][b]	2.223
Memberships in ROSCA *(Rosca)*[3]	–0.153	[–0.222]	1.165
Borrowing from neighbours *(Bneighbor)*[4]	0.550	[1.487][c]	1.733
Borrowing from moneylenders *(Blender)*[5]	0.785	[2.280][b]	2.192
Borrowing from banks *(Bbank)*[6]	–0.902	[–2.048][b]	2.464
Constant	24.340	[5.308]	
Log-Likelihood = –113.02, Likelihood Ratio = 70.718 Correct Prediction = 77.05% Heteroskedasticity Test: Arch Test: 11.125, (0.001) Harvey Test: 54.605, (0.000) Koenker Test: 120.430, (0.000)			

Note:

[a], [b] and [c] indicate statistically significant at 1%, 5% and 10% level, respectively.

t-table for 1% level of significance with d.f. = ∞ is 2.32; 5% level is 1.64 and 10% level is 1.28.

ChildEdu takes a value of 1 if respondents have children with senior high school and university education, and 0 otherwise.

[1] Respondents with multiple sources of income take a value of 1, and 0 otherwise.

[2] Respondents who are members of business association take a value of 1, and 0 otherwise.

[3] Respondents being a member of ROSCAs take a value of 1, and 0 otherwise.

[4] Respondents borrowing from neighbours take a value of 1 and 0 otherwise.

[5] Respondents borrowing from moneylenders take a value of 1 and 0 otherwise.

[6] Respondents borrowing from banks take a value of 1 and 0 otherwise.

Source: Author's analysis

Considering variables associated with social capital, membership in ROSCAs and business associations tends to enhance the ability of households to deal with financial difficulties. The logit estimation results in a negative correlation between membership in ROSCAs and business associations, and the likelihood of facing financial difficulties. The computation of the odd ratio of the variable *Basoc* results in the coefficient of 2.2. This implies that the probability of facing financial problems is 2.2

times lower for poor households being a member of business association than those without participation in such organisation. The odd ratio of 1.165 for the variable *Rosca* implies that the probability of having financial problems is approximately 1.2 percent lower for poor households being a member of ROSCAs than those who are not a member of ROSCAs. This indicates the importance of social capital in reducing the probability of facing financial distress. This is the case as membership in social and business associations can facilitate access to economic opportunities. As Burt (2005) points out, the possession of wider networks can increase access to current information about business opportunities. From a social capital point of view, Streeten (2002) emphasises that wider networks can lead households to obtain help from their business associates. In the case of poor people, Narayan (1997) puts forward the notion that such networks can act as social glue, perceived important to guard against vulnerability.

Access to loans has positive and negative impacts on the probability of facing household financial difficulties. Access to loans from neighbours does not significantly affect the probability of having financial problems. This is not surprising as our survey found that loans from neighbours are very small, accounting for the range of Rp 25,000 to Rp 50,000 (US$2.63–US$5.26). Such loans may not be sufficient to cope with household financial problems of the poor. However, borrowing from moneylenders increases the probability of facing financial difficulties. The estimated coefficient of the variable of borrowing from moneylenders is statistically significant at the 95 percent level. The computation of the odd ratio of this coefficient results in the value of 2.18. This implies that the likelihood of having financial problems is approximately two times greater for poor households borrowing from moneylenders. Two factors are responsible for a greater probability of having financial problems, after borrowing from moneylenders. The first is that loans from moneylenders are often used by the poor for consumption purposes. As a study of ADB (2006) points out, poor people in Indonesia are often forced to borrow from moneylenders due to financial distresses associated with sickness, death, and harvest failure. Being used for consumption purposes, loans from moneylenders do not have income-generating effect on poor borrowers. Indeed, the repayment obligation of such loans puts a downward pressure on the income of the poor. The second is associated with frequent instalments (e.g., daily and weekly) of loans from moneylenders. In order to meet such frequent loan instalments, the poor reallocate significant amount of their income, hence reducing household consumption.

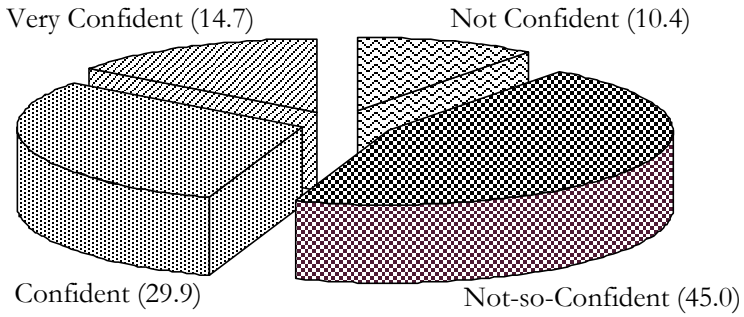
In contrast, access to microbank loans statistically reduces the probability of having financial problems. The estimated coefficient of the variable *Bbank* is –0.90 with a *t*-statistic of 2.048 being significantly greater than the critical value of 1.64 at the 95 percent level (2.048>1.64). Regarding the coefficient of the odd ratio, the probability of facing financial

difficulties is approximately 2.5 times lower for households with access to microbank loans. As microbank loans are often used to finance productive activities, an improvement in income enhances the capability of borrowers to meet loan repayments. Greater incomes can also enhance the savings capacity of borrowers, thereby reducing the likelihood of facing household financial problems. Overall, this statistical finding thus concludes *Sub-hypothesis* H_{4B}, that access to microfinance services (e.g., microbank loans) has the potential to reduce the probability of poor households facing household financial difficulties.

7.4.3 The Impact of Microfinance on the Likelihood of being Confident in Dealing with Other People

As has been widely recognised, poor people face various obstacles to participating in social activities. The poor do not feel confident in participating in community associations, due to their low levels of education, skills and income. To investigate this issue, we utilised subjective-measurements by questioning respondents about how confident they were in relating to other people. The possible answers were: (1) not confident, (2) not-so-confident, (3) confident and (4) very confident. Figure 7.2 describes the percentage of respondents by the degree of confidence in dealing with other people. It shows that respondents who feel confident and very confident in dealing with others account for 29.9 percent and 14.7 percent, respectively. In contrast, 45 percent of respondents state that they are not-so-confident in dealing with other people, while the other 10 percent states that they do not feel confident in dealing with others.

Figure 7.2 Percentage of Respondents by the Degree of Confidence in Dealing with Other People in Boyolali



Source: Author's field survey (processed)

Furthermore, the extent to which access to microfinance services can enhance self-confidence in dealing with others is analysed using a logit model. In this model, the dependent variable takes the value of one (1) if respondents feel confident or very confident in dealing with other people. In contrast, it takes the value of zero (0) if respondents do not feel confident in dealing with others. The following explanatory variables are

included in the logit model: levels of education *(Edu)*; ownership of assets *(Asset)*; monthly income *(Income)*; multiple sources of income *(OtherIncome)*; membership in business associations *(Basoc)*; plus borrowing from neighbours *(Bneighbor)*, moneylenders *(Blender)* and microbanks *(Bbank)*. The simple form of this logit model is shown as Equation (3) below:

$$\text{Logit (Confident)} = F(\text{Edu, Asset, Income, OtherIncome, Basoc, Bneighbor, Blender, Bbank}) \quad (3)$$

In the logit model, we hypothesise that higher levels of education lead to better skills of communication, and thus have the potential to enhance confidence in dealing with others. Economic-related variables, such as ownership of assets, higher income and having multiple sources of income are expected to increase self-confidence in dealing with others. The social capital literature suggests that individuals do not have equal access to social networks. Cleaver (2004) points out that the poor often fail to maintain and expand social and kinship networks, due to insufficient resources. Low incomes often make the poor incapable of financing the cost of participating in social activities. Moreover, membership in business associations *(Basoc)* is hypothesised to enhance confidence in dealing with others. Frequent interaction with business associates, for instance, can stimulate communication skills, thereby enhancing the self-confidence of the poor in dealing with others.

Access to loans may have positive or negative effects on the degree of confidence in dealing with other people. Loan defaults may reduce confidence in dealing with others, due to loss of reputation and social humiliation. Using loans for consumption purposes can fail to enhance production, leading to a greater probability of default. Hence, loans for consumption purposes tend to reduce confidence in dealing with others, particularly when default loans are most likely to occur. In informal lending contracts, loan defaults can lead to social punishment, as unpaid lenders can inform others of the defaulters' action, harming their reputation. However, loans for productive purposes may lead to greater income and prosperity of borrowers, thereby enhancing their confidence in dealing with others.

Table 7.9 outlines the estimated result of the logit model. It shows that the logit model successfully predicts the probability of respondents being confident at the 77.48 percent level. The likelihood ratio of 79.25 indicates that the inclusion of explanatory variables in the model is statistically acceptable. The heteroskedasticity test indicates that the logit estimate does not face any heteroskedasticity problem. Regarding the *t*-statistics, higher levels of education tend to lead to a greater probability of being confident in dealing with others. This is the case as people with higher levels of education tend to have better skills of communication, enhancing their confidence in dealing with others.

Table 7.9 Logit Estimate of the Probability of being Confident in Dealing with Other People in Boyolali

Variable	Coefficient	[*t*-Statistic]	Odd Ratio
Education levels of parent *(Edu)*	0.184	[1.211]	1.202
Ownership of asset *(Asset)*	0.069	[1.611][c]	1.071
Monthly income *(Income)*	1.234	[3.975][a]	3.434
Multiple source of income *(OtherIncome)*[1]	0.953	[2.867][b]	2.593
Memberships in business association *(Basoc)*[2]	1.601	[4.283][a]	4.957
Borrowing from neighbour *(Bneighbor)*[3]	–0.264	[–0.714]	1.302
Borrowing from moneylenders *(Blender)*[4]	0.118	[0.363]	1.125
Borrowing from bank *(Bbank)*[5]	1.005	[2.460][b]	2.732
Constant	–20.771	[–4.795]	
Log-Likelihood = –119.14, Likelihood Ratio = 79.250 Correct Prediction = 77.480 % Heteroskedasticity Test: Arch Test: 7.172, (0.007) Harvey Test: 28.558, (0.000) Koenker Test: 67.693, (0.000)			

Note:

[a], [b] and [c] indicate statistically significant at 1%, 5% and 10% level, respectively.

t-table for 1% level of significant with d.f. = ∞ is 2.32, 5% level is 1.64 and 10% level is 1.28.

Edu is level of parental education (1 = primary school or bellow, 2 = junior high school, 3 = senior high school and 4 = university and diploma).

[1] Respondents with multiple sources of income take a value of 1, and 0 otherwise.

[2] Respondents being a member of business associations take a value of 1, and 0 otherwise.

[3] Respondents borrowing from neighbours take a value of 1 and 0 otherwise.

[4] Respondents borrowing from moneylenders take a value of 1 and 0 otherwise.

[5] Respondents borrowing from banks take a value of 1 and 0 otherwise.

Source: Author's analysis

Similarly, the variable *Income* statistically contributes to the probability of being more confident in dealing with other people. Regarding the coefficient of the odd ratio, a 1 percent increase in income can improve confidence in dealing with others by about 3.4 percent. The computation of the odd ratio of the variable *OtherIncome* results in the coefficient of 2.593. This means that the probability of being more confidence in dealing with others is 2.59 times greater for poor households with multiple sources of income than the poor with a single income. The ownership of liquid assets, such as savings, contributes to the degree of confidence in dealing with others. The estimated coefficient of the variable *Asset* is 0.069, which is statistically significant at the 90 percent level. The odd ratio of this coefficient is 1.071, which means that an increase in the ownership of liquid assets has a proportionate affect on the rise in confidence of dealing with others. These statistical findings indicate that higher income and asset ownership play an essential role in increasing the self-confidence of the poor in social interactions.

In relation to variables linked to social capital, membership in business associations *(Basoc)* statistically contributes to a greater probability of being confident in dealing with other people. The computation of the odd ratio of this variable results in the coefficient of 4.95. This means that having more confidence in dealing with others is nearly 5 times greater for households who participate in business associations. This indicates that being involved in business networks can help poor people develop communication skills. This statistical finding highlights the functioning of social capital in enhancing the confidence of the poor in dealing with other people. As Collier (2002) points out, extensive interaction can benefit individuals through learning, facilitating their accumulation of knowledge. As a result, better skills of communication can lead the poor to become more confident in dealing with others.

As expected, access to microbank loans *(Bbank)* statistically contributes to the probability of being more confident in dealing with other people. The estimated coefficient of this variable is statistically significant at the 95 percent level. The computation of the odd ratio of this variable results in the coefficient of 2.73. This indicates that households with access to microbank loans have 2.7 time greater confidence in dealing with others than those without access to such loans. This is the case as microbank loans are often used to support productive activities, leading to greater income and prosperity of borrowers. As a result, borrowers become more confident in dealing with other people. Their confidence is also increased because they are able to repay the microbank loans, enhancing their reputation. This finding thus supports *Sub-hypothesis* H_{4C}, that access to microfinance services (e.g., microbank loans) can enable the poor to become more confident in dealing with others.

However, access to loans from neighbours and moneylenders does not statistically affect the probability of being confident in dealing with other people. This is probably the case as such informal loans are often used to finance household consumption, rather than production. As a result, they tend to have a low impact on production and fail to increase the income of borrowers. Indeed, loans for consumption purposes tend to have a greater probability of being defaulted, lowering the reputation of defaulting borrowers. Having a loan default and a resultant diminished reputation, reduces the self-confidence of the poor in dealing with other people.

7.5 CONCLUDING DISCUSSION

This chapter has examined *Hypothesis* H_3, that commercialisation practices of MFIs enhance financial performance, but reduce outreach to poor people. Having a for-profit focus, fully-commercial microbanks, such as BRI-units and BPRs, have a greater capacity to mobilise loans than do non-commercial microbanks (BKKs). The low lending mobilisation of BKKs is particularly associated with their obligation to provide many small-scale

loans to serve the poor. The major hindrance of such loans is dispersed locations of poor clients, leading to high operational costs of maintaining village posts. However, focusing on profitability can reduce the ability of BRI-units and BPRs to serve the poor. This is because in order to maintain profitable operations, these commercial microbanks are encouraged to provide larger loans to non-poor clients,. Therefore, this study concludes that for-profit orientation gives rise to financial intermediation, and a trade-off does exist between a profitability focus and the outreach of microbanks to serve the poor. Thus, we support *Sub-hypothesis* H_{3A}, that the profitability of formal MFIs leads to a focus on serving non-poor clients, ignoring the (very) poor clients.

Unlike microbanks, however, the for-profit focus of cooperatives and moneylenders does not reduce their capacity to serve the poor. The average loan size of cooperatives remains reasonably small and, hence, accessible to the poor. Similarly, moneylenders can maintain profitable operations, while serving the poor. Given the small size of loans provided by moneylenders, a trade-off does not exist between the profitability focus and outreach of informal MFIs in the survey area. These MFIs can maintain profitable operations by linking their loans with the social networks of the poor. This indicates that, for semi-formal and informal MFIs, the utilisation of social capital can help overcome a trade-off between a profitability focus and the outreach to the poor. This finding supports *Sub-hypothesis* H_{3B}, that semi-formal and informal MFIs are capable of serving the (very) poor clients, while maintaining profitable operations.

Using a logit model, we have examined *Hypothesis* H_4, that microfinance contributes to the improvement of the welfare of the poor. As well as income, access to formal loans statistically increases the probability of having children with higher levels of education *(Sub-hypothesis* H_{4A}*)*. The access to formal loans also reduces the probability of household financial problems. This is the case as loans can help to support production, enhancing the capacity of the poor to cope with financial problems. This finding thus supports *Sub-hypothesis* H_{4B}, that access to microfinance services can reduce the probability of facing household financial difficulties. However, borrowing from moneylenders statistically increases the likelihood of having household financial problems. This is particularly associated with intensive repayments of loans to moneylenders. Loans from moneylenders are also often used by the poor for consumption purposes, and hence have low income-generating effects.

Similarly, access to microfinance services can enhance the self-confidence of the poor in dealing with other people. This study shows that the poor with access to formal loans tend to have a greater probability of being confident in dealing with others. Hence, it can be concluded that microfinance plays a role in enhancing the self-confidence of the poor dealing with other people *(Sub-hypothesis* H_{4C}*)*. However, loans from

moneylenders do not statistically affect confidence in dealing with others. This is not surprising as such loans are often used to finance consumption, and fail to increase the production and income of the poor. Moreover, this study also identifies that membership in business associations can enhance confidence in dealing with others. Being involved in such associations, the poor can learn communication skills from their business associates, leading to more confidence in dealing with others. This indicates that the utilisation of social capital in the form of business networks can enhance confidence of the poor in dealing with other people.

CHAPTER EIGHT
CONCLUSION AND IMPLICATION

8.1 INTRODUCTION

The present study has investigated microfinance in relation to market segmentation, social capital, operational contradictions, and welfare impacts of microfinance on the rural poor in Boyolali in the Central Java province of Indonesia. This concluding chapter brings together the main findings of each chapter of the thesis, and relates them to the underlying issues of this study. The next section of this chapter presents a summary of the main findings of this study. It encompasses assessments of the interplay between social capital and microfinance, the profitability–outreach nexus, and the impact of microfinance on the welfare of the poor. Lastly, we present policy implications drawn from this study, which support the pro-poor development of microfinance in Indonesia.

8.2 SUMMARY OF FINDINGS

The central thesis of the present study is that microfinance is a complex phenomenon that links financial intermediaries to the socioeconomic activities of poor clients. To comprehend the complexity of microfinance operations, four important aspects of microfinance were sequentially examined in this study: market segmentation, social capital, the profitability–outreach nexus, and the welfare impact of microfinance on the poor.

Market segmentation of microfinance is closely analysed because we propose that diverse MFIs have different capabilities to overcome informational and enforcement problems in lending to the poor. In this thesis, microfinance markets are segmented as formal MFIs prefer to serve non-poor clients, while informal MFIs penetrate lower-market segments of the poor. Microbanks are often reluctant to serve the poor because their business operations are socially far from the poor, and hence fail to overcome informational problems of lending. In contrast, moneylenders can reduce informational problems in lending to the poor because they exist and operate within the same social networks. Furthermore, the complexity of microfinance operations is also because the behaviour of lenders and borrowers often goes beyond utility or profit maximisation, efficiency and competition. Instead, elements of social capital, such as friendship and kinship networks, underpin lending and borrowing decisions among MFIs and their clients. This thesis thus closely examined the extent to which social capital affects lending decisions across different MFIs. From the perspectives of clients, this thesis examined the extent to which

poor people utilise their social capital, such as kinship, friendship and business networks to access microfinance services from MFIs.

Moreover, considering the importance of social aspects of microfinance, this thesis investigated the relationship between the profit-oriented focus of MFIs and their ability to reach the poor. For instance, the profit-oriented focus leads microbanks to increase the size of their loans, and become unwilling to serve the poor. This is the case as managing small loans imposes higher risks of loan default to microbanks. In contrast, moneylenders and cooperatives can maintain profitable operations, while serving the poor. These MFIs can overcome informational problems in managing small loans through delivering kinship and friendship-based loans to the poor. Thus, the utilisation of social capital has the potential to produce a trade-off between the profitability focus and outreach of MFIs to serve the poor.

It is said that MFIs can play the role in reducing poverty if their microfinance services can have the welfare impacts on the poor. Considering poverty as a deprivation of not only physical and human capital but also social capital, this thesis investigate the extent to which access to microfinance can lead to higher levels of child education, greater confidence in dealing with other people and reducing the frequency of facing household financial problems. Here, the probability of having higher levels of child education indicates access to a better quality of human capital, while the reduction in the probability of facing financial problems shows the extent to which access to microfinance can lead the poor to cope with financial problems due to low income and their vulnerability toward external disturbance, such as sickness and natural disasters. Furthermore, a greater self-confidence of the poor in dealing with others indicates the capability to improve their social capital through enhancing social and business networks.

Regarding the four important aspects of microfinance described above, in Chapter 2 we reviewed the literature on the institutional and social characteristics of the microfinance industry. Previous studies narrowly define microfinance as lending practices to the poor (e.g., Lashley 2004; Hubka and Saidi 2004; Schreiner 2004). In this study, however, microfinance goes beyond traditional banking services to include building social capital of the poor. Social intermediation is concerned with the successful performance of informal MFIs, such as reciprocal lending among the poor, ROSCAs and moneylenders. We thus recognise that the heterogeneous characteristics of clients and institutions being an important aspect in this study. This heterogeneous nature of microfinance clients causes MFIs to face informational and enforcement problems. Because different MFIs do not have the same ability to overcome such problems the microfinance industry is highly segmented. Thus this study examines

Hypothesis H_1, that the heterogeneous characteristics of clients and institutions lead to market segmentation in microfinance.

Chapter 2 also critically reviewed the literature on the extent to which social capital affects microfinance practices and access of the poor to finance. Social capital, it has been argued, can affect financial performance, as lending on the basis of social collateral may assist MFIs to overcome informational and enforcement problems. From the demand side, social capital in the form of kinships, and social and business networks may contribute to greater access of the poor to microfinance. This is the case as relatives, friends and community leaders can help the poor to gain knowledge about borrowing procedures of microbanks. The present study thus investigates *Hypothesis H_2*, that social capital is an important factor in microfinance.

Furthermore, Chapter 2 reviewed literature associated with contrasting views on microfinance commercialisation. It is argued that commercial practices can improve financial performance through encouraging MFIs to implement sound banking practices, operational efficiency and financial discipline. However, a single focus of profitability can reduce the outreach of MFIs, as they tend to increase the size of loans and become unwilling to serve the poor. In this regard, this study examines *Hypothesis H_3*, that microfinance commercialisation underpins the financial performance of MFIs, but reduces outreach to the poor. Moreover, there are also opposing views regarding the welfare impacts of microfinance on the poor. While many scholars argue that microfinance alone is unlikely to reduce poverty, others propose that microfinance contributes to the welfare of the poor. In this regard, this study examines *Hypothesis H_4*, that microfinance potentially contributes to the welfare of the poor. In so doing, we have analysed the impact of microfinance on child education, capability to cope with household financial problems, and the degree of confidence in dealing with others.

Chapter 3 outlined the research methodology utilised in this study. In order to capture and analyse the complexity of the microfinance industry, we utilise a survey through questionnaire-based interviews conducted with respondents in rural areas of the Boyolali District in Indonesia. The interviews were undertaken from June to December in 2006. A total of 231 people were surveyed, with respondents falling into the following categories: the very poor, the moderately poor, the not-so-poor, the better-off poor and the non-poor. For microfinance providers, 153 respondents of MFIs were interviewed, covering 46 microbanks, 41 cooperatives, 33 ROSCAs, and 23 moneylenders. Furthermore, various statistical methods were employed to examine the hypotheses of this study, such as percentage distribution, cross-tabulation analysis, chi-square, correlation, logit regression and ordinary least square (OLS) regression methods.

Chapter 4 shown that poverty remain a major problem in Indonesia. In order to alleviate poverty through microfinance, the government of Indonesia utilise microcredit programs to the rural poor. However, such subsidised credit schemes tend to fail for two reasons. Firstly, the policy of setting low prices for agricultural commodities, particularly rices, leads to low incomes of poor borrowers. As a result, lower incomes inhibit the ability of the poor to repay their loans, leading to high default rates of subsidised credit schemes. Secondly, the growth of agricultural sector fails to alleviate rural poverty because the development of the industrial sector has significantly reduced the size of farmland, especially in Java. The deterioration of farmland thus inhibits subsidised credit schemes from enhancing agricultural production and the income of poor borrowers.

Unlike the government's subsidised credit programs, however, other MFIs, such as ROSCAs, cooperatives, microbanks and NGOs have successfully contributed to finance the economic activities of the poor in Indonesia. Several studies argue that some microbanks (e.g., BRI-units and BPRs) can minimise default rates of lending to small enterprises activities of the poor by utilising commercial practices of microfinance operations (see Charitonenko and Afwan 2003; Robinson 2002; Patern et al. 2000; Parhusip and Seibel 2000). In Chapter 4, however, the present study argues that such commercial practices have the potential to reduce the outreach of microbanks to serve the poor. Attempts to achieve profitable operations, for instance, can limit the outreach of microbanks due to an increase in the size of their loans. Microbanks also tend to set terms and conditions of lending in favour of non-poor borrowers, such as enforcing the availability physical or monetary collateral, thus the poor are excluded. In contrast, semi-formal and informal MFIs, such as cooperatives, BKDs, ROSCAs and moneylenders, can maintain profitable operations through linking loans to the social networks of the poor. As these MFIs live and work in the same network area of the poor, they can effectively gather information about the creditworthiness of poor borrowers, thus minimising loan defaults.

Chapter 4 has shown that the microfinance industry in Indonesia encompasses a variety of formal, semi-formal and informal MFIs. Such heterogeneousness of participants in the microfinance industry implies market segmentation, as MFIs tend to have different target clients. Hence, the microfinance industry in Indonesia can be conceived of as a pyramid. At the top of the pyramid a few microbanks serve non-poor and not-so-poor clients, while at lower levels of the pyramid a large number of semi-formal and informal MFIs service the (very) poor clients.

Chapter 5 analysed *Hypothesis* H_1, that heterogeneous characteristics of MFIs underpin market segmentation. We argued that dynamic competition among MFIs in Boyolali does not result in a single equilibrium of market interest rate. Instead, various MFIs co-exist, charging different interest rates on their financial services. In the survey area, interest charged by

moneylenders is significantly higher than cooperatives, while it can be twice that of microbanks. Such interest rate disparity occurs for two reasons. Firstly, microbanks set low interest rates because they seek to avoid adverse selection problems (see also Hoff and Stiglitz 1993, 1997; Stiglitz 1990). Setting low rates of interest is the way microbanks attempt to screen creditworthy borrowers. However, when interest rates are set well bellow "market equilibrium", a supply–demand gap occurs, leading to credit–supply rationing. As a result, the poor are excluded from access to microbank loans because they are regarded as unsafe borrowers.

Secondly, the unwillingness of microbanks to serve the poor results in the excess demand in micro-lending markets. This, then, paves the way for moneylenders and cooperatives to provide small-scale loans to the poor. However, these informal MFIs tend to charge high interest rates to poor borrowers due to the high costs of managing small loans. Among others, these costs include transportation expenditure to frequently visit the homes and workplaces of the poor to collect repayments. In their attempts to maintain friendships with and retain the loyalty of poor borrowers, moneylenders are also required to incur additional costs by participating in social and religious activities. However, having close relationships with the poor can ensure repayments through the functioning of the moral values of friendship, such as mutual trust, honesty and reciprocity. This implies that lending practices linked to community networks tend to increase operational costs, leading to high rates of interest. This means that the utilisation of social capital by informal MFIs (e.g., moneylenders) tends to lead to high cost of lending to the poor. As has been elaborated further in Chapter 7, the high cost of such informal loans has a little welfare effect to the poor. However, the utilisation of community networks can minimise loan defaults by discouraging poor borrowers from behaving dishonestly. It increases the tendency of the poor to repay their loans.

In Chapter 5 we also emphasised that market segmentation in microfinance is associated with the heterogeneous characteristics of microfinance clients. The heterogeneousness of clients in the form of various motivations for utilising loans can cause MFIs to face informational problems. The use of loans is fungible, or interchangeable, because poor borrowers can utilise loans for many purposes, such as financing production, daily consumption and other social-related expenses. As a result, lending to the poor carries high costs of monitoring the uses of loans. Such costs can be significant when lending involves a large number of poor borrowers in dispersed locations. In response, although microbanks have funds to lend, they often lack effective ways of monitoring and enforcing loan contracts with the poor. Therefore, they prefer to serve the market segment of non-poor clients, who can provide good collateral and have sound business plans. In contrast, cooperatives and moneylenders can overcome informational problems of lending due to

living and working in villages. These MFIs can thus build close relationships with the local community members to access and monitor information about the creditworthiness of poor borrowers. They also link loans to the pre-existing networks of the poor by utilising community leaders, friends, neighbours or relatives as loan references. Overall, microfinance markets in the survey area are thus segmented because microbanks prefer to serve the up-market segment (non-poor clients), while moneylenders and cooperatives penetrate lower-market segments, comprising the (very) poor clients. Informal and semi-formal MFIs utilising social networks to overcome informational and enforcement problems of lending to the poor indicates the importance of social capital in microfinance practices.

Chapter 6 investigated *Hypothesis* H_2, that social capital plays an important factor in microfinance. Here, we emphasised the extent to which the elements of social capital, such as social trust, the norms of reciprocity, and kinship and friendship networks affects (1) the working of informal lending practices among the poor, (2) enhance access of the poor to microfinance, and (3) contribute to financial performance of MFIs. In this regard, three main conclusions were drawn. *Firstly,* using chi-square and correlation analyses, we showed that the willingness to provide loans to others is not strongly associated with specific characteristics of lenders, such as income, education, gender and occupation. This implies that the norms of trust, friendship and reciprocity may be considered important, because socially close lenders (e.g., relatives, neighbours and friends) expect to receive similar loans from borrowers in the future. Such moral values of the community are considered above individual self-interest as lending contracts carry zero or very low interest rates, and require no physical or monetary collateral. From the borrowers' side, Chapter 6 revealed that the specific characteristics of borrowers (e.g., income, gender and education) are not the major reason for the willingness to make in-time repayment of loans to relatives, neighbours and friends. This implies that the moral values of the community (e.g., trust, friendships and reciprocity) may be considered more important than the individual characteristics of borrowers. In rural communities, disregarding the moral values of the community can result in gossip, harming one's reputation within the community.

Secondly, using a logit model, Chapter 6 concluded that memberships in business associations, kinship and familial relationships can reduce the probability of facing credit rationing from formal MFIs. This implies that social capital in the form of kinship, business and social networks has the potential to increase the access of the poor to microfinance. Maintaining kinship relationships, for instance, can help the poor to obtain microbank loans through the role of relatives who act as loan co-signatories or witnesses. Social and business networks enable the poor to access

microbank loans as they can gain knowledge about banking procedures from friends and business associates.

Thirdly, Chapter 6 concluded that social capital contributes to the lending performance of MFIs. As Chapter 6 showed, MFIs that consider the importance of social capital in lending decisions tend to have higher rates of loan repayment. Because for formal MFIs are operationally far from the social networks of the poor, they are required to set innovative lending contracts on the basis of social capital, such as linking loans to the social networks of poor borrowers. Such innovations include lending provisions with the support of community leaders, group lending methods, and joint-liability loans between husband and wife. Overall, we conclude *Hypothesis* H_2, that social capital plays an important role in microfinance practices. From the perspectives of lenders, social capital in the forms of linking loans with social and kinship networks of clients have the potential to increase financial performance of MFIs. However, the utilisation of social capital by informal MFIs (e.g., moneylenders) tends to result in high cost of lending, and thus imposing high interest rates on the poor. In contrast, the utilisation of social capital by formal MFIs, such as microbanks does not result in high cost of lending. This is the case as such MFIs interlink loans with support from community leaders, and undertake joint-liabilities methods between husband and wife.

From the perspective of clients, the utilisation of social capital can improve access of the poor to microfinance services through the role of relatives and friends as loan witness and co-signers. Social capital in the forms of dense networks of communication and interaction can also help poor people to access microfinance services through gaining knowledge of banking procedures from friends and business associates.

To be capable of reducing poverty, MFIs should accomplish the threefold objectives of maintaining operational sustainability, enhancing outreach and maximising the welfare impact of microfinance on poor people (Zeller and Meyer 2002). The sustainability objective means that microfinance practices should result in sufficient profits, so as to cover the operational costs of serving poor clients. The reason is that failure to generate profits will deteriorate capital bases, leading to the bankruptcy of MFIs. Maintaining profitability is thus critically important to achieving social outreach to the poor. Further, improving the welfare of the poor is the ultimate objective of microfinance. In this regard, Chapter 7 examined *Hypothesis* H_3, that commercialisation of MFIs increases financial performance, but reduces outreach to the poor. This chapter also examined *Hypothesis* H_4, that microfinance contributes to the improvement of the welfare of the poor.

Using chi-square analysis, Chapter 7 concluded that a trade-off does exists between the profitability and outreach objectives of microbanks. A focus on achieving profitable operations can discourage microbanks from

serving the poor. Using chi-square analyses, this chapter showed that profit-oriented microbanks tend to increase the size of loans, thus reducing their willingness to mobilise small loans to the poor. This is because the operational costs of managing small loans are significantly higher than those of servicing one large loan to a non-poor client. Overall, the profitability of formal MFIs (e.g., microbanks) tends to lead them to focus on non-poor clients, and to ignore the (very) poor clients. However, there are potential synergies between profitability and the outreach of microbanks to provide savings services to the poor. The operational profitability is vital as no-one will put faith in microbanks that are seen to be unprofitable. This study found evidence that the financial performance of BRI-units lead to the successful mobilisation of savings in the survey area. However, this study does not support the claim, as emphasised by Charitonenko and Afwan (2003), that commercialisation is the major determinant of enhancing the financial performance of formal MFIs. In this study there was no statistical evidence that the profit-oriented focus of BRI-units and BPRs results in higher profitability and loan repayment rates, compared to non-commercial microbanks, such as BKKs. The later can maintain high rates of loan repayment and profitability by linking loans to the social networks of the poor. This implies that the utilisation of social capital in the forms of lending-based social collateral, such loans with support from community leader and relatives can reduce a potential trade-off between the profitability focus and outreach to serve the poor.

However, using chi-square analysis, Chapter 7 concluded that the profitability objective of cooperatives and moneylenders can be achieved in conjunction with fulfilling their social outreach mandate. Attempts at maintaining profitability do not cause these MFIs to increase the size of their loans. Cooperatives and moneylenders can provide small loans to the poor and maintain profitable operations by utilising social capital to ensure repayments. For instance, undertaking regular visits to the homes and workplaces of poor borrowers enables moneylenders to maintain close contact and friendships with them. As a result, they can closely monitor the creditworthiness of the poor, in order to minimise loan defaults. Maintaining such friendships can also increase loan repayment rates as poor borrowers generally consider the long-term benefits of having close relationships with moneylenders. Similarly, cooperatives gain benefits from utilising social capital in the form of peer monitoring and sanctions upon loan defaulters. Recognising cooperatives as self-help institutions, cooperative members will voluntarily monitor borrowers because loan defaults can reduce their access to loans. Thus, such lending behaviours indicate the importance of social capital in reducing a trade-off between the profitability focus and outreach of informal and semiformal MFIs in serving the poor.

The last section of Chapter 7 examined *Hypothesis H_4,* that microfinance contributes to the improvement of the welfare of the poor. The emphases were given to the extent to which access to microfinance services (e.g., loans) can lead to (1) an improvement in children's education, (2) reduced the likelihood of experiencing household financial problems, and (3) enhanced self-confidence in dealing with others. In so doing, we employed a logit model. Overall, the logit model showed that access to microbank loans positively affects the likelihood of having children with higher levels of education. This is the case as access to loans enables the poor to finance expenditures related to child education. Children with higher levels of education can provide more advanced knowledge of production to their poor parents, which is vital for business expansion. Moreover, access to microbank loans can reduce the probability of facing financial difficulties. This is the case as such loans are used to support production rather than to finance consumption. An improvement in income then reduces the probability of experiencing financial difficulties. Access to microbank loans also statistically contributes to greater confidence in dealing with other people. This finding provides further evidence that the utilisation of loans for productive purposes can increase the income of the poor, thereby enhancing their confidence in dealing with others. Such enhanced confidence provides a basis for the poor to expand business and social networks, which is important for marketing their products. Thus, access to microfinance has the potential to improve social capital of the poor through their role in enhancing self-confidence in dealing with others. It is vital for the poor to develop social and business networks through interaction and communication.

However, borrowing from moneylenders tends to increase the probability of having household financial difficulties. Access to loans from moneylenders also fails to increase the likelihood of being confident in dealing with others. This implies that the poor who borrow from moneylenders have a greater probability of having financial problems, and tend to have reduced confidence in dealing with others. This is the case as loans from moneylenders are often used by the poor for consumption purposes, rather than to finance production. Loans for consumption purposes cannot reduce the likelihood of having financial problems because they have low income-generating effects. Indeed, loans-used for consumption have a greater probability of default, tarnishing the reputation of poor borrowers. This loss of reputation can then reduce self-confidence of poor borrowers in dealing with other people. This indicates that microfinance services for consumption purposes, such as loans from moneylenders, has little impacts on the improvement in social capital of the poor.

The above finding suggests a potential contradiction between the outreach objective and the welfare impact of informal loans to the poor.

Although moneylenders can fulfil their outreach objective by providing small loans to the poor, they may fail to improve the welfare of the poor. This is because loans from moneylenders are often used to finance the poor's consumption, rather than to support their production. Moreover, there is a contradiction between the profitability objective of informal MFIs and the welfare impact of the finance they provided to the poor. Moneylenders, for instance, seek to maintain profitable operations through setting high interest rates on loans. Combined with frequent loan instalments, the high interest rates of moneylenders put downward pressure on the low incomes of the poor. The for-profit focus of moneylenders, thus, potentially has a negative impact on the welfare of poor people.

8.3 IMPLICATIONS OF THE STUDY

Four lessons for microfinance practitioners, policymakers and scholars can be learned from this study. Firstly, they should recognise the institutional characteristics of microfinance. The microfinance industry does not constitute homogenous institutions; instead it comprises a variety of MFIs covering formal, semi-formal and informal providers. Each MFI has its own operational characteristics and clients. MFIs also have different capacities to overcome informational and enforcement problems. Similarly, the clients of MFIs also vary with respect to income, education, assets, gender, the degree of social networks and organisational capacity. While some poor clients can access formal and semi-formal MFIs such as microbanks, many others utilise informal finance from relatives, friends, ROSCAs and moneylenders. Poorer clients utilise microfinance services to finance not only production, but also consumption and other social-related expenses. A microfinance policy that is biased towards the development of microbanks potentially undermines MFIs' social mission of serving the poor.

Secondly, microbank policy in Indonesia should encourage the prudent operation of microbanks *and* enhance their social outreach to the poor. These two policy objectives should simultaneously be pursued. Regulations, among others, might include microbank rating criteria that value the number of poor clients being served, the value of small-scale savings and loans, and the number of village posts. Considering the high costs of managing small loans and village posts, the government could provide financial subsidies in the form of 'soft' loans or tax relief to support the operation of village posts.

Thirdly, it is vital for microfinance practitioners, such as cooperative leaders, NGOs and microbank officers, to be continually financially innovative in serving the poor. However, such innovation does not necessarily mean the creation of new financial products or methods. Instead, it could entail the adaptation of the existing business practices of informal MFIs, such as moneylenders and ROSCAs. Through informal

approaches, these informal MFIs have successfully coped with the high risks of lending to poor people. There is evidence that informal lending approaches enable informal MFIs to utilise the social networks of poor clients, leading to high repayment rates of loans. In this regard, this study suggests that microfinance practitioners consider informal approaches rather than formal borrowing procedures in dealing with the poor. These can be undertaken through frequent visits of lending officers to the homes and workplaces of poor clients to build up friendship and consumer loyalty. The benefit of having close friendships with clients is that it can generate reciprocal obligations of poor borrowers to repay their loans. Lending innovations could also include delivering loans to self-help groups of the poor, such as ROSCAs, religious associations, and other local community organisations. As has been widely recognised, lending to a group of poor people enables MFIs to utilise social capital in the form of peer pressure and sanctions to minimise the rate of loan defaults.

Fourthly, government microcredit programs should be linked to the existing networks of the rural communities, including religious organisations, self-help groups, and rural business associations. In such community organisations face-to-face interaction and community leaders can help strengthen the accountability of microcredit programs, so as to avoid corrupt practices. Furthermore, community leaders and local NGOs can be assigned to provide financial and business training, and organise group meetings and discussions, while microbanks channel microcredit programs to group members. In the long-run, such microcredit programs could perform the role of social intermediation for poor people. Social intermediation of microfinance would mean that the financial services of MFIs are delivered in conjunction with strengthening the production, human resources, and social capital (e.g., trust and wider networks) of the poor, preparing them to deal with more advanced banking practices (see Bennet 1996).

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APPENDIX 1
QUESTIONNAIRES FOR MICROFINANCE CLIENTS

MARKET SEGMENTATION, SOCIAL CAPITAL AND WELFARE–OUTREACH IN MICROFINANCE: A CASE STUDY OF INDONESIA

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STRICTLY CONFIDENTIAL

Serial Number:_____

Locations :_____/_____
Village Sub-district

Date :_____/_____/2006

Additional Notes:

_____

_____

_____

_____

I. RESPONDENT IDENTITY

I-1 Age (years) [_____]

I-2 Gender
Male 1
Female 2

I-3 Education attainment:
Non-literate 1
Literate 2
Primary school 3
Secondary school 4
High school 5
University 6

I-4 Children's Education:
Non-literate 1
Literate 2
Primary school 3
Secondary school 4
High school 5
University 6

I-5 When did you start work on the farm? [_____]
year

I-6 How much size was your farm land when you started farming? [_____m^2]

I-7 How much size is your farm land now? [_____m^2]

I-8 What is the main source of your farm income?

Farm activity	In the first year of farming	Now (2006)
1. Cropping 2. Animal breeding 3. Others: (_____)	Rp_____ Rp_____	Rp_____ Rp_____

I-9 Do you have other sources of income?

1. Yes	What is your other source of income:_____ (e.g., trading, farm labourer etc.)
2. No	

I-10 If you have enough money to save, what type of savings do you choose?
Cash under mattress and jewellery 1
Lending to relatives, friends, neighbours 2
Buying land/livestock 3
Buying durable goods (motorcycle, television, fridge etc. 4
Savings at bank/cooperative/other formal institutions 5
Others, please specify: (_____) 6

II. BORROWING AND FAMILIAL CAPITAL

II-1 How often do you regularly visit your close relative(s) (e.g., parents, parents in law, uncle, grand parents)?

Answer	Why?
1. Very often 2. Often 3.Not-so-often 4. Never	_____ _____ _____

II-2 Before you decide to borrow money from others, do you discus it with your parent(s), wife/husband, and children?

Answer	Why?
1. Yes 2. No	_____ _____

II-3 If you have financial problems, does your close relative(s) lend money to you?

Very often 1
Often 2
Not-so-often 3
Never 4

II-4 How often do you lend money to your close relative(s)?

Very often 1
Often 2
Not-so-often 3
Never 4

II-5 Do your relative(s) help you obtain credit from other MFIs (e.g., moneylenders, credit cooperative, micro bank etc.)?

	What is their role? (Circle all appropriate Codes)
1. Yes 2. No	1. Providing information 2. Introducing to lender/lending officers 3. Help to fill out loan application 4. Being loan witness or guarantor 5. Others: (_____)

III. BORROWING AND SOCIAL CAPITAL

III-1 Within the last five years, have you obtained loans from any the following institution?

Type of Lender		What is the purpose of your borrowing?
1. Relatives (parents, uncle, grandparents etc.)	1. Yes 2. No	1. Working capital 4. Child education 2. Buying land/house 5. Medication. 3. Weeding finance 6. Repay other loans 7 Other: (_____)
2. Friends and neighbours	1. Yes 2. No	1. Working capital 4. Child education 2. Buying land/house 5. Medication. 3. Weeding finance 6. Repay other loans 7 Other: (_____)
3. Business partners	1. Yes 2. No	1. Working capital 4. Child education 2. Buying land/house 5. Medication. 3. Weeding finance 6. Repay other loans 7 Other: (_____)

III-2 How often do you repay the loans on time?

	Why?
1. Very Often 2. Often 3. Not-so-often 4. Never	_____ _____ _____

III-3 How often do you lend money to your friend, neighbours and business partners?

	Why?
1. Very Often 2. Often 3. Not-so-often 4. Never	_____ _____ _____

III-4 Within the last five years, have you obtained loan from moneylender(s)?

	What is the purpose of your borrowing?
1. Yes	1. Working capital 4. Child education 2. Buying land/house 5. Medication. 3. Weeding finance 6. Repay other loans 7. Other:
2. No	(_____) If 'No' go to Q III-9.

III-5 Before you obtain loan, do you personally know the lender? Yes 1
No 2

III-6 If 'No' to Q III-5, who did introduce you to the lender(s)?

Relatives 1
Neighbours 2
Friend/business partners 3
Community leaders 4
Other, please specify: (_____) 5

III-7 How often do you repay the loans on time?

	Why?
1. Very Often 2. Often 3. Not-so-often 4. Never	_____ _____ _____

III-8 How often do you regularly meet the lender?

Every day 1
Weekly 2
Monthly 3

III-9 Within the last five years, have you obtained loan from cooperative(s)?

	What is the purpose of your borrowing?	
1. Yes	1. Working capital 2. Buying land/house 3. Weeding finance	4. Child education 5. Medication. 6. Repay other loans 7. Other:
2. No	(_____) If 'No' go to Q III-12.	

III-10 How often do you repay loans from cooperative on time?

	Why?
1. Very Often 2. Often 3. Not-so-often 4. Never	_____ _____ _____

III-11 How often do you regularly meet cooperative official(s)?

Every day 1
Weekly 2
Monthly 3

III-12 Within the last five years, have you obtained loan from bank(s)?

	What is the purpose of your borrowing?	
1. Yes	1. Working capital 2. Buying land/house 3. Weeding finance	4. Child education 5. Medication. 6. Repay other loans 7. Other:
2. No	(_____) If 'No' go to Q III-17.	

III-13 Before you obtain loan, do you personally know bank manager or official(s)?

Yes 1
No 2

III-14 If 'No' to Q III-5, who did introduce you to bank manager or official(s)?

Relatives 1
Neighbours 2
Friend/business partners 3
Community leaders 4
Other, please specify: (_____) 5

III-15 How often do you repay the bank loan on time?

	Why?
1. Very Often	_____
2. Often	_____
3. Not-so-often	_____
4. Never	

III-16 How often do you regularly meet the lender?

Every day 1
Weekly 2
Monthly 3

III-17 Within the last five years, have you been a member of following associations?

ROSCAs 1
Business/farm associations 2
Religious groups 3
Sport clubs 4
Political party 5
Other please specify: (_____) 6

III-18 Does your involvement in the above association(s) contribute to the performance of your enterprise?

Yes 1
No 2

III-19 Does your involvement in the above association(s) help obtain loan from others (e.g., friend, customer, moneylender, bank, etc.)?

Yes 1
No 2

IV. LENDING IMPACT ON HOUSEHOLD ACTIVITY

IV-1 Compared to the time before and after receiving the loan, how often do you have household financial problems?

Never 1
Not-so-often 2
Often 3
Very often 4

IV-2 Compared to the time before and after receiving the loan, do you think you have more confidence in dealing with other people ? (e.g., neighbours and friends)

Very confidence 1
Confidence 2
Not-so Confidence 3
Not Confidence 4

Please provide example of your answer:

_____
_____
_____

IV-3 Compared to the time before and after receiving the loan, how different is the amount of time devoted in the following activities?

Activities	Increase (75-100%)	Increase (50-75%)	Increase (15-50%)	Increase (1-15%)	Decrease
1. Social and religious activities	_____	_____	_____	_____	_____
2. Spouse's employment activities	_____	_____	_____	_____	_____
3. Spouse's social activities	_____	_____	_____	_____	_____
4. Spouse's household activities	_____	_____	_____	_____	_____

IV-4 Compared to the time before and after receiving the loan, how much is the value of your major household's assets?

Type of Assets	Current assets	Before receiving loan
1. House/Land	_____m^2/ ____ m^2	_____m^2/_____ m^2
2. Jewellery and cash under mattress	Rp_____	Rp_____
3. Durable goods (e.g, motorcycle)	Rp_____	Rp_____
4. Loans to other people	Rp_____	Rp_____
5. Other assets:_____	Rp_____	Rp_____

IV-5 Have you ever received bigger loan offer from bank or other formal institutions?

Yes 1
No 2

APPENDIX 2
QUESTIONNAIRES FOR MICROFINANCE INSTITUTIONS

MARKET SEGMENTATION, SOCIAL CAPITAL AND WELFARE-OUTREACH IN MICROFINANCE: A CASE STUDY OF INDONESIA

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STRICTLY CONFIDENTIAL

Serial Number:_____

Locations :_____/_____
Village Sub-district

Date :_____/_____/2006

Type of MFIs : _____
(e.g., microbank, cooperative, moneylenders, etc.)

Additional Notes:

_____

_____

_____

_____

I. RESPONDENT IDENTITY

I-1 Age (years) [_____]

I-2 Education attainment:

Non-literate 1
Literate 2
Primary school 3
Secondary school 4
High school 5
College/University 6

I-3 What is your official position in this lending enterprise?

Owner 1
Manager 2
Officer 3

I-4 When was this lending enterprise established [_____ /_____]
month year

I-5 What is the ownership structure of this lending enterprise?

Individual proprietor 1
Cooperative/group members 2
Local government ownership 3
Non-family (shareholder) partnership 4
NGO ownership 5
Other: please specify: (_____) 6

I-6 How many clients are your lending enterprise?

Clients	The Last Five years	Now (2006)
1. Saver	_____	_____
2. Borrower	_____	_____

I-7 What is the geographical coverage of this lending enterprise?

Within neighbours 1
Within a village 2
Within a sub-district 3
Within a district 4

I-8 What financial services do you provide to the client?

Savings only 1
Lending only 2
Savings and lending only 3
Others, please specify: (_____) 4

I-9 Do you give the priority of your financial services to women clients?

Yes 1
No 2

I-10 Do you agree that women clients have better repayment rates than men?

Strongly agree 1
Agree somewhat 2
Disagree somewhat 3
Strongly disagree 4

II. LENDING METHOD

II-1 What is the main customer of your lending?
(circle all appropriate codes)

Government/ private employee 1
Traders 2
Farmers 3
Manufacturers 4
Others, please specify: (_____) 5

II-2 What is the purpose of lending you provided to clients?

Loans for working capital 1
Loans for start-up enterprise 2
Loans for child education 3
Loans for buying lands or housing construction 4
Loans for emergency purposes (e.g., death, medication etc.) 5
Others, please specify:(_____) 6

II-3 How important is collateral for your lending decision?

Very important 1
Important 2
Not so important 3
Not important 4

II-4 If you require collaterals, what types of collateral you often require for lending?

Land and home ownership 1
Livestock and growing crop 2
Jewellery and home appliance (e.g., television, fridge, etc) 3
Motorcycle or car ownership 4
Others, please specify: (_____) 5

II-5 Do you give lending without collateral to borrowers?

Yes 1
No 2

II-6 In giving loan, do you require borrowers to have savings?

Yes 1
No 2

II-7 If 'Yes' to Q.II-6, what is the minimum amount of savings? [Rp_____]

II-8 What are the average size of loan, instalment and repayment periods of lending given to each client?

The Average Amount of Loan	Instalment period	Amount of Instalment	Regularity of Instalment
[Rp _____]	[_____times]	[Rp_____]	1. Daily 2. Weekly 3. Fortnightly 4. Monthly

II-9 How much was the minimum size of loans you provided [Rp_____]

II-10 How many days are required to disburse loan from the date of application?

[____days]

II-11 What are the main cause of borrowers to be in the arrear?

(Circle all appropriate codes)

Business/harvest failure 1
Household's financial crises due to death, and sickness 2
Borrowers have family problems, such as divorce, child problems, etc. 3
Borrowers send their children to university 4
Borrowers have no discipline to repay loan on time 5
Other, please specify: (_____) 6

II-12 What should you do to make the borrower repay the loan?

1. First step:_____
   _____
2. Second step:_____
   _____
3. Third step:_____
   _____

II-13 Do you regularly monitor the business performance of borrowers

Yes 1
No 2

II-14 If 'YES' to Q.II-13, how do you monitor the business performance of borrowers?

Regularly visit home and work place of borrowers 1
Gathering information from immediate relatives of borrower 2
Gathering information from friends, and neighbours of borrower 3
Gathering information from community leaders of borrowers 4
Administratively screen asset and financial record of borrowers 5
Others, please specify: (_____) 6

III. LENDING AND FAMILIAL CAPITAL

III-1 In providing loans, how important does the borrower have an agreement from his/her immediate family?

1. Very important 2. Important 3. Not-so-important 4. Not important	Reason:_____ _____ _____

III-2 In your experience, do you believe that family stability of borrowers contribute to their ability to repay loans on time?

1. Strongly agree 2. Agree 3. Agree somewhat 4. Disagree 5. Strongly disagree	Reason:_____ _____ _____ _____

III-3 How do you gather information about the family stability of borrowers?

Visiting immediate relatives of borrowers 1
Visiting friends, and neighbours of borrowers 2
Visiting community leaders of borrowers 3
Other, please specify: (_____) 4

IV. LENDING AND SOCIAL CAPITAL

IV-1 Did you personally know borrowers, before you lend money to them?

All of them 1
Most of them 2
Few of them 3
None 4

IV-2 How important is having a close-personal relationship with borrowers?

1. Very important 2. Important 3. Not-so-important 4. Not important	Reason:_____ _____ _____

IV-3 How can you develop and maintain close-personal relationship with borrowers?

Regularly visit borrowers' home or workplace 1
Frequent attendances to borrowers' social/personal events 2
Having the same social (e.g., religious and ethnic) clubs with borrowers 3
Having small conversation with borrower during loan instalments 4
Other, please specify: (_____) 5

IV-4 Does a close-personal relationship with borrowers contribute to loan repayment?

1. Strongly agree 2. Agree 3. Agree somewhat 4. Disagree	Reason:_____ _____ _____ _____

IV-5 Does have a close friendship with borrowers being equally important as physical collateral in encouraging repayment?

1. Strongly agree 2. Agree 3. Agree somewhat 4. Disagree	Reason:_____ _____ _____ _____

IV-6 How important does the borrower have an agreement from community leaders?

1. Very important 2. Important 3. Not-so-important 4. Not important	Reason:_____ _____ _____

IV-7 Does the agreement from the community leaders contribute to loan repayment?

1. Strongly agree 2. Agree 3. Agree somewhat 4. Disagree	Reason:_____ _____ _____ _____

IV-8 Do you link lending with other trade agreements (e.g., agriculture products)?

1. Yes	Reason:_____
2. No	Reason:_____

V. LENDING PERFORMANCE

V-1 Have you ever obtained any assistance from government or other donors?

1. Yes	Type of Assistances:_____
2. No	

V-2 How much was the repayment rate per year of this lending enterprise?

The Last Five years	Now (2006)
1. 90 – 100%	1. 90 – 100%
2. 80 – 90%	2. 80 – 90%
3. 70 – 90%	3. 70 – 90%
4. 60 – 70%	4. 60 – 70%
5. 50 – 60%	5. 50 – 60%
6. 40 – 50%	6. 40 – 50%
7. 30 – 40%	7. 30 – 40%
8. 20 – 30%	8. 20 – 30%
9. 10 – 20%	9. 10 – 20%
8. 0 – 10%	8. 0 – 10%

V-3 Within the last five years, how is the profitability of this lending enterprise?

Significantly increase 1
Slightly increase 2
Stable 3
Slightly decrease 4
Significantly decrease 5

V-4 Is profitability being the main objective of your lending operations? Yes 1
No 2

V-5, If 'No' to Q.V-4, what is the main objective of this lending enterprise?

_____
_____
_____

V-6 Do you agree that focusing more on profitability of your lending operation leads to the change in the targeted clients from poor to non-poor clients?

1. Strongly agree 2. Agree 3. Agree somewhat 4. Disagree	Reason:_____ _____ _____ _____

IV-7 How is the financial intermediary performance of your lending institution?

	In the last five years	Now (2006)
1. Loan portfolio	Rp_____	Rp_____
2. Savings mobilization	Rp_____	Rp_____

IV-8 How many staff are in this lending enterprise, based on their education attainment?

Education Attainment	In the last five years	Now (2006)
1. Bachelor degree	_____	_____
2. Diploma degree	_____	_____
3. High school	_____	_____
4. Secondary school	_____	_____
5. Primary School		
Total		

IV-9 How many staff live in the village where this MFI operates? [_____]

APPENDIX 3
THE SUMMARY OF STATISTICAL ANALYSES OF THIS STUDY

1. Chi-Square and Correlation Analyses of the Willingness to Make in-time Repayment of Loan to Relatives, Neighbours and Friends

Case Processing Summary

Variable	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
1. Income	231	100,0%	0	,0%	231	100,0%
2. Gender	231	100,0%	0	,0%	231	100,0%
3. Occupation	231	100,0%	0	,0%	231	100,0%
4. Education	231	100,0%	0	,0%	231	100,0%
5. Age	231	100,0%	0	,0%	231	100,0%

1.1 Chi-Square and Correlation between the Variable of Income and the Willingness to Make In-time Repayment of loan to relatives, neighbours and friends

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	54,174[a]	24	,000
Likelihood Ratio	57,413	24	,000
Linear-by-Linear Association	20,363	1	,000
N of Valid Cases	231		

a. 20 cells (55,6%) have expected count less than 5. The minimum expected count is ,51.

Symmetric Measures

		Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Interval by Interval	Pearson's R	,298	,063	4,716	,000[c]
Ordinal by Ordinal	Spearman Correlation	,338	,061	5,429	,000[c]
N of Valid Cases		231			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

1.2 Chi-Square and Correlation between the Variable of Gender and the Willingness to Make In-time Repayment of loan to relatives, neighbours and friends

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	4,768[a]	3	,190
Likelihood Ratio	4,672	3	,197
Linear-by-Linear Association	4,635	1	,031
N of Valid Cases	231		

a. 1 cells (12,5%) have expected count less than 5. The minimum expected count is 3,60.

Symmetric Measures

		Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Interval by Interval	Pearson's R	-,142	,066	-2,170	,031[c]
Ordinal by Ordinal	Spearman Correlation	-,136	,065	-2,081	,039[c]
N of Valid Cases		231			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

1.3 Chi-Square and Correlation between the Variable of Occupation and the Willingness to Make In-time Repayment of loan to relatives, neighbours and friends

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	6,045[a]	9	,735
Likelihood Ratio	6,120	9	,728
Linear-by-Linear Association	2,025	1	,155
N of Valid Cases	231		

a. 4 cells (25,0%) have expected count less than 5. The minimum expected count is 1,52.

Symmetric Measures

		Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Interval by Interval	Pearson's R	-,094	,064	-1,426	,155[c]
Ordinal by Ordinal	Spearman Correlation	-,117	,064	-1,779	,077[c]
N of Valid Cases		231			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

1.4 Chi-Square and Correlation between the Variable of Education and the Willingness to Make In-time Repayment of loan to relatives, neighbours and friends

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	25,490[a]	12	,013
Likelihood Ratio	23,085	12	,027
Linear-by-Linear Association	5,619	1	,018
N of Valid Cases	231		

a. 7 cells (35,0%) have expected count less than 5. The minimum expected count is ,45.

Symmetric Measures

		Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Interval by Interval	Pearson's R	,156	,065	2,395	,017[c]
Ordinal by Ordinal	Spearman Correlation	,163	,066	2,496	,013[c]
N of Valid Cases		231			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

1.5 Chi-Square and Correlation between the Variable of Age and the willingness to Make In-time Repayment of loan to relatives, neighbours and friends

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	136,845[a]	129	,301
Likelihood Ratio	135,747	129	,325
Linear-by-Linear Association	,262	1	,609
N of Valid Cases	231		

a. 168 cells (95,5%) have expected count less than 5. The minimum expected count is ,06.

Symmetric Measures

		Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Interval by Interval	Pearson's R	-,034	,071	-,511	,610[c]
Ordinal by Ordinal	Spearman Correlation	-,018	,069	-,275	,783[c]
N of Valid Cases		231			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

2. Chi-Square and Correlation Analyses of the Willingness to Provide Loans to Relatives

2.1. Chi-Square and Correlation Analyses between the Variable of Income and the Willingness to Provide Loans to Relatives

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	55,596[a]	24	,000
Likelihood Ratio	52,039	24	,001
Linear-by-Linear Association	16,058	1	,000
N of Valid Cases	231		

a. 22 cells (61,1%) have expected count less than 5. The minimum expected count is ,94.

Symmetric Measures

		Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Interval by Interval	Pearson's R	,264	,065	4,146	,000[c]
Ordinal by Ordinal	Spearman Correlation	,236	,066	3,682	,000[c]
N of Valid Cases		231			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

2.2 Chi-Square and Correlation Analyses between the Variable of Gender and the Willingness to Provide Loans to Relatives

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	1,173[a]	3	,759
Likelihood Ratio	1,163	3	,762
Linear-by-Linear Association	,000	1	,993
N of Valid Cases	231		

a. 0 cells (,0%) have expected count less than 5. The minimum expected count is 6,65.

Symmetric Measures

		Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Interval by Interval	Pearson's R	,001	,068	,009	,993[c]
Ordinal by Ordinal	Spearman Correlation	,002	,068	,025	,980[c]
N of Valid Cases		231			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

2.3 Chi-Square and Correlation Analyses between the Variable of Occupation and the Willingness to Provide Loans to Relatives

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	20,165[a]	9	,017
Likelihood Ratio	20,116	9	,017
Linear-by-Linear Association	1,485	1	,223
N of Valid Cases	231		

a. 3 cells (18,8%) have expected count less than 5. The minimum expected count is 2,81.

Symmetric Measures

		Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Interval by Interval	Pearson's R	-,080	,066	-1,220	,224[c]
Ordinal by Ordinal	Spearman Correlation	-,094	,066	-1,428	,155[c]
N of Valid Cases		231			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

2.4 Chi-Square and Correlation Analyses between the Variable of Education and the Willingness to Provide Loans to Relatives

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	12,352[a]	12	,418
Likelihood Ratio	14,425	12	,274
Linear-by-Linear Association	,607	1	,436
N of Valid Cases	231		

a. 6 cells (30,0%) have expected count less than 5. The minimum expected count is ,83.

Symmetric Measures

		Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Interval by Interval	Pearson's R	,051	,063	,779	,437[c]
Ordinal by Ordinal	Spearman Correlation	,039	,065	,588	,557[c]
N of Valid Cases		231			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

2.5 Chi-Square and Correlation Analyses between the Variable of Age and the Willingness to Provide Loans to Relatives

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	124,560[a]	129	,594
Likelihood Ratio	133,961	129	,365
Linear-by-Linear Association	1,810	1	,179
N of Valid Cases	231		

a. 168 cells (95,5%) have expected count less than 5. The minimum expected count is ,10.

Symmetric Measures

		Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Interval by Interval	Pearson's R	-,089	,067	-1,348	,179[c]
Ordinal by Ordinal	Spearman Correlation	-,059	,068	-,902	,368[c]
N of Valid Cases		231			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

3. Chi-Square and Correlation Analyses of the Willingness to Provide Loans to Neighbour and Friends

3.1 Chi-Square and Correlation Analyses between the Variable of Income and the Willingness to Provide Loans to Neighbours and Friends

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	62,562[a]	24	,000
Likelihood Ratio	59,867	24	,000
Linear-by-Linear Association	22,337	1	,000
N of Valid Cases	231		

a. 20 cells (55,6%) have expected count less than 5. The minimum expected count is 1,09.

Symmetric Measures

		Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Interval by Interval	Pearson's R	,312	,062	4,963	,000[c]
Ordinal by Ordinal	Spearman Correlation	,305	,062	4,849	,000[c]
N of Valid Cases		231			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

3.2 Chi-Square and Correlation Analyses between the Variable of Gender and the Willingness to Provide Loans to Neighbours and Friends

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	4,162[a]	3	,244
Likelihood Ratio	3,918	3	,270
Linear-by-Linear Association	,691	1	,406
N of Valid Cases	231		

a. 0 cells (,0%) have expected count less than 5. The minimum expected count is 7,76.

Symmetric Measures

		Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Interval by Interval	Pearson's R	-,055	,068	-,831	,407[c]
Ordinal by Ordinal	Spearman Correlation	-,056	,068	-,850	,396[c]
N of Valid Cases		231			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

3.3 Chi-Square and Correlation Analyses between the Variable of Occupation and the Willingness to Provide Loans to Neighbours and Friends

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	16,756[a]	9	,053
Likelihood Ratio	22,441	9	,008
Linear-by-Linear Association	,993	1	,319
N of Valid Cases	231		

a. 2 cells (12,5%) have expected count less than 5. The minimum expected count is 3,27.

Symmetric Measures

		Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Interval by Interval	Pearson's R	-,066	,058	-,997	,320[c]
Ordinal by Ordinal	Spearman Correlation	-,053	,062	-,798	,426[c]
N of Valid Cases		231			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

3.4 Chi-Square and Correlation Analyses between the Variable of Education and the Willingness to Provide Loans to Neighbours and Friends

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	23,304[a]	12	,025
Likelihood Ratio	23,468	12	,024
Linear-by-Linear Association	,000	1	,984
N of Valid Cases	231		

a. 5 cells (25,0%) have expected count less than 5. The minimum expected count is ,97.

Symmetric Measures

		Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Interval by Interval	Pearson's R	-,001	,060	-,020	,984[c]
Ordinal by Ordinal	Spearman Correlation	,014	,061	,216	,830[c]
N of Valid Cases		231			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

3.5 Chi-Square and Correlation Analyses between the Variable of Age and the Willingness to Provide Loans to Neighbours and Friends

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	137,207[a]	129	,294
Likelihood Ratio	152,500	129	,077
Linear-by-Linear Association	,192	1	,661
N of Valid Cases	231		

a. 169 cells (96,0%) have expected count less than 5. The minimum expected count is ,12.

Symmetric Measures

		Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Interval by Interval	Pearson's R	,029	,069	,437	,662[c]
Ordinal by Ordinal	Spearman Correlation	,043	,069	,647	,518[c]
N of Valid Cases		231			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

4. Chi-Square Analysis of the Relationship between Commercialisation and Outreach of MFIs

4.1 Formal MFIs (Microbanks)

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Total Savings	46	100,0%	0	,0%	46	100,0%
Total Loan	46	100,0%	0	,0%	46	100,0%
Profitability	46	100,0%	0	,0%	46	100,0%
Repayment Rate	46	100,0%	0	,0%	46	100,0%
Average Loan Size	46	100,0%	0	,0%	46	100,0%
Minimum Loan Size	46	100,0%	0	,0%	46	100,0%
Number of Saver	46	100,0%	0	,0%	46	100,0%
Number of Borrower	46	100,0%	0	,0%	46	100,0%

4.1.1 Total savings

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	5,935[a]	5	,313
Likelihood Ratio	6,795	5	,236
Linear-by-Linear Association	1,758	1	,185
N of Valid Cases	46		

a. 10 cells (83,3%) have expected count less than 5. The minimum expected count is ,96.

4.1.2 Total Loan

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	19,945[a]	5	,001
Likelihood Ratio	24,890	5	,000
Linear-by-Linear Association	17,187	1	,000
N of Valid Cases	46		

a. 8 cells (66,7%) have expected count less than 5. The minimum expected count is ,96.

4.1.3 Profitability

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	5,880[a]	4	,208
Likelihood Ratio	6,454	4	,168
Linear-by-Linear Association	2,415	1	,120
N of Valid Cases	46		

a. 5 cells (50,0%) have expected count less than 5. The minimum expected count is ,48.

4.1.4 Repayment rate of loans

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	5,469[a]	4	,242
Likelihood Ratio	6,298	4	,178
Linear-by-Linear Association	1,005	1	,316
N of Valid Cases	46		

a. 5 cells (50,0%) have expected count less than 5. The minimum expected count is ,96.

4.1.5 Average loan size

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	20,786[a]	5	,001
Likelihood Ratio	26,785	5	,000
Linear-by-Linear Association	15,879	1	,000
N of Valid Cases	46		

a. 10 cells (83,3%) have expected count less than 5. The minimum expected count is 1,43.

4.1.6 Minimum Size of Loan

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	14,186[a]	3	,003
Likelihood Ratio	16,767	3	,001
Linear-by-Linear Association	10,233	1	,001
N of Valid Cases	46		

a. 5 cells (62,5%) have expected count less than 5. The minimum expected count is 1,91.

4.1.7 Number of Savers

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	9,598[a]	3	,022
Likelihood Ratio	10,408	3	,015
Linear-by-Linear Association	7,109	1	,008
N of Valid Cases	46		

a. 4 cells (50,0%) have expected count less than 5. The minimum expected count is ,48.

4.1.8 Number of Borrowers

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	,844[a]	3	,839
Likelihood Ratio	,853	3	,837
Linear-by-Linear Association	,637	1	,425
N of Valid Cases	46		

a. 3 cells (37,5%) have expected count less than 5. The minimum expected count is 4,30.

4.2 Semi-formal MFIs (Cooperatives)

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Total Savings	51	100,0%	0	,0%	46	100,0%
Total Loan	51	100,0%	0	,0%	46	100,0%
Profitability	51	100,0%	0	,0%	46	100,0%
Repayment Rate	51	100,0%	0	,0%	46	100,0%
Average Loan Size	51	100,0%	0	,0%	46	100,0%
Minimum Loan Size	51	100,0%	0	,0%	46	100,0%
Number of Saver	51	100,0%	0	,0%	46	100,0%
Number of Borrower	51	100,0%	0	,0%	46	100,0%

4.2.1 Total Savings

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	14,036[a]	3	,003
Likelihood Ratio	16,592	3	,001
Linear-by-Linear Association	5,901	1	,015
N of Valid Cases	51		

a. 3 cells (37,5%) have expected count less than 5. The minimum expected count is 3,00.

4.2.2 Total Loan

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	12,621[a]	3	,006
Likelihood Ratio	12,326	3	,006
Linear-by-Linear Association	7,891	1	,005
N of Valid Cases	51		

a. 3 cells (37,5%) have expected count less than 5. The minimum expected count is 2,33.

4.2.3 Profitability

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	5,871[a]	3	,118
Likelihood Ratio	7,211	3	,065
Linear-by-Linear Association	,127	1	,722
N of Valid Cases	51		

a. 5 cells (62,5%) have expected count less than 5. The minimum expected count is 1,33.

4.2.4 Repayment Rate

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	5,099[a]	3	,165
Likelihood Ratio	5,564	3	,135
Linear-by-Linear Association	,718	1	,397
N of Valid Cases	51		

a. 3 cells (37,5%) have expected count less than 5. The minimum expected count is 1,00.

4.2.5 Average Loan Size

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	8,400[a]	3	,038
Likelihood Ratio	8,649	3	,034
Linear-by-Linear Association	2,851	1	,091
N of Valid Cases	51		

a. 3 cells (37,5%) have expected count less than 5. The minimum expected count is 1,67.

4.2.6 Minimum Size of Loan

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	,919[a]	3	,821
Likelihood Ratio	,908	3	,824
Linear-by-Linear Association	,429	1	,513
N of Valid Cases	51		

a. 4 cells (50,0%) have expected count less than 5. The minimum expected count is 1,67.

4.2.7 Number of Savers

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	11,143[a]	3	,011
Likelihood Ratio	11,061	3	,011
Linear-by-Linear Association	7,940	1	,005
N of Valid Cases	51		

a. 4 cells (50,0%) have expected count less than 5. The minimum expected count is 2,33.

4.2.8 Number of Borrowers

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	10,316[a]	3	,016
Likelihood Ratio	10,066	3	,018
Linear-by-Linear Association	4,916	1	,027
N of Valid Cases	51		

a. 3 cells (37,5%) have expected count less than 5. The minimum expected count is 3,00.

4.3 Informal MFIs

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Total Savings	56	100,0%	0	,0%	46	100,0%
Total Loan	56	100,0%	0	,0%	46	100,0%
Profitability	56	100,0%	0	,0%	46	100,0%
Repayment Rate	56	100,0%	0	,0%	46	100,0%
Average Loan Size	56	100,0%	0	,0%	46	100,0%
Minimum Loan Size	56	100,0%	0	,0%	46	100,0%
Number of Saver	56	100,0%	0	,0%	46	100,0%
Number of Borrower	56	100,0%	0	,0%	46	100,0%

4.3.1 Total Loan

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	45,454[a]	4	,000
Likelihood Ratio	56,630	4	,000
Linear-by-Linear Association	37,856	1	,000
N of Valid Cases	56		

a. 5 cells (50,0%) have expected count less than 5. The minimum expected count is 1,23.

4.3.2 Repayment Rate of Loan

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	19,641[a]	2	,000
Likelihood Ratio	23,645	2	,000
Linear-by-Linear Association	17,032	1	,000
N of Valid Cases	56		

a. 3 cells (50,0%) have expected count less than 5. The minimum expected count is ,82.

4.3.3 Profitability

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	16,559[a]	4	,002
Likelihood Ratio	19,167	4	,001
Linear-by-Linear Association	3,431	1	,064
N of Valid Cases	56		

a. 7 cells (70,0%) have expected count less than 5. The minimum expected count is 1,23.

4.3.4 Minimum Size of Loan

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	3,809[a]	3	,283
Likelihood Ratio	4,326	3	,228
Linear-by-Linear Association	,898	1	,343
N of Valid Cases	56		

a. 6 cells (75,0%) have expected count less than 5. The minimum expected count is ,41.

4.3.5 Average Loan Size

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	9,909[a]	5	,078
Likelihood Ratio	10,457	5	,063
Linear-by-Linear Association	,068	1	,794
N of Valid Cases	56		

a. 8 cells (66,7%) have expected count less than 5. The minimum expected count is 2,05.

4.3.6 Number of Borrowers

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	16,841[a]	3	,001
Likelihood Ratio	19,898	3	,000
Linear-by-Linear Association	9,547	1	,002
N of Valid Cases	56		

a. 4 cells (50,0%) have expected count less than 5. The minimum expected count is ,82.

5. Determinant of Borrowing from Various MFIs

5.1 Logit Estimation of Borrowing from Relatives

```
LOGIT ANALYSIS     DEPENDENT VARIABLE =BORELTIV CHOICES =  2
      231. TOTAL OBSERVATIONS
      181. OBSERVATIONS AT ONE
       50. OBSERVATIONS AT ZERO
   25 MAXIMUM ITERATIONS
 CONVERGENCE TOLERANCE =0.00100
 ELASTICITIES ASSUME LOG-TRANSFORMED VARIABLES
                                ASYMPTOTIC                          WEIGHTED
 VARIABLE    ESTIMATED      STANDARD     T-RATIO    ELASTICITY      AGGREGATE
   NAME     COEFFICIENT       ERROR                  AT MEANS      ELASTICITY
 CHILDEDU     -0.16782      0.18375     -0.91330     -0.34544E-01 -0.34965E-01
 LINCOME      -0.45781      0.28466      -1.6083     -0.94234E-01 -0.95383E-01
 LASET         0.13538E-03  0.38409E-01  0.35248E-02  0.27867E-04  0.28206E-04
 VISIT         0.29479      0.21803       1.3521      0.60678E-01  0.61418E-01
 ROSCA         0.23639      0.70599      0.33484      0.48658E-01  0.49252E-01
 BASOC         0.26933      0.35638      0.75575      0.55439E-01  0.56115E-01
 FLEN2R        0.28551      0.21417       1.3331      0.58768E-01  0.59485E-01
 CONSTANT       6.4425       3.7810       1.7039       1.3261       1.3423

 LOG-LIKELIHOOD FUNCTION =  -116.38
 LOG-LIKELIHOOD(0)  =   -120.67
 LIKELIHOOD RATIO TEST  =    8.58049    WITH     7  D.F.
 ESTRELLA R-SQUARE           0.37115E-01
 MADDALA R-SQUARE            0.36464E-01
 CRAGG-UHLER R-SQUARE        0.56252E-01
 MCFADDEN R-SQUARE           0.35554E-01
      ADJUSTED FOR DEGREES OF FREEDOM        0.52796E-02
      APPROXIMATELY F-DISTRIBUTED    0.42131E-01  WITH    7  AND     8  D.F.
 CHOW R-SQUARE               0.33005E-01
          PREDICTION SUCCESS TABLE
                        ACTUAL
                  0             1
           0      0.            0.
 PREDICTED 1     50.          181.
 NUMBER OF RIGHT PREDICTIONS =        181.
 PERCENTAGE OF RIGHT PREDICTIONS =    0.78355
 NAIVE MODEL PERCENTAGE OF RIGHT PREDICTIONS =    0.78355
 EXPECTED OBSERVATIONS AT 0  =         50.0   OBSERVED =     50.0
 EXPECTED OBSERVATIONS AT 1  =        181.0   OBSERVED =    181.0
 SUM OF SQUARED "RESIDUALS" =           37.884
 WEIGHTED SUM OF SQUARED "RESIDUALS" =     227.16
 HENSHER-JOHNSON PREDICTION SUCCESS TABLE
                                              OBSERVED    OBSERVED
                     PREDICTED  CHOICE         COUNT       SHARE
         ACTUAL           0          1
            0          12.202     37.798      50.000      0.216
            1          37.798    143.202     181.000      0.784

 PREDICTED COUNT       50.000    181.000     231.000      1.000
```

```
PREDICTED SHARE          0.216      0.784      1.000
PROP. SUCCESSFUL         0.244      0.791      0.673
SUCCESS INDEX            0.028      0.008      0.012
PROPORTIONAL ERROR       0.000      0.000
NORMALIZED SUCCESS INDEX                       0.035
```

Heteroskedasticity Analysis:

```
REQUIRED MEMORY IS PAR=     152 CURRENT PAR=    2000
DEPENDENT VARIABLE = BORELTIV       231 OBSERVATIONS
REGRESSION COEFFICIENTS
 -0.167821791423     -0.457812101872      0.135382805608E-03  0.294786585149
  0.236392726669      0.269334292521      0.285508246562       6.44253699771



HETEROSKEDASTICITY TESTS
                            CHI-SQUARE     D.F.   P-VALUE
                          TEST STATISTIC
E**2 ON YHAT:                   107.737     1    0.00000
E**2 ON YHAT**2:                 64.016     1    0.00000
E**2 ON LOG(YHAT**2):            63.964     1    0.00000
E**2 ON LAG(E**2) ARCH TEST:      3.643     1    0.05630
LOG(E**2) ON X (HARVEY) TEST:    31.298     7    0.00005
E**2 ON X                 TEST:
          KOENKER(R2):          220.659     7    0.00000
```

5.2 Logit Estimation of Borrowing from Neighbours (BNeighbor)

```
LOGIT ANALYSIS     DEPENDENT VARIABLE =BNEGHBOR CHOICES =  2
      231. TOTAL OBSERVATIONS
      160. OBSERVATIONS AT ONE
       71. OBSERVATIONS AT ZERO
   25 MAXIMUM ITERATIONS
 CONVERGENCE TOLERANCE =0.00100
 ELASTICITIES ASSUME LOG-TRANSFORMED VARIABLES
                                ASYMPTOTIC                          WEIGHTED
 VARIABLE    ESTIMATED      STANDARD     T-RATIO    ELASTICITY      AGGREGATE
   NAME     COEFFICIENT       ERROR                 AT MEANS      ELASTICITY
 CHILDEDU     -0.50321      0.17890      -2.8129     -0.13580     -0.12830
 LINCOME      -0.81496      0.27583      -2.9546     -0.21994     -0.20779
 LASET        -0.21278E-01  0.39358E-01 -0.54062     -0.57424E-02 -0.54252E-02
 VISIT        -0.29133      0.21311      -1.3670     -0.78622E-01 -0.74279E-01
 ROSCA         0.35098      0.65239      0.53799      0.94721E-01  0.89489E-01
 BASOC         0.96605      0.35520       2.7197      0.26071      0.24631
 LEN2NF        0.37579      0.18478       2.0338      0.10142      0.95814E-01
 CONSTANT       13.742       3.7853       3.6305       3.7087       3.5039

 LOG-LIKELIHOOD FUNCTION =  -122.09
 LOG-LIKELIHOOD(0)  =   -142.52
 LIKELIHOOD RATIO TEST  =    40.8648    WITH     7  D.F.
 ESTRELLA R-SQUARE           0.17382
 MADDALA R-SQUARE            0.16214
 CRAGG-UHLER R-SQUARE        0.22873
 MCFADDEN R-SQUARE           0.14336
     ADJUSTED FOR DEGREES OF FREEDOM       0.11647
     APPROXIMATELY F-DISTRIBUTED    0.19127      WITH       7  AND     8  D.F.
 CHOW R-SQUARE              0.16037
          PREDICTION SUCCESS TABLE
                      ACTUAL
                  0             1
           0     25.           15.
 PREDICTED 1     46.          145.

 NUMBER OF RIGHT PREDICTIONS =        170.
 PERCENTAGE OF RIGHT PREDICTIONS =    0.73593
 NAIVE MODEL PERCENTAGE OF RIGHT PREDICTIONS =    0.69264
 EXPECTED OBSERVATIONS AT 0  =         71.0   OBSERVED =     71.0
 EXPECTED OBSERVATIONS AT 1  =        160.0   OBSERVED =    160.0
```

```
SUM OF SQUARED "RESIDUALS" =           41.291
WEIGHTED SUM OF SQUARED "RESIDUALS" =     219.95
HENSHER-JOHNSON PREDICTION SUCCESS TABLE
                                                 OBSERVED    OBSERVED
                     PREDICTED  CHOICE             COUNT       SHARE
        ACTUAL           0          1
           0          29.957     41.043     71.000      0.307
           1          41.043    118.957    160.000      0.693

PREDICTED COUNT       71.000    160.000    231.000      1.000
PREDICTED SHARE        0.307      0.693      1.000
PROP. SUCCESSFUL       0.422      0.743      0.645
SUCCESS INDEX          0.115      0.051      0.070
PROPORTIONAL ERROR     0.000      0.000
NORMALIZED SUCCESS INDEX                     0.165
```

Heteroskedasticity Analysis:

```
REQUIRED MEMORY IS PAR=     152 CURRENT PAR=    2000
DEPENDENT VARIABLE = BNEGHBOR       231 OBSERVATIONS
REGRESSION COEFFICIENTS
 -0.503212185665     -0.814964879078     -0.212777550571E-01 -0.291325595432
  0.350979503451      0.966053772629      0.375786648437       13.7423744554
HETEROSKEDASTICITY TESTS
                             CHI-SQUARE     D.F.   P-VALUE
                           TEST STATISTIC
E**2 ON YHAT:                    136.541     1    0.00000
E**2 ON YHAT**2:                 121.992     1    0.00000
E**2 ON LOG(YHAT**2):             46.432     1    0.00000
E**2 ON LAG(E**2) ARCH TEST:       4.118     1    0.04243
LOG(E**2) ON X (HARVEY) TEST:    131.661     7    0.00000
E**2 ON X               TEST:
          KOENKER(R2):           166.550     7    0.00000
```

5.3 Logit Estimation of Borrowing from Friends (BFriend)

```
LOGIT ANALYSIS     DEPENDENT VARIABLE =BFRIEND  CHOICES =  2
      231. TOTAL OBSERVATIONS
      176. OBSERVATIONS AT ONE
       55. OBSERVATIONS AT ZERO
   25 MAXIMUM ITERATIONS
 CONVERGENCE TOLERANCE =0.00100

 ELASTICITIES ASSUME LOG-TRANSFORMED VARIABLES

                                ASYMPTOTIC                          WEIGHTED
 VARIABLE    ESTIMATED      STANDARD     T-RATIO    ELASTICITY      AGGREGATE
   NAME     COEFFICIENT       ERROR                  AT MEANS      ELASTICITY
 CHILDEDU      0.25390      0.18053       1.4064      0.53607E-01  0.54191E-01
 LINCOME       0.26485      0.28798      0.91970      0.55920E-01  0.56529E-01
 LASET         0.47132E-01  0.32120E-01   1.4674      0.99513E-02  0.10060E-01
 VISIT         0.22572      0.22401       1.0076      0.47657E-01  0.48176E-01
 ROSCA        -0.25482E-01  0.72582     -0.35108E-01 -0.53802E-02 -0.54388E-02
 BASOC        -0.50972      0.34150      -1.4926     -0.10762     -0.10879
 FLEND2NF      0.45920      0.19579       2.3453      0.96954E-01  0.98010E-01
 CONSTANT     -5.5035       3.9134      -1.4063      -1.1620      -1.1746

 LOG-LIKELIHOOD FUNCTION =  -114.99
 LOG-LIKELIHOOD(0)  =   -126.79
 LIKELIHOOD RATIO TEST  =    23.5902    WITH     7  D.F.
 ESTRELLA R-SQUARE           0.10164
 MADDALA R-SQUARE            0.97081E-01
 CRAGG-UHLER R-SQUARE        0.14568
 MCFADDEN R-SQUARE           0.93029E-01
     ADJUSTED FOR DEGREES OF FREEDOM        0.64559E-01
     APPROXIMATELY F-DISTRIBUTED    0.11722     WITH        7  AND     8  D.F.
 CHOW R-SQUARE             0.10355
          PREDICTION SUCCESS TABLE
                       ACTUAL
                  0            1
```

```
          0      6.            5.
PREDICTED 1     49.          171.

NUMBER OF RIGHT PREDICTIONS =        177.
PERCENTAGE OF RIGHT PREDICTIONS =    0.76623
NAIVE MODEL PERCENTAGE OF RIGHT PREDICTIONS =    0.76190

EXPECTED OBSERVATIONS AT 0  =         55.0   OBSERVED =     55.0
EXPECTED OBSERVATIONS AT 1  =        176.0   OBSERVED =    176.0
SUM OF SQUARED "RESIDUALS" =           37.566
WEIGHTED SUM OF SQUARED "RESIDUALS" =     230.47
```

```
HENSHER-JOHNSON PREDICTION SUCCESS TABLE
                                                OBSERVED    OBSERVED
                    PREDICTED  CHOICE             COUNT       SHARE
        ACTUAL            0          1
           0           17.435     37.565     55.000      0.238
           1           37.565    138.435    176.000      0.762

PREDICTED COUNT        55.000    176.000    231.000      1.000
PREDICTED SHARE         0.238      0.762      1.000
PROP. SUCCESSFUL        0.317      0.787      0.675
SUCCESS INDEX           0.079      0.025      0.038
PROPORTIONAL ERROR      0.000      0.000
NORMALIZED SUCCESS INDEX                       0.104
```

Heteroskedasticity Analysis:

```
REQUIRED MEMORY IS PAR=     152 CURRENT PAR=    2000
DEPENDENT VARIABLE = BFRIEND        231 OBSERVATIONS
REGRESSION COEFFICIENTS
   0.253896520121      0.264850188803      0.471319450551E-01
0.225718509009
  -0.254822013863E-01 -0.509717411191      0.459201359747      -
5.50350610017

HETEROSKEDASTICITY TESTS
                            CHI-SQUARE     D.F.   P-VALUE
                          TEST STATISTIC
E**2 ON YHAT:                    145.456     1    0.00000
E**2 ON YHAT**2:                 132.479     1    0.00000
E**2 ON LOG(YHAT**2):             79.398     1    0.00000
E**2 ON LAG(E**2) ARCH TEST:       0.845     1    0.35790
LOG(E**2) ON X (HARVEY) TEST:     81.662     7    0.00000
ABS(E) ON X (GLEJSER) TEST:        0.000     7    0.00000
E**2 ON X                  TEST:
          KOENKER(R2):           198.646     7    0.00000
```

5.4 Logit Estimation of Borrowing from Microbank (BBank)

```
LOGIT ANALYSIS     DEPENDENT VARIABLE =BBANK    CHOICES =  2
      231. TOTAL OBSERVATIONS
      170. OBSERVATIONS AT ONE
       61. OBSERVATIONS AT ZERO
   25 MAXIMUM ITERATIONS
 CONVERGENCE TOLERANCE =0.00100
 ELASTICITIES ASSUME LOG-TRANSFORMED VARIABLES
                                ASYMPTOTIC                          WEIGHTED
 VARIABLE    ESTIMATED      STANDARD     T-RATIO    ELASTICITY      AGGREGATE
   NAME     COEFFICIENT       ERROR                  AT MEANS      ELASTICITY
 CHILDEDU      0.25374      0.22045       1.1510      0.51760E-01  0.50355E-01
 LYEAR        -0.42917      0.40860      -1.0503     -0.87544E-01 -0.85169E-01
 LINCOME       0.57285      0.33455       1.7123      0.11685      0.11368
 LASET         0.41968E-01  0.34190E-01   1.2275      0.85608E-02  0.83285E-02
 LHOUSE         1.2337      0.29288       4.2121      0.25165      0.24482
 VISIT         0.54293      0.24262       2.2377      0.11075      0.10774
 ROSCA         0.83765      0.72892       1.1492      0.17087      0.16623
 BASOC         0.73029      0.38212       1.9112      0.14897      0.14493
 CONSTANT      -16.411       4.7707      -3.4400      -3.3476      -3.2568

 LOG-LIKELIHOOD FUNCTION =  -104.48
 LOG-LIKELIHOOD(0)  =   -133.35
 LIKELIHOOD RATIO TEST  =    57.7392    WITH     8  D.F.
 ESTRELLA R-SQUARE           0.24549
 MADDALA R-SQUARE            0.22116
 CRAGG-UHLER R-SQUARE        0.32296
 MCFADDEN R-SQUARE           0.21650
      ADJUSTED FOR DEGREES OF FREEDOM        0.18826
    APPROXIMATELY F-DISTRIBUTED    0.31086      WITH      8  AND     9  D.F.
 CHOW R-SQUARE               0.23906

          PREDICTION SUCCESS TABLE
                      ACTUAL
                   0            1
            0     26.          13.
 PREDICTED  1     35.         157.

 NUMBER OF RIGHT PREDICTIONS =        183.
 PERCENTAGE OF RIGHT PREDICTIONS =    0.79221
 NAIVE MODEL PERCENTAGE OF RIGHT PREDICTIONS =    0.73593
 EXPECTED OBSERVATIONS AT 0  =         61.0   OBSERVED =     61.0
 EXPECTED OBSERVATIONS AT 1  =        170.0   OBSERVED =    170.0
 SUM OF SQUARED "RESIDUALS" =           34.160
 WEIGHTED SUM OF SQUARED "RESIDUALS" =     211.08
 HENSHER-JOHNSON PREDICTION SUCCESS TABLE
                                              OBSERVED    OBSERVED
                      PREDICTED  CHOICE         COUNT       SHARE
        ACTUAL           0          1
           0           27.052     33.948     61.000      0.264
           1           33.948    136.052    170.000      0.736

 PREDICTED COUNT        61.000    170.000    231.000      1.000
 PREDICTED SHARE         0.264      0.736      1.000
 PROP. SUCCESSFUL        0.443      0.800      0.706
 SUCCESS INDEX           0.179      0.064      0.095
 PROPORTIONAL ERROR      0.000      0.000
 NORMALIZED SUCCESS INDEX                      0.244
```

Heteroskedasticity Analysis:

```
 REQUIRED MEMORY IS PAR=     154 CURRENT PAR=    2000
 DEPENDENT VARIABLE = BBANK          231 OBSERVATIONS
 REGRESSION COEFFICIENTS
   0.253743865119    -0.429171780455     0.572852051352      0.419679582200E-01
    1.23365124511      0.542925562163      0.837646421543      0.730294190893
   -16.4111958150
HETEROSKEDASTICITY TESTS
```

```
                            CHI-SQUARE     D.F.   P-VALUE
                           TEST STATISTIC
 E**2 ON YHAT:                   148.177     1    0.00000
 E**2 ON YHAT**2:                172.974     1    0.00000
 E**2 ON LOG(YHAT**2):            90.000     1    0.00000
 E**2 ON LAG(E**2) ARCH TEST:      8.617     1    0.00333
 LOG(E**2) ON X (HARVEY) TEST:    89.390     8    0.00000
 ABS(E) ON X (GLEJSER) TEST:       0.000     8    0.00000
 E**2 ON X                TEST:
          KOENKER(R2):           164.563     8    0.00000
```

5.5 Logit Estimation of Borrowing from Cooperatives (BCoop)

```
LOGIT ANALYSIS     DEPENDENT VARIABLE =BCOOP    CHOICES =  2
      231. TOTAL OBSERVATIONS
      147. OBSERVATIONS AT ONE
       84. OBSERVATIONS AT ZERO
   25 MAXIMUM ITERATIONS
ELASTICITIES ASSUME LOG-TRANSFORMED VARIABLES
                                ASYMPTOTIC                          WEIGHTED
 VARIABLE    ESTIMATED      STANDARD     T-RATIO    ELASTICITY      AGGREGATE
   NAME     COEFFICIENT       ERROR                 AT MEANS      ELASTICITY
 CHILDEDU      0.18005      0.18816      0.95688      0.61015E-01  0.54874E-01
 LYEAR        -0.52322      0.36352      -1.4393     -0.17731     -0.15946
 LINCOME       0.14575      0.26438      0.55129      0.49392E-01  0.44420E-01
 LASET         0.87486E-01  0.34638E-01   2.5257      0.29647E-01  0.26663E-01
 LHOUSE       -0.58716E-01  0.24671     -0.23800     -0.19898E-01 -0.17895E-01
 VISIT         0.80060E-01  0.20342      0.39358      0.27131E-01  0.24400E-01
 ROSCA         -1.1669      0.81809      -1.4264     -0.39543     -0.35563
 BASOC          1.6576      0.35985       4.6064      0.56173      0.50519
 CONSTANT      -1.0117      3.6691      -0.27573     -0.34283     -0.30832
 LOG-LIKELIHOOD FUNCTION =  -131.61
 LOG-LIKELIHOOD(0)  =   -151.42
 LIKELIHOOD RATIO TEST  =    39.6126    WITH     8  D.F.
 ESTRELLA R-SQUARE           0.16788
 MADDALA R-SQUARE            0.15759
 CRAGG-UHLER R-SQUARE        0.21574
 MCFADDEN R-SQUARE           0.13081
      ADJUSTED FOR DEGREES OF FREEDOM        0.99485E-01
      APPROXIMATELY F-DISTRIBUTED    0.16930      WITH    8  AND     9  D.F.
 CHOW R-SQUARE               0.16754
          PREDICTION SUCCESS TABLE
                        ACTUAL
                    0            1
           0     33.           20.
 PREDICTED 1     51.          127.

 NUMBER OF RIGHT PREDICTIONS =        160.
 PERCENTAGE OF RIGHT PREDICTIONS =    0.69264
 NAIVE MODEL PERCENTAGE OF RIGHT PREDICTIONS =    0.63636
 EXPECTED OBSERVATIONS AT 0  =         84.0   OBSERVED =     84.0
 EXPECTED OBSERVATIONS AT 1  =        147.0   OBSERVED =    147.0
 SUM OF SQUARED "RESIDUALS" =           44.499
 WEIGHTED SUM OF SQUARED "RESIDUALS" =     237.22

 HENSHER-JOHNSON PREDICTION SUCCESS TABLE
                                              OBSERVED    OBSERVED
                     PREDICTED  CHOICE         COUNT       SHARE
         ACTUAL           0          1
            0          39.350     44.650     84.000       0.364
            1          44.650    102.350    147.000       0.636

 PREDICTED COUNT        84.000    147.000    231.000       1.000
 PREDICTED SHARE         0.364      0.636      1.000
 PROP. SUCCESSFUL        0.468      0.696      0.613
 SUCCESS INDEX           0.105      0.060      0.076
 PROPORTIONAL ERROR      0.000      0.000
 NORMALIZED SUCCESS INDEX                      0.165
```

Heteroskedasticity Analysis:

```
 REQUIRED MEMORY IS PAR=     154 CURRENT PAR=    2000
 DEPENDENT VARIABLE = BCOOP          231 OBSERVATIONS
 REGRESSION COEFFICIENTS
   0.180050566336   -0.523216510957      0.145750922537
0.874864576546E-01
  -0.587164846658E-01  0.800598500576E-01  -1.16688660635
1.65761535529
   -1.01165538489
HETEROSKEDASTICITY TESTS
                             CHI-SQUARE     D.F.   P-VALUE
                           TEST STATISTIC
 E**2 ON YHAT:                    97.388     1    0.00000
 E**2 ON YHAT**2:                 67.681     1    0.00000
 E**2 ON LOG(YHAT**2):            47.920     1    0.00000
 E**2 ON LAG(E**2) ARCH TEST:      6.795     1    0.00914
 LOG(E**2) ON X (HARVEY) TEST:   127.036     8    0.00000
 ABS(E) ON X (GLEJSER) TEST:       0.000     8    0.00000
 E**2 ON X                TEST:
          KOENKER(R2):          148.780     8    0.00000
```

5.6 Logit Estimation of Borrowing from Moneylender (BLender)

```
LOGIT ANALYSIS     DEPENDENT VARIABLE =BLENDER  CHOICES =  2
      231. TOTAL OBSERVATIONS
      101. OBSERVATIONS AT ONE
      130. OBSERVATIONS AT ZERO
   25 MAXIMUM ITERATIONS
ELASTICITIES ASSUME LOG-TRANSFORMED VARIABLES
                                ASYMPTOTIC                          WEIGHTED
 VARIABLE    ESTIMATED      STANDARD     T-RATIO    ELASTICITY      AGGREGATE
   NAME     COEFFICIENT       ERROR                 AT MEANS      ELASTICITY
 CHILDEDU     -0.18764E-01  0.17444     -0.10757     -0.10644E-01 -0.99284E-02
 LYEAR         0.71293E-01  0.32859      0.21696      0.40442E-01  0.37723E-01
 LINCOME      -0.46838      0.24637     -1.9011      -0.26570     -0.24783
 LASET         0.25741E-01  0.31502E-01  0.81712      0.14602E-01  0.13620E-01
 LHOUSE       -0.19358E-01  0.22298     -0.86815E-01 -0.10981E-01 -0.10243E-01
 VISIT        -0.35961      0.19210     -1.8719      -0.20399     -0.19028
 ROSCA         0.82549      0.69392      1.1896       0.46827      0.43678
 BASOC        -0.48677      0.29974     -1.6240      -0.27613     -0.25756
 CONSTANT      6.4379       3.4354       1.8740       3.6520       3.4064

 LOG-LIKELIHOOD FUNCTION =  -151.16
 LOG-LIKELIHOOD(0)  =   -158.29
 LIKELIHOOD RATIO TEST  =    14.2721    WITH     8  D.F.
 ESTRELLA R-SQUARE           0.61263E-01
 MADDALA R-SQUARE            0.59914E-01
 CRAGG-UHLER R-SQUARE        0.80312E-01
 MCFADDEN R-SQUARE           0.45082E-01
      ADJUSTED FOR DEGREES OF FREEDOM        0.10670E-01
      APPROXIMATELY F-DISTRIBUTED    0.53111E-01  WITH    8  AND     9  D.F.
 CHOW R-SQUARE               0.60885E-01
          PREDICTION SUCCESS TABLE
                        ACTUAL
                    0            1
           0    102.           64.
 PREDICTED 1     28.           37.

 NUMBER OF RIGHT PREDICTIONS =        139.
 PERCENTAGE OF RIGHT PREDICTIONS =    0.60173
 NAIVE MODEL PERCENTAGE OF RIGHT PREDICTIONS =    0.56277
 EXPECTED OBSERVATIONS AT 0  =        130.0   OBSERVED =    130.0
 EXPECTED OBSERVATIONS AT 1  =        101.0   OBSERVED =    101.0
 SUM OF SQUARED "RESIDUALS" =           53.379
 WEIGHTED SUM OF SQUARED "RESIDUALS" =     231.97

 HENSHER-JOHNSON PREDICTION SUCCESS TABLE
```

```
                                                  OBSERVED    OBSERVED
                     PREDICTED  CHOICE             COUNT       SHARE
          ACTUAL           0          1
             0          76.590     53.410    130.000      0.563
             1          53.410     47.590    101.000      0.437

 PREDICTED COUNT       130.000    101.000    231.000      1.000
 PREDICTED SHARE         0.563      0.437      1.000
 PROP. SUCCESSFUL        0.589      0.471      0.538
 SUCCESS INDEX           0.026      0.034      0.030
 PROPORTIONAL ERROR      0.000      0.000
 NORMALIZED SUCCESS INDEX                      0.060
```

Heteroskedasticity Analysis:

```
 REQUIRED MEMORY IS PAR=     154 CURRENT PAR=    2000
 DEPENDENT VARIABLE = BLENDER        231 OBSERVATIONS
 REGRESSION COEFFICIENTS
  -0.187638157317E-01  0.712927777548E-01 -0.468381781769    0.257409025157E-01
  -0.193576796444E-01 -0.359605144536      0.825488425271     -0.486768975090
    6.43790856163
 HETEROSKEDASTICITY TESTS
                              CHI-SQUARE     D.F.   P-VALUE
                            TEST STATISTIC
 E**2 ON YHAT:                     44.601     1    0.00000
 E**2 ON YHAT**2:                  73.643     1    0.00000
 E**2 ON LOG(YHAT**2):             23.611     1    0.00000
 E**2 ON LAG(E**2) ARCH TEST:      18.652     1    0.00002
 LOG(E**2) ON X (HARVEY) TEST:     48.971     8    0.00000
 ABS(E) ON X (GLEJSER) TEST:        0.000     8    0.00000
 E**2 ON X                  TEST:
           KOENKER(R2):           131.451     8    0.00000
```

5.7 Logit Estimate of Credit Rationing (Ration)

```
LOGIT ANALYSIS     DEPENDENT VARIABLE =RATION   CHOICES =  2
      231. TOTAL OBSERVATIONS
      121. OBSERVATIONS AT ONE
      110. OBSERVATIONS AT ZERO
   25 MAXIMUM ITERATIONS
 ELASTICITIES ASSUME LOG-TRANSFORMED VARIABLES
                                ASYMPTOTIC                          WEIGHTED
 VARIABLE    ESTIMATED      STANDARD     T-RATIO    ELASTICITY      AGGREGATE
   NAME     COEFFICIENT       ERROR                  AT MEANS      ELASTICITY
 EDU          -0.12147      0.14569     -0.83375     -0.56393E-01 -0.45770E-01
 LINCOME      -0.24085      0.26762     -0.89997     -0.11181     -0.90752E-01
 LASET        -0.58071E-01  0.38522E-01  -1.5075     -0.26959E-01 -0.21881E-01
 LHOUSE       -0.75758      0.24926      -3.0394     -0.35171     -0.28546
 DISCUS       -0.88876      0.50122      -1.7732     -0.41261     -0.33488
 VISIT        -0.10111      0.20984     -0.48184     -0.46940E-01 -0.38098E-01
 ROSCA         0.58316      0.64903      0.89852      0.27073      0.21973
 BASOC        -1.2462       0.32586      -3.8244     -0.57857     -0.46958
 CONSTANT      9.7831       3.6061       2.7129       4.5418       3.6862

 LOG-LIKELIHOOD FUNCTION =  -133.44
 LOG-LIKELIHOOD(0)  =   -159.85
 LIKELIHOOD RATIO TEST  =    52.8229    WITH     8  D.F.
 ESTRELLA R-SQUARE           0.22115
 MADDALA R-SQUARE            0.20441
 CRAGG-UHLER R-SQUARE        0.27275
 MCFADDEN R-SQUARE           0.16522
      ADJUSTED FOR DEGREES OF FREEDOM        0.13514
    APPROXIMATELY F-DISTRIBUTED    0.22266      WITH      8  AND     9  D.F.
 CHOW R-SQUARE               0.20007
          PREDICTION SUCCESS TABLE
                       ACTUAL
                    0            1
           0     71.           38.
 PREDICTED 1     39.           83.
```

```
NUMBER OF RIGHT PREDICTIONS =        154.
PERCENTAGE OF RIGHT PREDICTIONS =    0.66667
NAIVE MODEL PERCENTAGE OF RIGHT PREDICTIONS =    0.52381

EXPECTED OBSERVATIONS AT 0  =        110.0   OBSERVED =    110.0
EXPECTED OBSERVATIONS AT 1  =        121.0   OBSERVED =    121.0
SUM OF SQUARED "RESIDUALS" =           46.091
WEIGHTED SUM OF SQUARED "RESIDUALS" =     221.39
HENSHER-JOHNSON PREDICTION SUCCESS TABLE
                                                OBSERVED    OBSERVED
                     PREDICTED  CHOICE            COUNT       SHARE
        ACTUAL            0          1
           0           64.158     45.842    110.000      0.476
           1           45.842     75.158    121.000      0.524

PREDICTED COUNT       110.000    121.000    231.000      1.000
PREDICTED SHARE         0.476      0.524      1.000
PROP. SUCCESSFUL        0.583      0.621      0.603
SUCCESS INDEX           0.107      0.097      0.102
PROPORTIONAL ERROR      0.000      0.000
NORMALIZED SUCCESS INDEX                       0.204
```

Heteroskedasticity Analysis:

```
REQUIRED MEMORY IS PAR=     154 CURRENT PAR=    2000
DEPENDENT VARIABLE = RATION         231 OBSERVATIONS
REGRESSION COEFFICIENTS
 -0.121471845655    -0.240850417729     -0.580708967872E-01 -0.757584556383
 -0.888760048299    -0.101109302244      0.583161078955      -1.24624051394
   9.78309087586

HETEROSKEDASTICITY TESTS
                              CHI-SQUARE     D.F.   P-VALUE
                           TEST STATISTIC
E**2 ON YHAT:                     24.428     1    0.00000
E**2 ON YHAT**2:                  58.012     1    0.00000
E**2 ON LOG(YHAT**2):             43.961     1    0.00000
E**2 ON LAG(E**2) ARCH TEST:       1.119     1    0.29021
LOG(E**2) ON X (HARVEY) TEST:     31.583     8    0.00011
ABS(E) ON X (GLEJSER) TEST:        0.000     8    0.00000
E**2 ON X                  TEST:
          KOENKER(R2):            80.561     8    0.00000
```

6. OLS Regression on the Impact of Social Capital on the Repayment Rate of MFIs

6.1 Regression Using Full Sample of MFIs (N=153)

```
OLS LRR10 LAVLON LINSTAL LPERIOD LINTRES LYEAR LABOR LSOC/NOCONSTANT coef=x het

REQUIRED MEMORY IS PAR=      58 CURRENT PAR=    2000
 OLS ESTIMATION
      153 OBSERVATIONS     DEPENDENT VARIABLE= LRR10

USING HETEROSKEDASTICITY-CONSISTENT COVARIANCE MATRIX
VARIANCE OF THE ESTIMATE-SIGMA**2 =  0.42555E-01
STANDARD ERROR OF THE ESTIMATE-SIGMA =  0.20629
SUM OF SQUARED ERRORS-SSE=   6.2131
MEAN OF DEPENDENT VARIABLE =   4.4634
LOG OF THE LIKELIHOOD FUNCTION =  27.9917
RAW MOMENT R-SQUARE =   0.9980
MODEL SELECTION TESTS - SEE JUDGE ET AL. (1985,P.242)
 AKAIKE (1969) FINAL PREDICTION ERROR - FPE =     0.44502E-01
    (FPE IS ALSO KNOWN AS AMEMIYA PREDICTION CRITERION - PC)
 AKAIKE (1973) INFORMATION CRITERION - LOG AIC =  -3.1123
 SCHWARZ (1978) CRITERION - LOG SC =              -2.9736
MODEL SELECTION TESTS - SEE RAMANATHAN (1998,P.165)
 CRAVEN-WAHBA (1979)
    GENERALIZED CROSS VALIDATION - GCV =          0.44596E-01
 HANNAN AND QUINN (1979) CRITERION =              0.47078E-01
```

```
 RICE (1984) CRITERION =                          0.44698E-01
 SHIBATA (1981) CRITERION =                       0.44324E-01
 SCHWARZ (1978) CRITERION - SC =                  0.51117E-01
 AKAIKE (1974) INFORMATION CRITERION - AIC =      0.44499E-01

                    ANALYSIS OF VARIANCE - FROM ZERO
                      SS         DF            MS               F
REGRESSION        3044.3          7.        434.90          10219.650
ERROR             6.2131        146.       0.42555E-01        P-VALUE
TOTAL             3050.5        153.        19.938             0.000

VARIABLE    ESTIMATED   STANDARD   T-RATIO          PARTIAL STANDARDIZED ELASTICITY
  NAME     COEFFICIENT    ERROR     146 DF    P-VALUE CORR.  COEFFICIENT  AT MEANS

LAVLON    0.48517E-01 0.24565E-01   1.9751     0.0501 0.1613  0.49075      0.14976
LINSTAL  -0.24735E-01 0.28417E-01 -0.87044     0.3855-0.0719 -0.23068     -0.64089E-01
LPERIOD   0.26214     0.54242E-01   4.8328     0.0000 0.3714  0.77012      0.69160E-01
LINTRES   0.22600     0.50452E-01   4.4795     0.0000 0.3476  0.61059      0.16494
LYEAR     0.68604E-01 0.21354E-01   3.2127     0.0016 0.2570  0.36853      0.40309E-01
LABOR     0.42715     0.61468E-01   6.9490     0.0000 0.4985  0.99974      0.77454E-01
LSOC      0.59037     0.61906E-01   9.5365     0.0000 0.6195  0.88843      0.56125

DURBIN-WATSON = 1.2216    VON NEUMANN RATIO = 1.2296    RHO =  0.38645
RESIDUAL SUM =  0.83300      RESIDUAL VARIANCE =  0.42555E-01
SUM OF ABSOLUTE ERRORS=   25.571
R-SQUARE BETWEEN OBSERVED AND PREDICTED = 0.0006
RUNS TEST:   55 RUNS,   78 POS,    0 ZERO,   75 NEG  NORMAL STATISTIC = -3.6467
COEFFICIENT OF SKEWNESS =  -0.4236 WITH STANDARD DEVIATION OF 0.1961
COEFFICIENT OF EXCESS KURTOSIS =  -0.3932 WITH STANDARD DEVIATION OF 0.3898

JARQUE-BERA NORMALITY TEST- CHI-SQUARE(2 DF)=    5.8506 P-VALUE= 0.054

     GOODNESS OF FIT TEST FOR NORMALITY OF RESIDUALS - 15 GROUPS
OBSERVED  1.0  1.0  3.0  8.0 13.0 11.0 25.0 22.0 12.0 34.0 14.0  8.0  1.0  0.0  0.0
EXPECTED  0.7  1.4  3.4  6.9 11.9 17.7 22.4 24.3 22.4 17.7 11.9  6.9  3.4  1.4  0.7
CHI-SQUARE =   27.8067 WITH  6 DEGREES OF FREEDOM, P-VALUE= 0.000
```

6.2 Regression Using Sample of Formal and Semiformal MFIs (N=97)

```
OLS LRR10 LAVLON LINSTAL LPERIOD LINTRES LYEAR LABOR LSOC / NOCONSTANT coef=x het

REQUIRED MEMORY IS PAR=      54 CURRENT PAR=    2000
 OLS ESTIMATION
       97 OBSERVATIONS     DEPENDENT VARIABLE= LRR10
...NOTE..SAMPLE RANGE SET TO:      1,     97

USING HETEROSKEDASTICITY-CONSISTENT COVARIANCE MATRIX

VARIANCE OF THE ESTIMATE-SIGMA**2 =  0.24347E-01
STANDARD ERROR OF THE ESTIMATE-SIGMA =  0.15603
SUM OF SQUARED ERRORS-SSE=   2.1912
MEAN OF DEPENDENT VARIABLE =   4.4264
LOG OF THE LIKELIHOOD FUNCTION =  46.1908
RAW MOMENT R-SQUARE =   0.9988

MODEL SELECTION TESTS - SEE JUDGE ET AL. (1985,P.242)
 AKAIKE (1969) FINAL PREDICTION ERROR - FPE =     0.26104E-01
    (FPE IS ALSO KNOWN AS AMEMIYA PREDICTION CRITERION - PC)
 AKAIKE (1973) INFORMATION CRITERION - LOG AIC =  -3.6459
 SCHWARZ (1978) CRITERION - LOG SC =              -3.4601
MODEL SELECTION TESTS - SEE RAMANATHAN (1998,P.165)
 CRAVEN-WAHBA (1979)
    GENERALIZED CROSS VALIDATION - GCV =          0.26240E-01
 HANNAN AND QUINN (1979) CRITERION =              0.28133E-01
 RICE (1984) CRITERION =                          0.26400E-01
 SHIBATA (1981) CRITERION =                       0.25850E-01
 SCHWARZ (1978) CRITERION - SC =                  0.31426E-01
 AKAIKE (1974) INFORMATION CRITERION - AIC =      0.26097E-01

                    ANALYSIS OF VARIANCE - FROM ZERO
                      SS         DF            MS               F
REGRESSION        1900.2          7.        271.46          11149.757
ERROR             2.1912         90.       0.24347E-01        P-VALUE
TOTAL             1902.4         97.        19.612             0.000
```

```
VARIABLE    ESTIMATED   STANDARD   T-RATIO          PARTIAL STANDARDIZED ELASTICITY
  NAME     COEFFICIENT    ERROR      90 DF    P-VALUE CORR.  COEFFICIENT  AT MEANS

LAVLON    0.41614E-01 0.20788E-01   2.0018     0.0483 0.2065  0.32028      0.13434
LINSTAL  -0.93137E-02 0.26754E-01 -0.34813     0.7286-0.0367 -0.69320E-01 -0.25179E-01
LPERIOD   0.18885     0.58941E-01   3.2040     0.0019 0.3200  0.47828      0.51396E-01
LINTRES   0.31815     0.63804E-01   4.9863     0.0000 0.4653  0.54717      0.23784
LYEAR    -0.41769E-02 0.24683E-01 -0.16922     0.8660-0.0178 -0.21142E-01 -0.23969E-02
LABOR     0.85683E-01 0.59033E-01   1.4514     0.1501 0.1512  0.20249      0.13804E-01
LSOC      0.59973     0.70343E-01   8.5259     0.0000 0.6684  0.55713      0.58979

DURBIN-WATSON = 1.8600    VON NEUMANN RATIO = 1.8794    RHO =  0.06761
RESIDUAL SUM =  0.17333      RESIDUAL VARIANCE =  0.24347E-01
SUM OF ABSOLUTE ERRORS=   11.407
R-SQUARE BETWEEN OBSERVED AND PREDICTED = 0.0883
RUNS TEST:   52 RUNS,   48 POS,    0 ZERO,   49 NEG  NORMAL STATISTIC =  0.5114
COEFFICIENT OF SKEWNESS =  -0.5715 WITH STANDARD DEVIATION OF 0.2450
COEFFICIENT OF EXCESS KURTOSIS =   0.9818 WITH STANDARD DEVIATION OF 0.4853

JARQUE-BERA NORMALITY TEST- CHI-SQUARE(2 DF)=    7.9922 P-VALUE= 0.018

     GOODNESS OF FIT TEST FOR NORMALITY OF RESIDUALS - 10 GROUPS
OBSERVED  3.0  1.0  3.0 17.0 25.0 20.0 18.0  8.0  2.0  0.0
EXPECTED  0.8  2.7  7.7 15.4 21.9 21.9 15.4  7.7  2.7  0.8
CHI-SQUARE =   12.1929 WITH  1 DEGREES OF FREEDOM, P-VALUE= 0.000
```

6.3 Regression Using Sample of Informal MFIs (N=56)

```
OLS LRR10 LAVLON LINSTAL LPERIOD LINTRES LYEAR LABOR LSOC / NOCONSTANT coef=x het

REQUIRED MEMORY IS PAR=      52 CURRENT PAR=    2000
 OLS ESTIMATION
       56 OBSERVATIONS     DEPENDENT VARIABLE= LRR10
...NOTE..SAMPLE RANGE SET TO:     98,    153

USING HETEROSKEDASTICITY-CONSISTENT COVARIANCE MATRIX

VARIANCE OF THE ESTIMATE-SIGMA**2 =  0.84415E-02
STANDARD ERROR OF THE ESTIMATE-SIGMA =  0.91878E-01
SUM OF SQUARED ERRORS-SSE=  0.41363
MEAN OF DEPENDENT VARIABLE =   4.5276
LOG OF THE LIKELIHOOD FUNCTION =  57.9670
RAW MOMENT R-SQUARE =   0.9996

MODEL SELECTION TESTS - SEE JUDGE ET AL. (1985,P.242)
 AKAIKE (1969) FINAL PREDICTION ERROR - FPE =     0.94967E-02
    (FPE IS ALSO KNOWN AS AMEMIYA PREDICTION CRITERION - PC)
 AKAIKE (1973) INFORMATION CRITERION - LOG AIC =  -4.6581
 SCHWARZ (1978) CRITERION - LOG SC =              -4.4050
MODEL SELECTION TESTS - SEE RAMANATHAN (1998,P.165)
 CRAVEN-WAHBA (1979)
    GENERALIZED CROSS VALIDATION - GCV =          0.96474E-02
 HANNAN AND QUINN (1979) CRITERION =              0.10462E-01
 RICE (1984) CRITERION =                          0.98484E-02
 SHIBATA (1981) CRITERION =                       0.92329E-02
 SCHWARZ (1978) CRITERION - SC =                  0.12217E-01
 AKAIKE (1974) INFORMATION CRITERION - AIC =      0.94842E-02

                    ANALYSIS OF VARIANCE - FROM ZERO
                      SS         DF            MS               F
REGRESSION        1147.7          7.        163.96           19422.802
ERROR            0.41363         49.       0.84415E-02         P-VALUE
TOTAL             1148.1         56.        20.502              0.000


VARIABLE    ESTIMATED   STANDARD   T-RATIO          PARTIAL STANDARDIZED ELASTICITY
  NAME     COEFFICIENT    ERROR      49 DF    P-VALUE CORR.  COEFFICIENT  AT MEANS

LAVLON    0.11976     0.27070E-01   4.4241     0.0001 0.5343   2.2852      0.34096
LINSTAL  -0.52406E-01 0.29703E-01  -1.7643     0.0839-0.2444 -0.97615     -0.12580
LPERIOD   0.78472E-01 0.56833E-01   1.3807     0.1736 0.1935  0.53852      0.19595E-01
LINTRES   0.21683E-01 0.40300E-01  0.53802     0.5930 0.0766  0.17068      0.15172E-01
LYEAR    -0.73021E-02 0.18207E-01 -0.40106     0.6901-0.0572 -0.76174E-01 -0.44602E-02
LABOR     0.69735     0.17699       3.9401     0.0003 0.4905  0.95344      0.15034
LSOC      0.67463     0.61059E-01   11.049     0.0000 0.8447   1.2883      0.60395
```

```
DURBIN-WATSON = 1.8445    VON NEUMANN RATIO = 1.8781    RHO =  0.07441
RESIDUAL SUM =  0.62635E-01  RESIDUAL VARIANCE =  0.84415E-02
SUM OF ABSOLUTE ERRORS=   3.9328
R-SQUARE BETWEEN OBSERVED AND PREDICTED = 0.0473
RUNS TEST:   28 RUNS,   26 POS,    0 ZERO,   30 NEG  NORMAL STATISTIC = -0.2324
COEFFICIENT OF SKEWNESS =  -0.0179 WITH STANDARD DEVIATION OF 0.3190
COEFFICIENT OF EXCESS KURTOSIS =  -0.5269 WITH STANDARD DEVIATION OF 0.6283

JARQUE-BERA NORMALITY TEST- CHI-SQUARE(2 DF)=    0.8068 P-VALUE= 0.668

     GOODNESS OF FIT TEST FOR NORMALITY OF RESIDUALS - 10 GROUPS
OBSERVED  0.0  1.0  4.0  8.0 17.0  9.0  9.0  8.0  0.0  0.0
EXPECTED  0.5  1.6  4.4  8.9 12.6 12.6  8.9  4.4  1.6  0.5
CHI-SQUARE =    8.2205 WITH  1 DEGREES OF FREEDOM, P-VALUE= 0.004
```

7. Microfinance Impact on the Welfare of Poor People

7.1 Logit Estimate of Microfinance Impact on Child Education (ChildEdu)

```
LOGIT ANALYSIS     DEPENDENT VARIABLE =CHILDEDU  CHOICES =  2
      231. TOTAL OBSERVATIONS
      138. OBSERVATIONS AT ONE
       93. OBSERVATIONS AT ZERO
   25 MAXIMUM ITERATIONS
 CONVERGENCE TOLERANCE =0.00100
                                ASYMPTOTIC                          WEIGHTED
 VARIABLE    ESTIMATED      STANDARD     T-RATIO    ELASTICITY      AGGREGATE
   NAME     COEFFICIENT       ERROR                 AT MEANS      ELASTICITY
 LED           0.34039      0.37877      0.89868      0.13121      0.99376E-01
 LYEAR          2.1543      0.39747       5.4201      0.83040      0.62894
 LINCOME       0.71275      0.26249       2.7153      0.27473      0.20808
 ROSCA          1.6938      0.70267       2.4105      0.65289      0.49450
 BFRIEND        1.4017      0.37528       3.7351      0.54030      0.40922
 BLENDER       0.18211      0.32166      0.56615      0.70195E-01  0.53165E-01
 FORMAL         1.0710      0.53188       2.0137      0.41283      0.31268
 CONSTANT      -19.769       4.1722      -4.7384      -7.6203      -5.7716

 LOG-LIKELIHOOD FUNCTION =  -120.74
 LOG-LIKELIHOOD(0)  =   -155.71
 LIKELIHOOD RATIO TEST  =    69.9347    WITH     7  D.F.
 ESTRELLA R-SQUARE           0.29028
 MADDALA R-SQUARE            0.26121
 CRAGG-UHLER R-SQUARE        0.35287
 MCFADDEN R-SQUARE           0.22457
      ADJUSTED FOR DEGREES OF FREEDOM        0.20023
      APPROXIMATELY F-DISTRIBUTED    0.33099     WITH     7  AND     8  D.F.
 CHOW R-SQUARE               0.26734
          PREDICTION SUCCESS TABLE
                        ACTUAL
                    0            1
           0     56.           25.
 PREDICTED 1     37.          113.

 NUMBER OF RIGHT PREDICTIONS =        169.
 PERCENTAGE OF RIGHT PREDICTIONS =    0.73160
 NAIVE MODEL PERCENTAGE OF RIGHT PREDICTIONS =    0.59740

 EXPECTED OBSERVATIONS AT 0  =         93.0   OBSERVED =     93.0
 EXPECTED OBSERVATIONS AT 1  =        138.0   OBSERVED =    138.0
 SUM OF SQUARED "RESIDUALS" =           40.706
 WEIGHTED SUM OF SQUARED "RESIDUALS" =     219.58

 HENSHER-JOHNSON PREDICTION SUCCESS TABLE
                                                OBSERVED    OBSERVED
                     PREDICTED  CHOICE           COUNT       SHARE
         ACTUAL           0          1
            0          52.503     40.497     93.000      0.403
            1          40.497     97.503    138.000      0.597

 PREDICTED COUNT        93.000    138.000    231.000      1.000
 PREDICTED SHARE         0.403      0.597      1.000
```

```
PROP. SUCCESSFUL        0.565      0.707      0.649
SUCCESS INDEX           0.162      0.109      0.130
PROPORTIONAL ERROR      0.000      0.000
NORMALIZED SUCCESS INDEX                      0.271
```

Heteroskedasticity Analysis:

```
REQUIRED MEMORY IS PAR=     152 CURRENT PAR=    2000
DEPENDENT VARIABLE = CHILDEDU        231 OBSERVATIONS
REGRESSION COEFFICIENTS
  0.340393747986      2.15432597079      0.712747117560       1.69381684082
   1.40170572908     0.182108626837       1.07102025837      -19.7694927762

HETEROSKEDASTICITY TESTS
                            CHI-SQUARE     D.F.   P-VALUE
                          TEST STATISTIC
E**2 ON YHAT:                    2.648      1    0.10370
E**2 ON YHAT**2:               159.022      1    0.00000
E**2 ON LOG(YHAT**2):           55.964      1    0.00000
E**2 ON LAG(E**2) ARCH TEST:     0.392      1    0.53137
LOG(E**2) ON X (HARVEY) TEST:   12.403      7    0.08807
ABS(E) ON X (GLEJSER) TEST:      0.000      7    0.00000
E**2 ON X                TEST:
          KOENKER(R2):           9.278      7    0.23328
```

7.2 Logit Estimate of Microfinance Impact on the Probability of Facing Household Financial Problem (Problem)

```
LOGIT ANALYSIS     DEPENDENT VARIABLE =Problem   CHOICES =  2
      231. TOTAL OBSERVATIONS
      152. OBSERVATIONS AT ONE
       79. OBSERVATIONS AT ZERO
   25 MAXIMUM ITERATIONS
 CONVERGENCE TOLERANCE =0.00100
ELASTICITIES ASSUME LOG-TRANSFORMED VARIABLES
                                ASYMPTOTIC                          WEIGHTED
 VARIABLE    ESTIMATED      STANDARD     T-RATIO    ELASTICITY      AGGREGATE
   NAME     COEFFICIENT       ERROR                 AT MEANS      ELASTICITY
 CHILDUM      -0.21587      0.37039     -0.58283     -0.60836E-01 -0.53079E-01
 LINCOME       -1.6122      0.31319      -5.1478     -0.45435     -0.39641
 DUMMY        -0.56750      0.35044      -1.6194     -0.15993     -0.13954
 BASOC        -0.79924      0.36768      -2.1737     -0.22524     -0.19652
 ROSCA        -0.15333      0.69081     -0.22196     -0.43211E-01 -0.37701E-01
 BNEGHBOR      0.55001      0.36993       1.4868      0.15500      0.13524
 BLENDER       0.78480      0.34422       2.2799      0.22117      0.19297
 BBANK        -0.90164      0.44026      -2.0480     -0.25410     -0.22170
 CONSTANT       24.340       4.5852       5.3084       6.8595       5.9848

 LOG-LIKELIHOOD FUNCTION =  -113.02
 LOG-LIKELIHOOD(0)  =   -148.38
 LIKELIHOOD RATIO TEST  =    70.7184    WITH     8  D.F.
 ESTRELLA R-SQUARE           0.29510
 MADDALA R-SQUARE            0.26372
 CRAGG-UHLER R-SQUARE        0.36462
 MCFADDEN R-SQUARE           0.23830
      ADJUSTED FOR DEGREES OF FREEDOM        0.21085
      APPROXIMATELY F-DISTRIBUTED    0.35196      WITH    8  AND    9  D.F.
 CHOW R-SQUARE               0.28997
         PREDICTION SUCCESS TABLE
                        ACTUAL
                   0            1

           0     43.           17.
 PREDICTED 1     36.          135.

 NUMBER OF RIGHT PREDICTIONS =        178.
 PERCENTAGE OF RIGHT PREDICTIONS =    0.77056
 NAIVE MODEL PERCENTAGE OF RIGHT PREDICTIONS =    0.65801
 EXPECTED OBSERVATIONS AT 0  =         79.0   OBSERVED =     79.0
 EXPECTED OBSERVATIONS AT 1  =        152.0   OBSERVED =    152.0
```

```
SUM OF SQUARED "RESIDUALS" =           36.909
WEIGHTED SUM OF SQUARED "RESIDUALS" =     233.12

HENSHER-JOHNSON PREDICTION SUCCESS TABLE
                                                OBSERVED    OBSERVED
                     PREDICTED  CHOICE            COUNT       SHARE
        ACTUAL           0          1
           0          41.859     37.141     79.000      0.342
           1          37.141    114.859    152.000      0.658
PREDICTED COUNT       79.000    152.000    231.000      1.000
PREDICTED SHARE        0.342      0.658      1.000
PROP. SUCCESSFUL       0.530      0.756      0.678
SUCCESS INDEX          0.188      0.098      0.128
PROPORTIONAL ERROR     0.000      0.000
NORMALIZED SUCCESS INDEX                     0.286
```

Heteroskedasticity Analysis:

```
REQUIRED MEMORY IS PAR=     154 CURRENT PAR=    2000
DEPENDENT VARIABLE = Problem         231 OBSERVATIONS
REGRESSION COEFFICIENTS
 -0.215872792851     -1.61221824425     -0.567503447465     -0.799238841191
 -0.153332221606     0.550012366520      0.784803496745     -0.901637914913
   24.3401880163
HETEROSKEDASTICITY TESTS
                            CHI-SQUARE     D.F.   P-VALUE
                          TEST STATISTIC
E**2 ON YHAT:                   104.381     1    0.00000
E**2 ON YHAT**2:                183.179     1    0.00000
E**2 ON LOG(YHAT**2):            72.180     1    0.00000
E**2 ON LAG(E**2) ARCH TEST:     11.125     1    0.00085
LOG(E**2) ON X (HARVEY) TEST:    54.605     8    0.00000
ABS(E) ON X (GLEJSER) TEST:       0.000     8    0.00000
E**2 ON X                 TEST:
          KOENKER(R2):          120.430     8    0.00000
```

7.3 Logit Estimate of Microfinance Impact on the Degree of Self-Confidence in Dealing with Others (Confident)

```
LOGIT ANALYSIS     DEPENDENT VARIABLE =CONFIDENT CHOICES =  2
     231. TOTAL OBSERVATIONS
     103. OBSERVATIONS AT ONE
     128. OBSERVATIONS AT ZERO
  25 MAXIMUM ITERATIONS
CONVERGENCE TOLERANCE =0.00100
LOG OF LIKELIHOOD WITH CONSTANT TERM ONLY =    -158.76
BINOMIAL  ESTIMATE = 0.4459
ITERATION  0      LOG OF LIKELIHOOD FUNCTION =   -158.76
                              ASYMPTOTIC                          WEIGHTED
VARIABLE    ESTIMATED      STANDARD     T-RATIO    ELASTICITY      AGGREGATE
  NAME     COEFFICIENT       ERROR                 AT MEANS      ELASTICITY
EDU           0.18488      0.15270       1.2107      0.10854      0.71609E-01
LASET        0.69310E-01  0.43014E-01   1.6113      0.40689E-01  0.26846E-01
LINCOME       1.2342      0.31052       3.9745      0.72454      0.47804
DUMMY         0.95350      0.33263       2.8665      0.55977      0.36933
BASOC          1.6011      0.37378       4.2835      0.93997      0.62017
BNEGHBOR     -0.26486      0.37078     -0.71432     -0.15549     -0.10259
BLENDER       0.11878      0.32707      0.36317      0.69732E-01  0.46007E-01
BBANK          1.0054      0.40839       2.4618      0.59021      0.38941
CONSTANT      -20.771       4.3310      -4.7959      -12.194      -8.0455

LOG-LIKELIHOOD FUNCTION =  -119.14
LOG-LIKELIHOOD(0)  =   -158.76
LIKELIHOOD RATIO TEST  =    79.2497    WITH     8  D.F.
ESTRELLA R-SQUARE           0.32610
MADDALA R-SQUARE            0.29041
CRAGG-UHLER R-SQUARE        0.38875
MCFADDEN R-SQUARE           0.24959
```

```
     ADJUSTED FOR DEGREES OF FREEDOM        0.22255
    APPROXIMATELY F-DISTRIBUTED    0.37417      WITH     8  AND     9  D.F.
CHOW R-SQUARE               0.30437

         PREDICTION SUCCESS TABLE
                      ACTUAL
                 0            1
          0    105.          29.
PREDICTED 1     23.          74.

NUMBER OF RIGHT PREDICTIONS =        179.
PERCENTAGE OF RIGHT PREDICTIONS =    0.77489
NAIVE MODEL PERCENTAGE OF RIGHT PREDICTIONS =    0.55411
EXPECTED OBSERVATIONS AT 0  =        128.0   OBSERVED =    128.0
EXPECTED OBSERVATIONS AT 1  =        103.0   OBSERVED =    103.0
SUM OF SQUARED "RESIDUALS" =           39.702
WEIGHTED SUM OF SQUARED "RESIDUALS" =     229.37

HENSHER-JOHNSON PREDICTION SUCCESS TABLE
                                          OBSERVED    OBSERVED
                   PREDICTED  CHOICE        COUNT       SHARE
        ACTUAL           0          1
           0          88.201     39.799    128.000      0.554
           1          39.799     63.201    103.000      0.446

PREDICTED COUNT       128.000    103.000    231.000      1.000
PREDICTED SHARE         0.554      0.446      1.000
PROP. SUCCESSFUL        0.689      0.614      0.655
SUCCESS INDEX           0.135      0.168      0.150
PROPORTIONAL ERROR      0.000      0.000
NORMALIZED SUCCESS INDEX                       0.303
```

Heteroskedasticity Analysis:

```
REQUIRED MEMORY IS PAR=     154 CURRENT PAR=    2000
DEPENDENT VARIABLE = CONFIDENT       231 OBSERVATIONS
REGRESSION COEFFICIENTS
  0.184876168137     0.693095387622E-01   1.23417245976      0.953503012692
   1.60112112524    -0.264856227615      0.118779208391       1.00535886694
  -20.7713775680
HETEROSKEDASTICITY TESTS
                           CHI-SQUARE     D.F.   P-VALUE
                         TEST STATISTIC
E**2 ON YHAT:                   37.713     1    0.00000
E**2 ON YHAT**2:               194.183     1    0.00000
E**2 ON LOG(YHAT**2):           74.127     1    0.00000
E**2 ON LAG(E**2) ARCH TEST:     7.172     1    0.00741
LOG(E**2) ON X (HARVEY) TEST:   28.558     8    0.00038
ABS(E) ON X (GLEJSER) TEST:      0.000     8    0.00000
E**2 ON X                TEST:
         KOENKER(R2):           67.693     8    0.00000
```

LIST OF PUBLICATIONS

Refereed Journal:

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LIST OF ABBREVIATIONS

AVB : *Algemeene Volkscredietbank* was the village bank under the Dutch colony in 1929. This village bank was formed and managed by Indonesian officials of the Dutch Colony in Java. Following the independence of Indonesia, the AVB banks were nationalised and transformed into the BRI-unit system in 1968 under BRI.

BAAC : Bank for Agriculture and Agricultural Cooperatives ia a state-owned agricultural bank of Thailand set up in 1966 to support agricultural production in Thailand.

BancoSol : Banco Solidario, a commercial microbank in Bolivia. BancoSol is a transformation of PPODEM (a microfinance NGO) into commercial microbank in 1992 in Bolivia. BancoSol is recognised as leading commercial microbank in South America focusing on the poor.

BCA : Bank Central Asia, one of the large private banks in Indonesia

BIMAS : *Bimbingan Masal (Mass Guidance),* the government subsidised credit programs to support rice production in the period of 1970 to 1983. This program was channelled to poor farmers through the BRI-units.

BKD : *Badan Kredit Desa* or village-owned credit institutions.

BKK : *Badan Kredit Kecamatan* or subdistrict-credit institutions in the Central Java Province.

BKKBN : *Badan Koordinasi Keluarga Berencana Nasional* or the National Family Planning Coordination Board. This government institution is managed under the ministry of Social Welfare of Indonesia.

BMT : *Baitul Maalwat Tamwil* or Islamic-based cooperative.

BNI : *Bank Negara Indonesia*, the state-owned bank.

BPR : *Bank Perkreditan Rakyat* or People's Credit Bank refers to commercial microbanks that have criteria specified for secondary banks in the 1992 Indonesian banking law.

BPS : *Badan Pusat Statistics* or the Central Board of Statistics of Indonesia

BRAC : Bangladesh Rural Advancement Committee is the largest microfinance NGO in Bangladesh.

BRI : *Bank Rakyat Indonesia* is state-owned commercial bank.

BRI-unit : The village level of the BRI's microbanking system. BRI-units are located in the sub-district level of government to serve the villages of their sub-districts.

CAMEL : Capital adequacy ratio, Asset quality, Management, Earnings, and Liquidity. CAMEL is the standard rating measurement of the banking practices.

CGAP : Consultative Group to Assist the Poorest is the global foundation to promote microfinance business practices across developing countries. CGAP gains funding sources from multilateral countries (particularly developed nations such as USA and Canada) and the World Bank.

DANAMON : *Bank Danamon* is a private bank in Indonesia.

FINCA : Foundation for International Community Assistance, a global NGO focusing on the development of microfinance for poor people across developing countries. The major microfinance innovation of FINCA is the village bank model in Latin America.

GTZ : German Technical Cooperation providing technical assistances to developing countries. One of the major project in Indonesia is the establishment of ProFi in collaboration with Bank Indonesia and the Ministry of Finance of Indonesia.

IDT : *Instruksi Presiden untuk Desa Tertinggal* or the presidential instruction for backward villages and national programs for poverty alleviation in rural areas. The project was introduced in 1995 under the Suhart regime. Some projects utilise subsidised microcredit to poor farmers.

KUD : *Koperasi Unit Desa (KUD)*, the local-government-sponsored cooperatives at the village level of government.

KSP : *Kelompok Simpan Pinjam* or lending and savings groups of poor people. This is the variance of ROSCA through which the collected funds from the group are given as loans to the group members.

KUK : *Kredit Usaha Kecil*, microcredit scheme for off-farm enterprises of poor people.

KUPEDES : *Kredit Umum Pedesaan* or general rural credit. This lending services was designed by BRI-units to provide small loans to support working capital of small and medium scale enterprises.

KUT : *Kredit Usaha Tani* or a microcredit program of the national government of Indonesia to support agricultural production of poor farmers. This program was introduced in the 1985 under the central bank supervision. Subsidised credits were mostly channelled through the BRI-units.

LDKP : *Lembaga Dana Kredit Pedesaan*, the local government-owned credit institution developed across province in Indonesia. It has a variety of official names. In the West Java

Province it is called LKP (*Lembaga Kredit Pedesaan)*, in the Central Java is BKK (Badan Kredit Kecamatan), in the East Java is *Kredit Usaha Rakyat Kecil (KURK)*, in West Sumatera is *Lumbung Putih Nagari* (LPN).

MFIs : Microfinance Institutions.

MLEs : Medium and Large scale Enterprises.

MSEs : Micro and Small scale Enterprises.

NABARD : National Bank for Agricultural Development in India

NGO : Non-governmental Organisation.

PD : *Perusahan Daerah*, local government-owned enterprise.

P4K : *Proyek Peningkatan Pendapatan Petani dan Nelayan Kecil* or The rural income generation project for small farmers and fishermen. The P4K project was managed by the Ministry of Agriculture and the National Family Planning Coordination Board of Indonesia. This project extends subsidised microcredit schemes to rural farmers.

PERBARINDO: *Persatuan BPR se-Indonesia* or microbank associations. The association is promoted by the central bank to expand business networks among microbanks and provide technical assistance to microbanks. The lowest level of the PERBARINDO association is formed within the district governments across Indonesia.

PHBK : *Program Hubungan Bank dan Kelompok Swadaya Masyarakat* or the national program to promote the link between microbanks and self-help groups of poor people. This program was introduced in 1989 with funding support from the Central Bank and GTZ. PHBK program has been implemented across Bali, Java, North Sumatera, South Sulawesi and Lombok Island.

PRODEM : Promotion and Development of Microenterprises is a microfinance NGO established in 1986 in Bolivia. It is a joint venture between Bolivian business leaders and ACCION international, a U.S-based NGO. The NGO PRODEM focus mainly on providing microfinance services to the poor through utilising group lending method.

ProFi : Promotion of Microfinance Institutions, a non-profit organisation sponsored by the GTZ, Bank Indonesia and the Ministry of Finance of Indonesia. ProFi' aim is to provide technical assistance to MFIs in areas, such as business skills, policy recommendation to national and local government in dealing with the microfinance development strategy.

RDRS : Ragnapur Dinajpur Rural Services, a local NGO in India focusing on microfinance services to poor people.

ROSCAs : Rotating Savings and Credit Associations.

Rp : rupiah, the Indonesian currency.

SIMPEDES : *Simpanan Pedesaan* or a rural savings product of BRI-units was introduced in 1986, aiming to tap small savings from rural areas.

SIMASKOT : *Simpanan Masyarakat Perkotaan*, or savings products of BRI for urban and semi-urban people. This product was introduced in 1989.

TAMADES : *Tabungan Masyarakat Desa* is the rural savings product of BKK in the Central Java Province. This savingss service was introduced in 1987 to follow the success of SIMPEDES of BRI-unit.

UPPKS : *Usaha Peningkatan Pendapatan Keluarga Pra-sejahtera* or the national project for improvement in incomes of pre-welfare family. The project was introduced in 1996 and has managed within the national family planning program with microfinance component.

USP : *Unit Usaha Simpan-Pinjam Koperasi* or savingss and lending units within multipurpose cooperatives. Under the Ministerial Decree No. 351 in 1998, the unit should be separated from other business units of cooperatives. Similarly, the official name of cooperatives that only undertake financial services is known as *Koperasi Simpan-pinjam (KSP)* or Savingss-credit cooperatives.

VBARD : Vietnam Bank for Agricultural Development

YDBP : *Yayasan Dharma Bhakti Parasahabat*, a microfinance NGO set up in 1999 to deliver microfinance services through group lending method.

YMK : *Yayasan Mitra Karya* is a local NGO utilising the Grameen Bank model to serve poor people in the East Java Province in 1993. The NGO gains financial supports from the Grameen Bank Foundation.

YMU : *Yayasan Mitra Usaha* is a local NGO focusing on the development of the Grameen Bank replication in the rural areas of the West Java Province, established in 1998.